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The Journal

OF THE

American Medical Association

EDITED FOR THE ASSOCIATION UNDER THE DIRECTION OF THE BOARD OF TRUSTEES BY

GEORGE H. SIMMONS, M.D., LL.D.

VOLUME 76 : : . : " : JANUARY—JUNE, 1921

AMERICAN MEDICAL ASSOCIATION, CHICAGO, 1921

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The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 1 Chicago, Illinois January 1, 1921

SOME INFLUENCES OF FRENCH SCIENCE ON MEDICINE

THE PASTEUR LECTURE

GRAHAM LUSK
NEW YORK

In a beautiful apartment in the Latin Quarter of Paris there lives today an elderly gentleman, the grand-nephew of Lavoisier, Monsieur de Chazelles. On one wall of a salon in the apartment hangs a large painting by David of Lavoisier and his wife, both represented life size. Lavoisier, seated at his desk, has just stopped writing to turn his face toward his wife, and she stands with her arm on his shoulder. Chemical apparatus are on the table and lie on the floor.

On another wall a fine portrait represents an ancestor as he appeared at the court of Louis XIV. And in the same room one finds a portrait of Benjamin Franklin which the latter sent to Lavoisier with a letter to the effect that it was one of two painted by a Frenchman then in America, and that he considered them the best portraits ever made of him.

In the adjoining study of M. de Chazelles hang two drawings by Madame Lavoisier which were executed after the death of Lavoisier and retouched by David, who was Madame Lavoisier's master. These drawings represent her recollection of the first respiration experiments ever made on man. And in the desk in the same room are letters and papers of Franklin which have never been published, and which from his day to the present have been in the possession of the descendants of Lavoisier. There is a letter which contains drawings of a kite suggested to Franklin by a sailor, and a description of how he would improve it; there is an account, illustrated with drawings, of a small boat which could be propelled by forcing water from the stern by means of a piston; and there is a discussion of a suggestion that sugar was stained red with human blood; but Franklin arrives at the conclusion that when one contemplates the wars waged for the possession of the West Indies and the loss of negro slave life associated with the culture of the sugar cane, all the sugar consumed in Europe is to be considered as soaked crimson with blood.

I owe the privilege of seeing these things to my friend, Professor Jean le Goff of Paris, to whom I also owe the possession of the most important French classics on metabolism, including the sumptuous "Oeuvres de Lavoisier" published by the French government during the reign of Napoleon III. For all these treasures I am deeply grateful to him.

Lavoisier and Franklin were intimate friends, living near each other in Paris, and Franklin dined frequently with the great French chemist and his wife. In a letter written to Franklin on Feb. 5, 1790, during the early days of the French Revolution, Lavoisier says:

> After having recited what has transpired in chemistry, it is well to speak of our political revolution. We regard it as accomplished, well accomplished and beyond recall. There still exists, however, an aristocratic party which is making vain efforts but is evidently feeble. . . . We greatly regret at this moment your absence from France. You could be our guide and mark the limits beyond which we ought not to pass.

The family of Antoine Laurent Lavoisier traced its ancestry back seven generations to Antoine Lavoisier who was a post-boy in the stables of the king, and who died in 1620. Successive generations raised the position of the family name to ever higher levels, until it was said of the great Lavoisier that it would require perhaps a hundred years for the appearance of his equal. Native intelligence, a fine education and great wealth, combined with the environment of the searchingly critical atmosphere of the Paris of his day, allowed of the vivid inspiration which filled his life.

CHEMICAL PHYSIOLOGY BEFORE LAVOISIER

Perhaps it may be fruitful to inquire into the state of chemical physiology preceding the time of Lavoisier. Robert Boyle, in 1660, showed that the flame of a candle or the life of an animal was extinguished after placing them in an air pump. A contemporary of Boyle, John Mayow of London, believed that air contained "nitro-aerial particles" which supported combustion and animal life. He also showed that such particles added to the weight of antimony when that metal is burned by the sun's rays, and that the nitro-aerial particles contained in saltpeter, which are able to burn sulphur, are the same particles as those found in air. This was the first discovery of oxygen, but it was entirely forgotten; and later, when Lavoisier asked Magellan to seek for a copy of Mayow's publication, it was not to be found in any of the libraries of London.[1]

The German chemist Stahl, who in 1716 moved to Berlin as physician to the king of Prussia, was the originator of the phlogiston theory of combustion, which enthralled the minds of men for nearly a hundred years. According to this theory, all combustible substances contained phlogiston, which passes from them when they are burned. What we now know as oxids of iron or lead were those metals which, through burning, had lost their phlogiston. Such substances, if calcined with carbon, a material supposed to be rich in phlogiston, absorbed phlogiston and became metals

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[1] Grimaux: Lavoisier, 1896, p. 107.

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once more. This simple theory availed to explain all the phenomena of combustion, and it was generally accepted by the scientific world.

The great physiologist, Albrecht von Haller, who died in 1777, writing his "Elementa Physiologica"[2] in the middle of the eighteenth century, has this rather hazy conception of the process of respiration:

> The secondary uses of respiration are very numerous. It exhales copiously and removes from the blood something highly noxious; for by remaining in the air it will cause suffocation; and the breath of many people crowded in a close and small place impregnates the air with a suffocating quality. On the other hand, it absorbs from the air a thin vapor of which the use is not sufficiently known.

Benjamin Franklin in "Poor Richard," 1746, thus poetically popularizes the ideas of his time:

> "Like cats in air pumps to subsist we strive,
> On joys too thin to keep the soul alive."

It must be remembered that in those days many chemists still based their ideas on the assumption of the four elements of Empedocles, air, fire, earth and water: ideas which were to be overthrown when air was shown to be a mixture of gases, and water a chemical compound of gases.

One of Lavoisier's close friends was Joseph Black, professor of chemistry at Edinburgh. Black, in 1754, had found that magnesia alba, when heated, lost half its weight, and that it gave off a gas when treated with acids. The gas eliminated he called "fixed air." He also found the same "fixed air" produced in fermentation, in the combustion of carbon and in expired air. Black in these experiments discovered carbon dioxid.

Nitrogen was the next gas to be revealed. In 1772, Rutherford, a friend and colleague of Black, found that when a candle was burned in an enclosed vessel until it went out and the "fixed air" was then absorbed by alkali, there remained a large volume of air which extinguished life and flame in an instant. This irrespirable gas was subsequently called nitrogen.

A year before this Priestley, in 1771, introduced a growing sprig of mint into an atmosphere in which a candle had burned out, and after a lapse of several days found that another candle burned in it perfectly. Evidently the burning candle filled the space with phlogiston; the growing plant absorbed the phlogiston and produced "dephlogisticated air." This could again receive phlogiston when the second candle burned.

Shortly after this discovery (1774), Priestley submitted red mercuric oxid to the heat of a burning glass and found that an air was evolved in which a candle burned very vigorously. Priestley assumed that this air was pure dephlogisticated air, while common air was only partly dephlogisticated.

Priestley explained the presence of Black's "fixed air" in the expired air thus: "It will follow that in the precipitation of lime by breathing into lime water, the fixed air which incorporates with lime comes not from the lungs, but from the common air, decomposed by the phlogiston exhaled from them." And Priestley, who was one of the discovers of oxygen, was gathered to his fathers at Northumberland, Pa., in 1804, still believing the phlogiston theory of combustion.

Independent of Priestley and before him, Scheele, a Swedish apothecary and eminent chemist, discovered oxygen by decomposing manganese dioxid and other substances. Scheele believed that the atmosphere was composed of "spoiled air" and "fire air." When a body burned in air it lost its phlogiston, which united with "fire air." Heat consisted of "fire air" united with phlogiston. It passed through glass. In this way a portion of air could pass through glass.[3]

In 1771, Scheele[4] found that when silver carbonate was heated in a retort, "fixed air" was liberated, as well as "fire air," while a residue of metallic silver remained. In 1775, he placed silver carbonate in a small retort connected with a collapsed bladder and then heated the substance. Two airs were evolved: "fixed air," which he removed with lime water, and "fire air," in which a flame burned brightly. In the interim between these two experiments he wrote Lavoisier in Paris a letter[5] dated Sept. 30, 1774, asking him to use his powerful burning glass on silver carbonate, then to absorb the "fixed air" in lime water and to observe whether a candle would burn and an animal live in the remaining air, and he begged Lavoisier to inform him of the results.

Scheele[6] performed another striking experiment. He placed two large bees, together with a little honey, in a small upper chamber of a glass apparatus which he had devised. This upper chamber was in communication with a glass cylinder. He filled the glass cylinder with "fire air" and immersed its lower end in lime water. The volume of air within the receptacle diminished day by day, and the lime water which absorbed the carbon dioxid rose in the tube. After eight days the bees were both dead, and the lime water almost completely filled the space.

It is evident that Scheele had introduced bees into pure or nearly pure oxygen gas, and that the carbon dioxid which they produced had been completely absorbed by the lime water.

Scheele made no direct comment on this truly beautiful experiment, but in the general criticism of several experiments one may read the following hazy generalization:

> Why do not the blood and lungs change "fire air" into "acid air"? I take the liberty to express my opinion concerning this, for what would such exacting experiments profit unless through them I had the hope to more nearly approach my ultimate aim, the truth. Phlogiston, which combines with most substances, causing them to become more fluid, more mobile and more elastic, must have the same influence upon the blood. The blood corpuscles must absorb it from the air through delicate openings in the lungs. Through this combination they are expanded and in consequence become more fluid. In some part of the circulation they must give off this absorbed phlogiston and consequently be able to again absorb this fine principle when they next reach the lungs. Whither the phlogiston goes during the circulation I will leave to others to find out. The affinity of blood for phlogiston cannot be as great as in the instance of plants and insects which take it from the air, and also the blood cannot convert it into "acid air," but it is changed into a kind of air which is midway between "fire air" and "acid air"—it is "spoiled air." For it does not unite with lime water or water as does "fire air," though it extinguishes fire as does "acid air."

Scheele's "spoiled air" was nitrogen. The poor, struggling apothecary, who had made so many careful and accurate experiments and who was one of the greatest chemists of his time, was unable to interpret his results without adherence to the dominant fetish of phlogiston.

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[2] First Lines of Physiology, Trans. of Third Latin edition by William Cullen, Edinburgh, 1801, p. 131.

[3] Scheele: Briefe, p. 79, a letter of November, 1775.

[4] Scheele: Physische und chemische Werke, Berlin **1**:90, 1793; Briefe, pp. 80, 407 and 466.

[5] Scheele: Briefe, p. 406.

[6] Scheele: Ueber Luft und Feuer, 1777; see Physiche und chemische Werke, Berlin, 1793, p. 209.

We have here the picture of two earnest men, Priestley and Scheele, both absorbingly interested in chemistry, both contributing important knowledge and ranking among the greatest scientists of their day, and yet neither had the philosophical acumen to understand the meaning of their experiments. Priestley was a Dissenting clergyman earning his living by preaching, but in his old age his house was burned by loyalists, and he shortly afterward fled to America. Scheele, though honored by scientific men the world over, remained a poor apothecary to the end of his days. In the current parlance of today, these two great contributors to human knowledge would undoubtedly have been known outside their own circles as "narrow minded scientists."

This, however, could never have been said of Lavoisier, who repeated and extended their experiments, overthrew the phlogiston theory, and established modern chemistry.

EARLY WORK OF LAVOISIER

Lavoisier was elected a member of the Académie des sciences in 1768, at the age of 24. About the same time, desirous of promoting his personal fortune, he became associated with la ferme générale, through whose activities taxes were collected in France. Some of his fellow academicians looked askance at this undertaking, but the mathematician Fontaine is reported to have remarked, "Never mind, he will be able to give us better dinners." [7]

In the ferme générale the young man was the subordinate of one Paulze, a nephew of the then all powerful Terray, minister of state and controller of finance. At the age of 28 Lavoisier married the 14 year old daughter of Paulze. His own position and his marriage brought him great wealth but in no way diminished his tireless activity. He congratulated himself that his patronage of the instrument makers of Paris had rendered France independent of Great Britain in the manufacture of scientific instruments.

Lavoisier's first paper before the Académie was "On the Nature of Water and on Those Experiments which Pretend to Prove Its Transformation into Earth." In this experiment he hermetically sealed rain water in a flask and heated it for 101 days. Mineral matter appeared in the flask but the whole did not change in weight, and the mineral material that appeared was shown to be derived from the disintegration of the flask itself, which lost in weight. Lavoisier used an extremely sensitive (très-exacte) balance, made by the official who was charged with the weighing of gold.

Here we witness the overthrow of a dogma more than 2,000 years old, accomplished by the introduction of the quantitative method into chemistry. One may recall the words of Lavoisier written in his "Elements of Chemistry." [8]

> As the usefulness and accuracy of chemistry depend entirely upon the determination of the weights of the ingredients and products both before and after experiments, too much precision cannot be employed in this part of the subject, and for this purpose we must be provided with good instruments. . . . I have three sets (of balances) of different sizes made by M. Fontin with the utmost nicety; and excepting those made by Mr. Ramsden of London I do not think that any compare with them in precision and sensibility.

Lavoisier had a balance which could weigh 600 gm. within 5 mg., and another which was sensitive to within a tenth of a milligram, which were quite up to modern standards of accuracy. One may visit the Conservatoire des arts et métiers in Paris and see there a notable collection of Lavoisier's apparatus. One sees a gasometer for the accurate measurement of gases; there is the celebrated ice calorimeter of Lavoisier and La Place; there also are barometers of finest workmanship, set in mahogany supports decorated with gilded filigree work, reminding one of the choicest furniture. These treasures were placed in the cellar of the Conservatoire during the bombardment of Paris by the Germans in the late war.

Concerning the gasometers, Lavoisier [9] wrote:

> It becomes expensive because in many experiments, such as the formation of water and of nitric acid, it is absolutely necessary to employ two of the same machines. In the present advanced state of chemistry very expensive and complicated instruments are become indispensably necessary for ascertaining the analysis and synthesis of bodies with the requisite precision as to quantity and proportion.

It is strange that Lavoisier's insistence on the use of accurate, quantitative measurements, through the application of which nearly a hundred and fifty years ago he brought about the "Chemical Revolution," should appear as new truth when enunciated by some of our ultramodern scientists.

In the heart of France near Puy-du-Dom, at Château de la Carrière, now owned by Monsieur de Chazelles, there is a veritable museum of scientific apparatus which formerly belonged to Lavoisier.[10] There are several thermometers of great accuracy and a fine balance, and there are three large glass globes, one capable of holding 15 liters of air, another 12 liters and a third 7 liters; also many other treasures of great historical value. Lavoisier made his experiments before the days when rubber and cork reduced laboratory expenses. His glass tubes and receptacles were united with finely polished brass joints.

We may imagine this accomplished Frenchman at work in his laboratory, or in his library, or receiving information from visitors to the fashionable and brilliant capital of France. It is related [11] that Priestley dined with Lavoisier in Paris in October, 1774, and informed him concerning the production of "pure dephlogisticated air" from mercuric oxid, and we may also recall that Scheele, on September 30 of the same year, wrote to Lavoisier asking him to expose silver carbonate to the heat rays of a large burning glass and produce "fixed air" and "fire air" from them.

Ten days after his conversation with Priestley, and again during the month of the following March, Lavoisier went to Montigny to visit his friend Trudaine, who was the owner of an immense burning glass 42 inches in diameter which had cost 15,000 livres (about $3,000), and here repeated Priestley's experiments. In the paper read before the Académie des sciences at Easter, 1775,[12] Lavoisier stated that he took the red mercury calx and heated it with carbon and obtained "fixed air," and when he heated the same without carbon a gas was evolved in which a flame burned with the splendor of phosphorus in air, and that this gas was the "air eminently respirable." The loss in weight of the mercury calx was equal to the weight of the "air eminently respirable" given off. He concluded that "fixed air" was the result of the union of carbon with "air eminently respirable."

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[7] Grimaux: Lavosier, 1896, p. 32.

[8] Lavoisier: Elements of Chemistry, trans. by Robert Kerr, Philadelphia, 1799, p. 375.

[9] Elements of Chemistry, Philadelphia, 1799, p. 397.

[10] Truchot: Ann. de chim. et de phys. **18**: 289, 1879.

[11] Thorpe: Essays in Historical Chemistry, 1902, p. 160.

[12] Oeuvres de Lavoisier, Paris **2**: 122, 1862.

In a subsequent paper[13] he reported that it was this "air eminently respirable" which was absorbed by phosphorus and sulphur when they burn with the production of phosphoric and sulphuric acids.

Having determined these facts, Lavoisier proceeded to determine the effect of a sparrow on the content of air in a confined space. In a brief memoir,[14] published in 1777, he enunciated the principle that during respiration it was only "air eminently respirable" (oxygen) which disappeared from the atmosphere when an animal was put into a confined space, and that this air was supplanted by expired "aeriform calcic acid" (carbon dioxid); that when metals were calcined in air, oxygen was absorbed until its supply was exhausted; that if after an animal had perished in a confined space, the carbon dioxid in the atmosphere was absorbed by alkali, the "foul air" remaining was the same kind of air as that found after metals had been calcined in air in an enclosed space. All the former qualities of this air could be restored by adding to it "air eminently respirable."

Three years later, Lavoisier and La Place[15] made another step in advance. They noticed that a guinea-pig produced 224 grains of carbon dioxid in ten hours, and that what would now be called the respiratory quotient was 0.84. Then they put a guinea-pig in their recently constructed ice calorimeter and found that the heat given off by the animal melted 13 ounces of ice in a period of ten hours. Next they calculated that if carbon was oxidized so that 224 grains of carbon dioxid were produced, 10.4 ounces of ice would have been melted. They realized that, in the case of the guinea-pig, allowances would have to be made: (1) because the legs of the animal became chilled during the experiment; (2) because the water of respiration was added to that of the melted ice, and (3) because the influence of cold increased the heat production of the animal. But they nevertheless stated that:

> Since we have found in the preceding experiments that the two qualities of heat obtained are nearly the same, we can conclude directly and without hypothesis that the conservation of animal heat in the animal body is due at least in greater part to the transformation of "air pur" (oxygen) into "air fixé" (carbonic acid) during the process of respiration.

Here be it noted that Lavoisier refers to the conservation of animal heat more than fifty years before the general law of the conservation of energy was enunciated. He also observed that two sparrows produced about the same quantity of carbon dioxid in the unit of time as did a guinea-pig.

About a year after these experiments (1781), Cavendish in England found that when two volumes of "inflammable air" (or hydrogen) and one volume of Priestley's "dephlogisticated air" were united by an electric spark, the airs disappeared and water resulted. Cavendish concluded that dephlogisticated air was water deprived of its phlogiston.

It is said that Lavoisier, hearing of these experiments from Blagden, secretary of the Royal Society of London, repeated them.[16] But the important point is that Lavoisier was the first really to understand the phenomenon. In a memoir presented to the Académie des sciences in 1783,[17] he stated that water is merely a combination of "inflammable air" and oxygen, and that any heat or light produced by their union is imponderable.

In the same year, Lavoisier completely demolished the phlogiston hypothesis, and concluded his memoir "Reflections Upon Phlogiston" with these words:[18]

> My object in preparing this memoir has been to record the new developments of the theory of combustion which I published in 1777, to show that the phlogiston of Stahl, which he gratuitously supposed existed in metals, sulphur, phosphorus and all combustible substances, is an imaginary creation. All the phenomena of combustion and calcination are much more readily explained without phlogiston than with phlogiston. I understand that my ideas will not be suddenly adopted. The human mind conforms to a certain manner of vision, and those who during a portion of their lives comprehend nature from a given point of view have difficulty in acquiring new ideas. In good time the opinions I have set forth will be confirmed or destroyed. In the interim, it is a great satisfaction for me to see that young, unprejudiced minds among those who are commencing to study science, such as mathematicians and physicists, who have a new sense of chemical truths, no longer believe in phlogiston as presented by Stahl, but regard the whole doctrine as scaffolding which is more embarrassing than it is useful for the continuance of the structure of the science of chemistry.

ATTITUDE OF OTHER SCIENTISTS

And the wonder of it all is that the great chemists of his time outside his own country persisted in their narrow point of view. Priestley and Cavendish refused to be converted. Scheele,[19] in 1783, wrote:

> Is it impossible to convince Lavoisier that his system will not find universal acceptance? The idea of nitric acid from nitrous air and pure air, of carbonic acid from carbon and pure air, of sulphuric acid from sulphur and pure air, of lactic acid from sugar and pure air!! Can one believe such things? Rather will I support the English.

Only Black, professor of chemistry at Edinburgh and the discoverer of "fixed air," saw the truth. Lavoisier wrote to Black on Nov. 13, 1790, a letter[20] composed six months after the reading of his last memoir to the Académie des sciences. He concluded the letter with the truest French courtesy:

> It is only right that you should be the first to be informed of progress in a field which you opened and in which we all regard ourselves as your disciples. We do the same kind of experiments, and I have the honor to communicate to you the results of our recent discoveries. I have the honor to remain, with respectful attachment, etc.

And to this Black replied in 1791:

> The numerous experiments which you have made on a large scale and which you have so well devised have been perused with so much care and with such scrupulous attention to details that nothing can be more satisfactory than the proofs you have obtained. The system which you have based on the facts is so intimately connected with them, is so simple and so intelligible, that it must become more and more generally approved and adopted by a great number of chemists who have long been accustomed to the old system. . . . Having for thirty years believed and taught the doctrine of phlogiston as it was understood before the discovery of your system, I for a long time felt inimical to the new system which represented as absurd that which I had hitherto regarded as sound doctrine; but this enmity which springs only from force of habit has gradually diminished, subdued by the clearness of your proofs and the soundness of your plan.

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[13] Oeuvres de Lavoisier, Paris **2**: 139, 1862.

[14] Lavoisier: La respiration des animaux, Mém. d. l'Acad. d. sc., 1777, p. 185; Oeuvres de Lavoisier, Paris **2**: 174, 1862.

[15] Lavoisier and La Place: Mém. de l'Acad. d. sc., 1780, p. 355; Oeuvres de Lavoisier, Paris **2**: 283, 1862.

[16] Thorpe: Essays in Historical Chemistry, 1890, p. 170.

[17] Oeuvres de Lavoisier, Paris **2**: 334, 1862.

[18] Oeuvres de Lavoisier, Paris **2**: 623, 1862.

[19] Scheele: Briefe, p. 364.

[20] Richet: Rév. scient. **39**: 193, 1887.

In reading of the overthrow of the old doctrine of the fire principle phlogiston, one must feel a throb of the impending horror of the French Revolution when one considers the statements of Marat, written in 1791. Marat at one time had declared that a flame, when placed in a confined vessel, went out because the heat of the flame suddenly expanded the air, causing such a pressure on the flame that it was extinguished. Lavoisier refuted this doctrine. Marat, "l'ami du peuple," under the title "Modern Charlatans," published the following:

> Lavoisier, the putative father of all the discoveries that are noised about, having no ideas of his own, snatches at those of others; but having no ability to appreciate them, he quickly abandons them and changes his theories as he does his shoes.[21]

Certainly words of unqualified, contemporaneous disapproval!

Lavoisier's new system of salts and oxids led him to forecast the discovery of sodium and potassium, for in his "Elements of Chemistry"[22] he wrote: "It is quite possible that all the substances we call earths may be only metallic oxids irreducible by any hitherto known process." A eulogist of Lavoisier has likened this to the vision of Copernicus before Galileo's invention of the telescope.

LAVOISIER'S LATER WORK

Lavoisier had now progressed so that he was able to lay the fundamental basis of modern chemical physiology. Thus, in 1785, he stated that the discrepancy between the quantity of expired carbonic acid and inspired oxygen, which he had observed in 1780, was accounted for by the fact that a part of the absorbed oxygen was utilized to oxidize hydrogen in the lungs. This oxidation would produce additional heat and account for the discrepancy between the heat directly measured from a guinea-pig and the heat calculated as being derivable from the oxidation of carbon by oxygen. It is interesting to recall that eighty years later, in 1860, Bischoff and Voit[23] still calculated the heat value of the metabolism from the heat which would be produced in burning the carbon and hydrogen elements of the metabolism.

Respiration experiments on a human being constituted the final contribution in the culmination of this great career. This work is presented by Seguin and Lavoisier[24] in the Mémoires of the Académie des sciences during the year 1789. In this paper the authors remark:

> This analogy between combustion and respiration did not escape the attention of the poets and philosophers of antiquity, of which they were the interpreters and spokesmen. Fire taken from the heavens, this flame of Prometheus, not only represents an idea that is ingenious and poetical, but it is a true picture of the operations of Nature on behalf of animals who respire; one can say with the ancients that the fire is lighted the moment a baby takes its first respiration, and is not extinguished until its death.

Before giving the details of the experiments on man, the authors state that a guinea-pig respired in pure oxygen and in a mixture of oxygen and hydrogen gas just as it did in ordinary air; respiration, circulation and the intensity of combustion were uninfluenced. Nitrogen had nothing to do with respiration.

In the experiments on man Seguin himself was the subject. The results are given in the accompanying table.

Here are the basic facts regarding metabolism. The basal metabolism was increased 10 per cent. after exposure to cold; 50 per cent. after taking food; 200 per cent. by exercise, and 300 per cent. on combining the influences of food and exercise. We now know more details and we may also calculate that Lavoisier's determination of 24 liters of oxygen absorbed per hour in this first historic experiment on the basal metabolism was 25 per cent. too high. As for the experimental plan, it is as modern as the work of today, and yet it was executed 140 years ago by the first man who really understood the significance of oxygen. It is only in the last decade that the summation of the individual stimuli caused by food and muscular work and noted by Lavoisier has been verified. Lavoisier also observed a constant relation between the quantity of oxygen consumed and the rate of the pulse multiplied by the number of respirations.[25]

RESULTS OF EXPERIMENTS ON MAN

Condition	Environmental Temperature, Degrees	Oxygen Absorbed per Hour
1. Without food	26	1,210 pouces de France
2. Without food	12	1,344
3. With food		1,800-1,900
4. Work (9,195 foot pounds) without food		3,200
5. Work (9,750 foot pounds) with food		4,600

How Lavoisier achieved these remarkable results is not known, for the times in which he lived became too troubled to allow further work in pure science. We find, however, the following statement in the original memoir:

> It would have been impossible to accomplish these exact experiments upon respiration before the introduction of a simple, easy and rapid method of gas analysis. This service M. Seguin has rendered to chemistry.

If one turns to the report of Seguin,[26] one finds that he states that in his work with Lavoisier he used eudiometers from 8 to 10 inches high and an inch in diameter in order to determine the "vital air" or oxygen in the respired air. The tube was first filled with mercury and inverted over mercury, a little of the gas to be analyzed was introduced, and then a bit of phosphorus which was later ignited by bringing a burning ember in the vicinity of the glass. The rest of the air to be analyzed was gradually admitted, and when the tube cooled, the volume of the air remaining could be measured. The loss in volume represented the quantity of oxygen absorbed. Carbon dioxid could then be absorbed by potash. Seguin stated that the older method, as originally introduced by Priestley, had twenty sources of error, but that his method merited attention on account of the very great exactitude with which he could determine the gases which are contained in respired air.

He furthermore truly stated that:

> If we enter into a room containing a large number of people we immediately smell a strong, suffocating odor; but if we use eudiometers to analyze this foul air and compare it with ordinary atmospheric air we find hardly any difference in the proportions of gases which are contained in them.

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[21] Grimaux: Lavoisier, 1896, p. 207.

[22] Lavoisier: Elements of Chemistry, Philadelphia, 1799, p. 218.

[23] Bischoff and Voit: Die Gesetze der Ernährung des Fleischfressers, Leipzig, 1860, p. 43.

[24] Oeuvres de Lavoisier: Paris **2**: 688, 1862.

[25] Letter to Black: Rev. scient. **39**: 193, 1887.

[26] Seguin: Ann. de chem. **9**: 293, 1791.

After Lavoisier's death, Madame Lavoisier drew from memory the apparatus used by her husband. There are two pictures, quite dissimilar. Good reproductions are to be found in Grimaux's "Lavoisier." In both pictures Seguin sits naked in a chair, breathing through a mask into a series of globes or bell jars. In both pictures Madame Lavoisier is shown seated at a table, taking notes of the experiment. In both pictures the pulse is being counted. In one experiment a weight is placed on Seguin's instep. The arrangement of the apparatus is quite different in the two pictures. In the experiment showing Seguin at work it seems as though valves were indicated through which inspired air was received from the atmosphere while the expired air was driven through a tube into a bell jar under water. Nysten,[27] working in Paris, in 1811, described the method by which he caused tuberculous and other patients to respire through valves into a previously collapsed bag for half a minute, and then analyzed the expired air by a method similar to that of Seguin.

These are the known historical facts about the apparatus used in the first respiration experiments on man; but the exact details of the method by which results were established and which still are the basis of metabolism studies are unknown.

In contemplating his results, Lavoisier said:

> This kind of observation suggests a comparison of forces concerning which no other report exists. One can learn, for example, how many pounds of weight-lifting correspond to the effort of one who reads aloud or of a musician who plays a musical instrument. One might even value in mechanistic terms the work of a philosopher who thinks, the man of letters who writes, the musician who composes. These factors, which have been considered purely moral, have something of the physical and material which this report allows us to compare with the activities of a man who labors with his hands. It is not without justice that the French language has united under the common expression *work* the effort of the mind with that of the body, the work at the desk with the work at the shop. . . .
>
> Thus far we have considered respiration only as a consumption of air, the same kind for the rich as the poor, for air belongs equally to all and costs nothing. The laborer who works enjoys indeed in great measure this gift of Nature. But now that experiment has taught us that respiration is a true process of combustion which every instant consumes a portion of an individual, that this combustion is greater when the circulation and respiration are accelerated and is augmented in proportion to the activity of the individual life, a host of moral considerations suggest themselves from these determinations of physical science.
>
> What fatality ordains that a poor man, who works with his arms and who is forced to employ for his subsistence all the power given him by Nature, consumes more of himself than does an idler, while the latter has less need of repair? Why the shocking contrast of a rich man enjoying in abundance that which is not physically necessary for him and which is apparently destined for the laboring man? Let us take care, however, not to calumniate Nature and accuse her of faults undoubtedly a part of our social institutions and perhaps inseparable from them. Let us be content to bless the philosophy and humanity which unite to promote wise institutions which tend to bring about equality of fortune, to increase the price of labor, to assure to it just recompense, to offer to all classes of society and especially to the poor more pleasures and greater happiness. Let us trust, however, that the enthusiasm and exaggeration which so readily seize men united in large assemblies, that the human passions which sway the multitude, often against their own interest, and sweep the sage and the philosopher like other men into their whirlpool, do not reverse an outlook with such beautiful vistas and do not destroy the hope of the country. . . .
>
> We end this memoir with a consoling reflection. To merit well of humanity and to pay tribute to one's country it is not necessary to take part in brilliant public functions that have to do with the organization and regeneration of empires. The naturalist may also perform patriotic functions in the silence of his laboratory and at his desk; he can hope through his labors to diminish the mass of ills which afflict the human race or to increase its happiness and pleasure; and should he by some new methods which he has opened up prolong the average life of men by years or even by days, he can also aspire to the glorious title of benefactor of humanity.

These are words written by the greatest scientist of his day under the spell of the French Revolution. They are words of an educated, cultivated man of middle age, spoken in the Académie des sciences in the year of the fall of the Bastile and at a time when Edmund Burke from the other side of the Channel said: "In the groves of their Academy at the end of every vista you see nothing but the gallows."

And in 1790, a year later, Lavoisier [28] concluded his last scientific communication to the Académie with these words:

> Up to the present time we have learned only to conjecture as to the cause of a great number of diseases and as to the means of their cure. Before hazarding a theory we propose to multiply our observations, to investigate the phenomena of digestion and to analyze the blood both in health and disease. We will draw upon medical records and the light and experience of learned physicians who are our contemporaries, and it will be only when we are thus completely armed that we will dare to attack a revered and antique colossus of prejudice and of error.

No person of understanding can escape a thrill at this vision of modern medicine expressed by him who had overthrown phlogiston, discovered the composition of the air and its relation to combustion and to life, and who had created calorimetry and revolutionized the whole of chemical thought.

True to his enthusiasm, we find him drawing up the conditions for an international prize of 5,000 livres offered by the Académie des sciences in 1792 to the author of the best experimental treatise on the liver and the bile.[29]

OTHER ACTIVITIES OF LAVOISIER AND HIS DEATH

Lavoisier's life outside his laboratory had been that of a public official, a tax gatherer, and he had also been associated with the national manufacture of gunpowder, the quality of which he had greatly improved. He purchased a large landed estate and made experiments in scientific agriculture, doubling the wheat crop, quintupling the number of beasts on the land, and earning thereby the enduring gratitude of the peasants.

However, as stated before, he had incurred the bitter hatred of Marat, and he was a tax gatherer. In November, 1793, he was arrested in his laboratory at the Arsenal, on which he had spent a large portion of his fortune. A little while before, in August of the same year, the Académie des sciences had been closed as inimicable to the welfare of the state. This institution had been established in 1666 by Louis XIV who, after the peace of the Pyrenees, in the fulness of his power, felt that his kingdom needed nothing further than to be fortified by science, industry and art, and he intrusted his minister Colbert to carry out his desires.[30] But le amis du peuple are notoriously suspicious of the "intelligentzia," and the Académie was abolished.

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[27] Nysten: Arch. f. d. Physiol., Berlin 3: 286, 1817.

[28] Oeuvres de Lavoisier, Paris 2: 704, 1862.

[29] Oeuvres de Lavoisier, Paris 6: 33, 1862.

[30] Oeuvres de Lavoisier, Paris 4: 557, 1862.

Just prior to his execution, Lavoisier wrote to a friend:

> I have had a sufficiently long career, always a very happy one, and I believe that my memory will be thought of with some regret and perhaps as having something of glory. What more could I desire? The circumstances which surround me would probably lead to an uncomfortable old age. . . . It is certainly true that all the social virtues, important services to the country, a useful career employed in promoting art and human knowledge, have not sufficed to save me from a sinister end or to prevent me from perishing as a criminal.

One of the charges against Lavoisier was that he had allowed the collection of taxes on the water contained in tobacco. On May 8, 1794, at the age of 50 years, he was tried and found guilty. Twenty-eight fermiers-généraux were executed in the Place de la Republique at the same time. He witnessed the execution of his father-in-law, Paulze, who was fourth on the list, and he was the fifth upon whom the ax of the guillotine fell.

Such was the Terror.

His friend Lagrange whispered that night to an intimate, "It took but an instant to cut off his head; a hundred years will not suffice to produce one like it!"

Writing a hundred years later, Berthelot[31] exclaimed:

> It is our right to admire the positive work which he accomplished. The universal judgment of the civilized world increasingly reveres his establishment of chemistry, one of the fundamental sciences, upon a fixed and definite basis. There is no grander accomplishment in the history of civilization, and hence the name of Lavoisier will live forever in the memory of humanity.

It is interesting to consider the differences in the lives of the men concerned in the great discoveries of the last quarter of the eighteenth century. Priestley, an indigent clergyman; Cavendish, of whom it was said that he was the most wealthy of learned men and the most learned of the wealthy; Scheele, a poor Swedish apothecary; and Lavoisier, a man of affairs, a noble of high social position in receipt of huge personal revenues. What is it, then, that makes for greatness in science? Would Lavoisier have accomplished more had he been on a "full-time" basis with a restricted income? It is a question of individual opinion, but to most people it would appear that scientific greatness depends primarily on the quality of the intellectual protoplasm of the brain, on the advantages offered to the functioning of that brain, and on the possession of a good conscience. These factors and not a coerced limitation of income are the driving forces toward the revelation of scientific truth.

FRENCH SCIENCE SINCE THE TIME OF LAVOISIER

Let us pass from the Paris in which Lavoisier was executed to the Paris which Liebig visited about a quarter of a century later. In the interim, Napoleon had come and gone. Berthollet, an associate of Lavoisier, had taught Napoleon chemistry. Berthollet and Monge, the mathematician, had organized a company of 100 scientists to accompany Napoleon to Egypt. Pasteur,[32] in looking into certain records, found that after Waterloo Napoleon, conversing with Monge at the Elysée, said: "Condemned now no longer to command armies, I see only Science with which to occupy my mind and my soul."

In the year 1823, Berzelius lived in Sweden, Davy in England, Volta in Italy; but in Paris lived La Place, Berthollet, Gay Lussac, Thénard, Cuvier, Ampère and Magendie. Thorpe,[33] today president of the British Association for the Advancement of Science, writes:

> That constellation has set—
> The world in vain
> Must hope to look upon their like again.

Into this circle both Liebig and Dumas were introduced by Alexander von Humboldt. Liebig, dedicating a French edition of one of his books to Thénard, a former master, thus expresses his appreciation:

> To Monsieur le Baron Thénard,
> Member of the Académie des sciences:
>
> Monsieur:
>
> In 1823, when you presided over the Académie des sciences, a young foreign student came to you and begged you to advise him concerning the fulminates which he was then investigating.
>
> Attracted to Paris by the immense reputation of those celebrated masters whose glorious researches established the foundations of the sciences and elevated them into an admirable edifice, he had no other introduction to you except his love of study and his fixed desire to profit from your teachings.
>
> You bestowed on him a most encouraging and flattering welcome, you directed his first researches, and through your influence he had the honor to communicate them to the Académie.
>
> It was the session of the 28th of July which decided his future and opened a career in which for seventeen years he has labored to justify your benevolent patronage.
>
> If his labors have been useful, it is to you that science is indebted for them, and he feels obliged to express publicly to you his ineffaceable sentiments of gratitude, esteem and veneration.[34] Justus Liebig.
>
> Giessen, 1 January, 1841.

This was also the day of the French clinician Pierre Charles Alexander Louis, whose American pupils included Oliver Wendell Holmes, Gerhard, the Shattucks and the Jacksons.

In the following years the brilliant Dumas, single-handed in France, was continually entering the lists against his more methodical contemporaries, Liebig, Wöhler and Berzelius.

At the time Liebig and Dumas began their scientific careers in Paris, Claude Bernard was a youth of 10 and Pasteur had been born the year before. Later, when Bernard was at the height of his intellectual power, some one asked Dumas, "What do you think of this great physiologist?" To which Dumas replied, "He is not a great physiologist. He is Physiology itself."

Pasteur was a pupil of Dumas, and when the Académie des sciences in 1822 decided to confer a special medal on Pasteur, Dumas headed a chosen delegation and in his address to Pasteur said:

> My dear Pasteur, your life has known only success. The scientific method which you use in such a masterly manner owes you its greatest triumphs. The Ecole Normale is proud of your work. France ranks you amongst her glories.

And in reply Pasteur said:

> My dear Master, it is indeed forty years since I first had the happiness of knowing you and since you first taught me to love science.
>
> I was fresh from the country; after each of your classes I would leave the Sorbonne transported, often moved to tears. From that moment your talent as a professor, your immortal labors and your noble character have inspired me with an admiration which has grown with the maturity of my mind.

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[31] Berthelot: La révolution chimique, Paris, 1890, p. 207.

[32] Vallery-Radot: The Life of Pasteur **1**: 257, 1902.

[33] Thorpe: Essays in Historical Chemistry, 1902, p. 328.

[34] Dedication to French edition of "Chimie organique appliques á la physiologie végétale et a l'agriculture," Paris, Fortin, Masson & Cie, 1841.

In this fashion one can trace history from generation to generation, the influence of the individual master on the fruitful soil of a younger mind. The wonder working changes wrought by Pasteur have been thus expressed by Osler:

> At the middle of the last century we did not know much more of the actual causes of the great scourges of the race, the plagues, the fevers and the pestilences, than did the Greeks. Here comes in Pasteur's great work. Before him Egyptian darkness; with his advent a light that brightens more and more as the years give us ever fuller knowledge.

Hear this cry of Pasteur[35] which followed the defeat of France in 1870 concerning "the forgetfulness, disdain even, that France had had for great intellectual men, especially in the realm of exact science." He says:

> Whilst Germany was multiplying her universities, establishing between them the most salutary emulation, bestowing honors and consideration on the masters and the doctors, creating vast laboratories amply supplied with the most perfect instruments, France, enervated by revolutions, ever vainly seeking the best form of government, was giving but careless attention to her establishments for higher education.
>
> The cultivation of science in its highest expression is perhaps even more necessary to the moral condition of a nation than to its material prosperity.

Last summer in Paris, the illustrious president of the Physiological Congress of 1920, Charles Richet, in his opening address said: "Seek to understand things; their utility will appear later. First of all it is knowledge which matters." And he illustrated this by citing the investigations of Claude Bernard on the glycogenic function of the liver, and the investigations of Portier and himself on the subject of anaphylaxis which they carried on with poisons of sea anemones injected into birds while they were sailing through tropical waters on the yacht of Prince Albert of Monaco.

It is well for us to learn lessons from the great masters of the past. Carl Voit, in 1890, said to me: "Die Franzosen sind ungeheur begabt, aber die jetztige traurige politische Verhältnisse drücken sie nieder" (The French are greatly gifted, but the present sad political conditions depress them). If we can only learn what the conditions are for the production of scientific men and provide such conditions, the world will gain hugely. A well-known British scientist said to me during the war:

> The Greeks had no classical education, but they had the two essentials of true education: first, the ability to express themselves correctly in words, and second, to appreciate their own relation to their surroundings, which latter is science.

It is in this sense that Lavoisier and Pasteur brought understanding into the minds of men, and this makes it a rare honor and a privilege to speak of them in the first Pasteur Lecture.

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[35] Vallery-Radot: Life of Pasteur **1**: 256, 1902.

To Lighten the Burdens of Illegitimacy.—A bill to be presented before the House of Commons by the national council for the unmarried mother and her child has this as its chief provisions: Where paternity is admitted, the father's name as well as the mother's must be registered; when paternity is admitted prior to birth, the father must contribute toward the expenses of the birth; payments for the maintenance of the child must be made to a collecting officer, not to the mother; the state will provide for the child until the age of 16 if the mother is unable to do it; the mother is not to be liable for the support of the child if she has not the means, and the child is to be a ward of the children's court of the area in which it lives.

INVOLVEMENT OF NERVOUS SYSTEM DURING PRIMARY STAGE OF SYPHILIS

CONTINUED STUDY *

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In 1912, Wechselmann[1] published a report of a series of cases calling attention to the involvement of the nervous system in what he termed the "preroseolar period" of syphilis. He reported at this time six cases of primary syphilis in which there were positive findings in the cerebrospinal fluid. In three of these, subjective symptoms referable to the nervous system were present. Wechselmann believes that in the primary period, or what he terms the "preroseolar period," the lymph spaces of the nervous system become the site of syphilitic infection and may cause deviations from the normal in the spinal fluid.

Writing from this clinic, Wile and Stokes,[2] in 1915, recorded the incidence of cerebrospinal syphilis in six cases of primary syphilis, corroborating the results of Wechselmann. Not only were the patients carefully studied from the standpoint of the spinal fluid, but with the assistance of competent specialists, they were all given routine neurologic, ophthalmic and otologic examinations. In one of their cases a cell count as high as 200 was recorded. Organic solids were increased in three out of four cases; the Wassermann test, however, was positive in only a single case in this series.

Since the publication of that paper we have had the opportunity of studying 221 cases of syphilis in which only the primary sore was present. The early period at which these cases were studied is indicated by the fact that of this number, 106 were still negative in the blood at the time of the examination. The results recorded below refer only to subjective and to biologic findings in the spinal fluid. Owing to the diminution of personnel incident to the war, these patients were not all subjected to careful special examinations, as were the original six.

From the standpoint of the lumbar puncture findings, the cases are of great interest as substantiating our early results. In many of the 221 cases studied, punctures were made at repeated intervals, and their course from mild involvement to complete restoration of the fluid on the one hand, and from mild involvement to definite involvement of the nervous system with the onset of symptoms on the other, could be noted. When, however, the findings were such as to warrant our belief that the nervous system was definitely involved by the spirochete, the patients were subjected not only to intensive intravenous medication, but also to intraspinal treatment. In virtually all cases in which a striking involvement was found at the first puncture and in which intensive treatment could be carried out on the lines indicated, marked improvement in spinal fluid findings was noted following the treatment.

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* Studies and Contributions from the Department of Dermatology and Syphilology of the University of Michigan, service of Dr. U. J. Wile.

[1] Wechselmann, W.: Deutsch. med. Wchnschr. **38**: 1446, 1912.

[2] Wile, U. J., and Stokes, J. H.: Involvement of the Nervous System During the Primary Stage of Syphilis, J. A. M. A. **64**: 979 (March 20) 1915.

Of the total number of cases studied (221), a deviation from arbitrary normal criteria (eight cells, negative Wassermann test, etc.) was found in sixty. Of this number, eleven cases showed merely an increase of one or two cells above the arbitrary normal of eight, and it may be justly contended that on such basis involvement cannot be said to be definite. In the remaining forty-nine cases, definite involvement of the nervous system could be properly assumed on pleocytosis, increased solids, and positive Wassermann test, although not all of these findings were present in each case. Increased albumin and globulin, virtually parallel, were found in twenty-five cases, pleocytosis in twelve, and positive Wassermann test in eight cases.

The colloidal gold test, together with the mastic test, was unfortunately not carried out in many of the cases. In three cases in which the colloidal gold test was carried out in the presence of active involvement as indicated by other criteria, the curve was identical in each case, being the ascending curve, fairly high in the middle. Of the entire number of cases examined, symptoms indicating central nervous involvement were present in only a single case, in which continuous headache, extending over a week's time, was found in association with positive findings throughout in the spinal fluid.

Our results may be thus summarized: Preroseolar involvement of the nervous system occurred with definite deviations from the normal in the spinal fluid in forty-nine cases out of 221 examined. That such involvement for the most part is in the nature of a transitory roseola of the meninges, without subsequent or permanent damage, is probable from the fact that the fluid in the majority of the cases rapidly was restored to normal under the influence of treatment and doubtless might have disappeared even without this, as does the cutaneous roseola.

It is perfectly apparent that involvement of the cerebrospinal axis could hardly occur at any time before actual systemic infection has taken place.

The positive findings, including complement fixation in the spinal fluid before changes occur in the blood, is not indicative of the fact that the infection has not yet become generalized. The significance of such findings is no doubt due to the greater delicacy of the laboratory criteria as applied to the spinal fluid as compared with the Wassermann test in the blood. In other words, the positive spinal fluid findings in a case not yet positive in the blood indicate generalization, and such findings cannot be accepted as clinical evidence of neurotropism. The foregoing finding thus substantiates for the human host the findings of Brown and Pearce[3] for generalization and dissemination in rabbits.

Most of the patients studied in this series, and particularly those in whom definite involvement was found, will be followed as far as is possible to determine whether there is any real relation between their precocious involvement and any later cerebrospinal accident. As has been noted before, intraspinal treatment was instituted in all of the more striking cases, and a prompt restoration to the normal was noted in all save one.

CONCLUSIONS

Deviations from the normal in the spinal fluid of 221 cases of syphilis in which only the chancre was present was found in forty-nine cases, or 22 per cent. of the cases examined.

Increase in globulin and albumin virtually parallel was the most constant of the abnormal findings, occurring in twenty-five of the forty-nine cases. Pleocytosis was the next most frequent finding, occurring in twelve cases. The positive Wassermann test in the fluid occurred less frequently than the other two findings, being present in but eight cases.

Within certain limitations any single one of the above-mentioned deviations from the normal occurring alone must be regarded as evidence of early central nervous system involvement.

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[3] Brown, W. H., and Pearce, Louise: A Note on the Dissemination of Spirochaeta Pallida from the Primary Focus of Infection, Arch. Dermat. & Syph. **2**: 470 (Oct.) 1920.

PRECAUTIONS NECESSARY IN THE SELECTION OF A DONOR FOR BLOOD TRANSFUSION *

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The observation was made first by Landsteiner[1] in 1900 that, when serum of certain individuals was mixed with cells of other individuals, clumping of the corpuscles, or iso-agglutination, occurred. Moss[2] and also Jansky[3] showed that people could be divided into four groups (Table 1) according to the way their blood interagglutinated. To explain these groups one must presuppose the presence of agglutinins in serums, and receptors for these agglutinins in cells.

TABLE 1.—AGGLUTINATION OF SERUMS OF THE FOUR GROUPS *

	Serums			
Corpuscles	Group 1	Group II	Group III	Group IV
Group I	0	+	+	+
Group II	0	0	+	+
Group III	0	+	0	+
Group IV	0	0	0	0

* The plus sign indicates agglutination. The corpuscles of Group I are agglutinated by the serum of all other groups, but its serum has no agglutinating properties. The serums of Groups II and III mutually agglutinate each others' corpuscles. Group IV serum agglutinates all other corpuscles, while its own corpuscles are not agglutinated by any serum.

According to Moss there are three distinct agglutinins—one for each of the agglutinating serums, II, III and IV. Von Dungern and Hirschfeld,[4] however, assume the presence of but two—one in Group II serum, one in Group III, and both of these in Group IV. By a simple experiment I have been able to show that the latter explanation is correct:

> Group IV serum agglutinates the cells of Groups I, II and III. By two or three additions of Group II cells to Group IV serum (in proportions of 0.15 c.c. of packed cells to 0.3 c.c. of serum) and incubation at 37 C. for twenty minutes between each addition, the Group IV serum has all agglutinins for Group II cells absorbed from it. If this were the only agglutinin that the serum contained (Moss theory), on addition of Group III cells no agglutination would occur. If, on the other hand, there are two distinct and separate agglutinins, agglu-

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* Read before the New York County Medical Society, Oct. 25, 1920.

[1] Landsteiner, K.: Centralbl. f. Bakteriol., Part I **27**: 357, 1900; Wien. klin. Wchnschr. **14**: 1132, 1901.

[2] Moss, W. L.: Bull. Johns Hopkins Hosp. **21**: 63, 1910; **22**: 238, 1911.

[3] Jansky, J.: Sborn. klin. **8**: 85, 1906-1907.

[4] Von Dungern, E., and Hirschfeld, L.: Ztschr. f. Immunitätsforsch., Orig. **4**: 531, 1909-1910; **6**: 284, 1910; **8**: 526, 1910-1911.

tination will take place. Tests showed the latter theory to be the correct one. Furthermore, the same result was obtained when the initial adsorption was accomplished with Group III cells. If Group I cells are used for the adsorption, both agglutinins are simultaneously removed from Group IV serum and the resultant serum will not agglutinate any cells (Table 2).

The classification of individuals according to their iso-agglutinin reactions is of practical importance in relation to transfusion. It has rendered transfusion safe. This safety, coupled with simplification of technic, has established transfusion as an extremely important therapeutic measure. It has become customary to determine the "group" of the patient and then transfuse blood of a donor of the same group, provided his blood Wassermann test is negative and his hemoglobin and red cell count is normal. Although, in the majority of cases, the bloods of donor and patient belonging to the same group are compatible, nevertheless the number of exceptions are sufficiently great to warrant a different procedure and greater caution. In the course of performing many thousands of tests preliminary to transfusion, I have occasionally noted that although the donor and patient are of the same group, when the bloods are tested one against the other a small number of agglutinated clumps of red blood cells will be seen.[5]

TABLE 2.—RESULTS OF EXPERIMENT TO PROVE THE EXISTENCE OF TWO RATHER THAN THREE AGGLUTININS *

Corpuscles	Normal Group IV Serum	Group IV Serum after Adsorption of Agglutinins by Cells of Group I	Group II	Group III
Group I	+	0	+	+
Group II	+	0	0	+
Group III	+	0	+	0
Group IV	0	0	0	0

* Showing that the agglutinin for Group II cells can be adsorbed from Group IV serum independently of that for Groups I and III cells. This establishes the existence of two rather than one agglutinin in Group IV serum. Furthermore, the cells of Group I contain receptors which are able simultaneously to adsorb both agglutinins from the serum.

Although ordinarily such donors are rejected, urgent need has forced me to transfuse patients in which this phenomonen occurred. In each case there was a sharp reaction—chill and fever—undoubtedly due to the occurrence of agglutination. One of these patients I subsequently transfused with a donor whose blood was perfectly compatible, as viewed by the microscope, and no reaction whatever occurred. The transfusions were performed by the method described by me[6] in this journal some years ago.[7] By this method, in a large series of cases, febrile reactions occurred only in about 10 per cent. and a chill in about 3 per cent. This indicates that the reactions following transfusions when there was a slight incompatibility, although donor and patient belonged to the same general group, were due to agglutination.

The recognized group of an individual is established by the presence of a "chief" or "major" agglutinin in his serum. Agglutination of cells by serums of the same group is probably due to a "para" or "minor" agglutinin, which causes a lesser degree of agglutination. The transfusion of such blood gives rise to clinical reactions. This disagreeable result, however, can be eliminated by testing the blood of every prospective donor directly against the patient's blood and by careful microscopic examination of the mixtures. This phenomonen of major and minor agglutination of red blood cells is comparable to that of group agglutination of bacteria. As is well known, a serum containing a high agglutinative power against typhoid bacteria may to a lesser degree also agglutinate bacteria belonging to the same group, such as paratyphoid or colon bacilli.

Another important but atypical result is encountered when performing the usual agglutination and hemolysis tests in infants. It has been shown often that the agglutinins for bacteria in normal nonimmunized animals are not present in new-born animals but are acquired later in life. So also with the agglutinins for red blood cells.

Halban[8] was first to note this difference between blood of a mother and that of her infant. He found that the agglutinating power of a mother's serum was far greater than that of blood taken from the umbilical cord of her infant. I have tested for the presence of agglutinins and receptors 119 children aged from less than 1 day to 4 years.[9] Of twenty-four infants under 1 month of age,[10] the serums of only three, or 13 per cent., contained agglutinins, whereas the average among adults is 97 per cent. The percentage of children whose serums contained agglutinins increased with their ages, but reached the adult average only between the second and fourth years of life (Table 3).

The same thing is true of cells. The great majority of children are born with cells possessing no receptors—they cannot be agglutinated by any serum. The cells of only about 25 per cent. of new-born infants can be agglutinated, whereas in adults the average is 50 per cent. The acquisition of receptors occurs at about 6 months, far earlier than the appearance of agglutinins in the serum. In some few cases, receptors antedate agglutinins. These results conform closely to those of Happ.[11]

Naturally, if the full quota either of agglutinins or of receptors is wanting, the blood fails to conform perfectly to established adult groups. At about 4 years of age, all children probably have established their adult iso-agglutinin group. The acquisition of a full quota either of agglutinins or of receptors may occur gradually. Serum may contain agglutinins for cells of Groups I and III, and later acquire them for Group II cells. By this addition the child apparently has changed its group. The oldest child tested with no agglutinins whatsoever in its serum was 2 years and 11 months of age. The youngest child with its full quota of agglutinins and receptors was 3 days old.

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[5] Each time this phenomenon was observed, the same samples of serums of Groups II and III were used to determine the group of the patient, and all donors who were tested against this case. Certain donors were found habitually to give this reaction. Although their cells fell definitely into Groups II or III, their serum gave minor agglutinative reactions against cells of patients of the same group. The microscopic method was used in every case; in none was there any rouleaux formation.

[6] The mechanical principle involved in the instrument used in this method is the establishment of two channels by means of which a record syringe is automatically connected alternately with a vein of the donor and then with one of the recipient. At the same time that the record syringe is connected with the donor for the aspiration of blood, a syringe with saline solution is connected with the recipient, and vice versa. It is this immediate and continued flushing with salt solution of that channel through which the blood is not passing that insures freedom from clotting. The technic is as follows: Alongside the instrument which has been fixed to a table, the arms of the patient and the donor are placed. The tubes leading from the instrument are connected to the cannulas after the latter have been inserted through the skin into the recipient's and donor's veins. A record syringe is then inserted into the instrument, and blood is aspirated. When the syringe is filled, the stopcock is turned and then the blood is injected. Simultaneously, saline solution is forced through the channel which is not being used for the aspiration or injection of blood. This procedure is continued until the desired amount is transfused. In order to prevent clotting, a stream of ether is played on the barrel of the record syringe while it is being filled with and emptied of blood. In this way only one record syringe is required, regardless of the amount transfused.

[7] Unger, L. J.: A New Method of Syringe Transfusion, J. A. M. A. **64**: 582 (Feb. 13) 1915; Recent Simplifications of the Syringe Method of Transfusion, ibid. **65**: 1029 (Sept. 18) 1915; Transfusion of Unmodified Blood, An Analysis of One Hundred and Sixty-Five Cases, ibid. **69**: 2159 (Dec. 29) 1917. The Therapeutic Aspect of Blood Transfusion, ibid. **73**: 815 (Sept. 13) 1919.

[8] Halban, J.: Wien. klin. Wchnschr. **13**: 545, 1900. Halban, J., and Landsteiner, K.: München. med. Wchnschr. **49**: 473, 1902.

[9] The serum of each child was tested microscopically against adult cells of Groups I, II, III and IV, and the cells of the child against adult serum of Groups I, II, III and IV.

[10] The age of twenty-one of these ranged from less than 1 day to 11 days. These children were on the obstetric service of Dr. George L. Brodhead at Harlem Hospital.

[11] Happ, W. M.: J. Exper. Med. **31**: 313 (March) 1920.

From the practical standpoint, these facts render it comparatively simple to find a donor compatible for transfusing an infant. The blood cells of most children under 6 months of age cannot be agglutinated, and their serum cannot agglutinate a donor's cells. For such children, any donor, regardless of group, is compatible. I have performed transfusions many times in such cases without any untoward results. It is therefore superfluous to attempt a grouping of an infant's blood. One should rather test the blood directly against that of the prospective donor.

The peculiarities of infant's blood probably explain the frequent statement that any mother may be used as a donor for her new-born infant. After the bloods of twenty-one mothers and their respective children were grouped and one tested against the other, it was clear that such a statement is erroneous. It was found that seven, or 33 per cent., were of different groups; of these seven, four were compatible in spite of this difference. Had the mothers of the three others been used as donors for their infants, the results might have been disastrous. It is therefore necessary to test the blood preliminary to transfusion, even though the mother should act as donor. It was found also that children of the same family often belong to different groups. Among six sisters of one family, all four groups were represented, and two of these women differed in grouping from their children.

TABLE 3.—INFLUENCE OF AGE ON APPEARANCE OF AGGLUTININS IN SERUM AND RECEPTORS IN CELLS *

Age	Number of Children Tested	Serum Contained Agglutinins		Corpuscles Agglutinable	
		Number	Per Cent.	Number	Per Cent.
From birth to 1 mo.	24	3	13	6	25
From 1 mo. to 6 mos.	16	4	25	8	50
From 6 mos. to 1 yr.	18	9	50	9	50
From 1 yr. to 1½ yrs.	18	12	67	10	55
From 1½ yrs. to 2 yrs.	11	7	66	7	66
From 2 yrs. to 4 yrs.	32	30	94	21	66
Total	119				

* The normal adult percentage for agglutinins in serum is reached between the second and the fourth year of life, while that for receptors is reached at six months.

It is believed commonly that the cells of Group IV cannot be agglutinated by any serum. A person of this group is accepted as a "universal donor." By this term is meant a donor who in an emergency may furnish blood to any patient regardless of group, on the theory that danger arises only when the donor's cells are agglutinated and that agglutination of the patient's cells may be disregarded. In nine patients, however, serum was found to agglutinate cells of certain Group IV donors. Six of these patients belonged to Group IV, one to Group II, and in two others unfortunately the type was not determined. A result of this kind demonstrates the inadequacy of "typing" merely the patient, and the necessity of testing the blood of donor and patient, one against the other. Five patients showed the phenomenon of auto-agglutination—that is, the cells of the patient were agglutinated by his own serum; the four others apparently contained "minor" agglutinins for Group IV cells. Blood containing auto-agglutinins will clump its own cells when its temperature is lowered, the clumping disappearing when the temperature is raised to 37 C. Unless one is aware of this phenomenon, a patient's blood may be classified erroneously in Group I. Special care must be taken to determine the proper grouping of such bloods; the cells should be washed repeatedly in warm saline solution until a suspension shows no auto-agglutination when placed in the icebox. For patients whose blood contains "minor" agglutinins for Group IV cells, search must be made until a proper donor is found.

Certain serums will produce a rouleaux formation of the patient's cells. This reaction is quite different from agglutination, and often can be eliminated by using a weaker emulsion of cells or by diluting the serum. The rouleaux-forming substance in serum can act on cells of any of the groups. I have transfused several patients whose serums contained this substance with apparently no ill effect—no untoward reaction.

SUMMARY

1. All individuals may be grouped broadly into four main groups. These groups are established by the presence of two "chief" agglutinins in the serums and receptors for these agglutinins in the cells. Besides "chief" agglutinins, "minor" agglutinins have been demonstrated.

2. Ninety-seven per cent. of adults have agglutinins in their serums. They are, however, present in 13 per cent. of new-born infants. Only 25 per cent. of new-born infants have cells that can be agglutinated, as compared to 50 per cent. among adults. The full quota of agglutinins and receptors is acquired between the third and fourth years of life.

3. Incompatibility between the blood of a mother and her new-born infant occasionally occurs. It is unsafe, therefore, to omit testing the blood preliminary to transfusion, even though the mother should act as donor.

4. It is not advisable indiscriminately to use the so-called "universal donor," as severe reactions have been observed following the use of donors of Group IV for patients of other groups.

5. The rouleaux-formation substance, even though acting on the donor's cells, is apparently harmless, and no untoward results have been seen following such transfusions.

6. It is unsafe to perform a transfusion, relying simply on the fact that donor and patient are of the same group. Preliminary to transfusion, the blood of every patient should be grouped and then tested directly against that of the prospective donor.

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Medical Jurisprudence of Venezuela. — "Jurisprudencia Médica Venezolana" is the title of a book by G. T. Villegas-Pulido published at Caracas, which has been deservedly endorsed by the National Academy of Medicine of Venezuela. It includes nineteen chapters on legal medicine, nine chapters on law in relation to the practice of pharmacy, copies of Venezuelan laws, relating to the practice of medicine and pharmacy. As can be expected in a Latin American book, French works have been chiefly consulted in its preparation, although some references may be found to American legislation. Dr. Razetti, the secretary of the Venezuelan Academy of Medicine, has written an interesting introduction, taking up historically some of the bases on which medical practice and ethics rest.

A STUDY OF THE SPINAL FLUID IN FIFTY-TWO CASES OF CONGENITAL SYPHILIS *

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With a steady improvement in the technic of biologic tests at our disposal, and the increasing appreciation of spinal puncture, numerous and valuable contributions to our knowledge of syphilis of the central nervous system have been made during the last few years. Probably because of the possible difficulties to be encountered in this procedure with infantile cases, these studies, for the most part, have dealt with syphilis in the acquired form. In view of this fact, and as part of a preceding series of similar studies from this clinic, the present analysis of spinal fluid findings in cases of hereditary syphilis was undertaken.

In spite of the preponderance of similar studies having to do with neurosyphilis in the acquired form, the more recent literature contains occasional references to the inherited form of the disease. For the most part, moreover, these contributions have pointed out the types of possible accidents that may occur with involvement of the central nervous system in hereditary syphilis. Gaucher,[1] Barbier and Gassier,[2] Bresler [3] and Hubner [4] each have contributed exhaustive studies to this particular phase of the question. As a result of their studies, these authors have emphasized certain types of hydrocephalus, certain meningitides, including meningo-arterial involvement, gummas with localizing symptoms, and convulsions at different ages and of various types, as possible accidents of important frequency. Further, the question has been considered from the standpoint of certain other neurologic manifestations, attention having been called by Camp [5] to what is an apparent increase in the incidence of this type of involvement, and the growing importance of inherited syphilis as an etiologic factor in the hereditary degenerations, including certain of the muscular dystrophies. Notwithstanding valuable general considerations of the subject as mentioned above, routine examination of the spinal fluid of patients with hereditary syphilis has apparently been undertaken in surprisingly few instances.

Jeans [6] has reported the results of such a study carried out in 214 cases. Combining lumbar puncture with a careful clinical examination, approximately a third of Jeans' cases show definite involvement. Such involvement varied from entirely asymptomatic cases with abnormalities in the spinal fluid alone to those cases with permanent changes presenting various palsies, hemiplegias, and certain types of mental deterioration. In a similar study, With [7] has reported an equally high percentage of involvement, although his investigations were confined to a group of only twenty-six cases. Finally, Ravaut [8] has reported the results of such an investigation in twenty-eight cases of inherited syphilis, the ages of the patients ranging from 10 days to 13 months. Ravaut emphasizes the interesting parallelism between cutaneous and mucous membrane lesions and spinal fluid changes, and suggests as especially important the frequency with which his cases presented varying degrees of hydrocephalus, hypertension of the fontanels, convulsive attacks, and dilatation of the superficial veins of the scalp. An examination of the chart of these cases, however, reveals the fact that certain of the cases presenting convulsions and hydrocephalus gave an entirely negative reaction in the spinal fluid. This fact, it is believed, rather lends weight to Hubner's suggestion that we should hesitate before reaching a decision as to whether the syphilitic infection is incidental or etiologic in its relation to any group of symptoms presented by a given case.

In the present study of fifty-two cases, an unquestionable diagnosis has been established by the presence of the accepted symptoms and stigmas of prenatal infection, the presence of definitely positive laboratory tests, or both. The findings reported are those as found in the routine puncture, without reference to any particular indications or group of presenting symptoms. In every case the patient has remained sufficiently long under care to substantiate any doubtful findings, and to observe any developing symptoms or the recurrence of former ones not demonstrable at the time of the first examination. The ages vary from 3 weeks to 21 years. Most of the patients have been examined by special departments for ocular abnormalities, auditory disturbances, and clinical neurologic findings.

Of the total of fifty-two cases, fifteen, or 28.8 per cent., presented some deviation from the normal, according to the accepted criteria of spinal fluid findings. The cases showing these abnormalities may be roughly divided into two groups, according to the extent or severity of involvement. The first group, representing those cases in which only slight changes had taken place up to the time of puncture, includes four cases. In three of these, the Wassermann reaction on the cerebrospinal fluid was one plus; in two, two plus. In addition, however, the cell count revealed a slight pleocytosis. The highest cell count in this group was 15, obviously not of particular significance, except that it was accompanied by an increase in the solids of a corresponding degree. In this group, early central nervous system impairment was clinically substantiated by the presence of chorioretinitis, increased reflexes, and in one case, severe nerve deafness. Apparently these were cases of transitory involvement. At least, they are comparable to similar changes found by Wile and Stokes [9] in acquired cases, for which these authors have suggested as a plausible explanation the existence of a nervous system lesion similar to the fading roseola of the skin.

The second group represents the more severe grades of involvement. This group includes eleven cases, each of which gave a definitely positive Wassermann

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* Studies and Contributions of the Department of Dermatology and Syphilology of the University of Michigan, Service of Dr. Udo J. Wile.

[1] Gaucher: L'hérédo-syphilis tertiaire du système nerveux, Progr. méd., Series 3, **27**: 459, 1911.

[2] Barbier and Gassier: Quelques faits d'hérédosyphilis du système nerveux, Bull. Soc. de pédiat. de Paris **14**: 9, 1912.

[3] Bresler: Erbsyphilis und Nervensystem, Schmidt's Jahrbücher der Medizin **281-282**: 6, 1904.

[4] Hubner: Ueber congenitale Lues, Arch. f. Psychiat. **57**: 169, 1917.

[5] Camp: Hereditary Syphilis and the Nervous System, J. Nerv. & Ment. Dis. **46**: 370, 1917.

[6] Jeans, P. C.: Cerebrospinal Involvement in Hereditary Syphilis, Am. J. Dis. Child. **18**: 173 (Sept.) 1919.

[7] With, C.: Different Reactions in Cerebrospinal Fluid, Brain **40**: 403 (Nov.) 1917.

[8] Ravaut, P.: Le liquide céphale-rachidien des hérédosyphilitiques, Ann. de dermat. et syph. **8**: 81, 1907.

[9] Wile, U. J., and Stokes, J. H.: A Study of the Spinal Fluid with Reference to Involvement of the Nervous System in Secondary Syphilis, J. Cutan. Dis., September, 1914, p. 607.

reaction. In these apparently more severe types, a striking parallelism between strongly positive Wassermann reactions and definite albumin and globulin increase is noted with regularity. This observation entirely confirms that noted in the preceding similar studies in acquired cases, and is perhaps suggestive of the relative value of certain findings in our routine diagnostic procedures. There is, however, an equally striking lack of parallelism between the degree of pleocytosis and the other strongly positive findings. The cell count in these cases varied from 6 to 159, in spite of the fact that the remaining tests were equally positive in all.

It is also interesting to note here that in certain instances in which other findings, including Wassermann tests, were negative throughout, there were varying degrees of pleocytosis, in one case the cell count being 68. Grulee has called attention to this fact before and has made the plausible suggestion that febrile disturbances, particularly the acute exanthems, in infancy and childhood, may result in more or less temporary fluctuations in what we are accustomed to consider the normal cellular content. French investigators have made like suggestions, and the occurrence of similar discrepancies in the present study leads us to believe that it is a finding of sufficient frequency to merit future consideration.

In addition to the interesting changes in the cerebrospinal fluid, the second group of cases, with only one or two exceptions, presented clinical symptoms of considerable gravity. Four of the cases presented the typical clinical picture of juvenile general paresis, three of which, because of an apparent familial type of infection, seem worthy of brief description. The parents of these three patients were first seen, and in each the routine examination revealed a latent syphilitic infection. The father gave a definite history of infection acquired thirteen years previously, but to his knowledge had never developed further manifestations. At the time of consultation he presented a clinically inactive syphilis.

The mother was entirely unaware of her condition, gave a completely negative history, and presented only a general adenitis and a strongly positive blood serum. There had been three apparently normal pregnancies; the children were all living, their respective ages being 8, 4 and 2 years.

FINDINGS IN THREE CASES

Case 1.—A boy, aged 8 years, was rather poorly nourished, undersized, and had a peculiar weazened appearance. He had never suffered any severe acute illness but had always been frail, easily exhausted, and unable to enjoy the usual activities of his age. The head was of unusual appearance, owing to marked frontal and parietal bosses. There was a pupillary inequality, and a sluggish reaction to light. The mucous membranes were without any abnormality, and there was no marked general adenitis. There were pronounced bony stigmas involving, beside the skull, the tibiae, the scapulae and the ulnae. The Wassermann reaction was strongly positive. The patient received moderately intensive arsenical and mercurial therapy, with encouraging improvement in his general condition, and he was discharged from the service with instructions to return for further care after an interval of rest. The patient was not heard from for a year and nine months, when he reentered the service. His examination revealed the physical findings of his first visit, except that the pupillary abnormalities were much more marked. In addition, he had definitely deteriorated mentally. His speech showed defects not present before, and he frequently repeated meaningless phrases and groups of words during questioning. He often laughed and cried during an ordinary conversation, and seemed to have completely lost all emotional control. He received a second course of treatment, during which he symptomatically improved to such an extent that he was again given over to the care of his local physician. Two months later we were informed of his death following a convulsive attack lasting only a few hours.

Case 2.—A girl, aged 4 years, was underweight at the time of birth, but was otherwise an apparently normal child. She contracted measles during the first year, which left her hyperirritable, but otherwise she showed the usual physical and mental development until 2½ years of age. At that time, six months previous to the time of her examination, she suddenly developed convulsive attacks. These were characterized by local tremors, rigidity, and loss of consciousness lasting from a few minutes to two hours. They came at irregular intervals. With these attacks the patient gradually lost her ability to speak distinctly and coherently, developed the habit of eating mud, gravel, etc., and at times showed definite evidence of mental instability. The child was fairly well nourished and well developed. The head was decidedly megacephalic, owing to marked frontal and parietal bosses. The pupils were sluggish. The mucous membranes were clean. There were no changes in the long bones, and the viscera were not palpably involved. The deep reflexes were all exaggerated, and the gait was slightly ataxic. Throughout the examination the patient, from time to time, made inarticulate noises, and showed a definite speech defect and emotional instability. The laboratory tests were strongly positive. During her treatment the patient's general condition improved, and there was a sufficient remission in her mental symptoms to allow her discharge into the custody of her parents.

Case 3.—A boy, aged 2 years, was well nourished, but slightly undersize. He had been an apparently normal baby, and up to the time of examination had had no serious illness. With the exception of suggestive deformities in the scapulae and tibiae, there were no clinical stigmas. The patient tolerated his treatment well, and at its completion was discharged with the usual instructions regarding future observation. At the time of entrance his blood Wassermann test was four plus positive. He was not heard from for two years, when he was brought to the service for reexamination. This gave findings similar to those of the brother and sister, amply sufficient for a clinical diagnosis. The patient was taken elsewhere for treatment.

Examination of the spinal fluid in each of these cases entirely bore out the clinical diagnosis.

COMMENT

Examples similar to the foregoing are not entirely wanting in the literature, yet they are not of great frequency and are extremely suggestive in a consideration of the question of spirochete tropism.

The remainder of this group, presenting more severe involvement of the nervous system, includes seven cases. Of these, two were distinctly retarded mentally, and from their lack of response to treatment may be considered potential institutional patients. Four suffered only from pupillary and deep tendon reflex changes, and apparently made permanent response to treatment. The remaining patient was an infant presenting a severe cutaneous involvement, without other demonstrable changes.

CONCLUSIONS

1. This study of selective cases emphasizes the important frequency with which cerebrospinal involvement is associated with prenatal syphilis.
2. The importance of the routine lumbar puncture is again urged, not only because of its immediate value as a diagnostic procedure, but also on account of its influence on the ultimate prognosis in a given case.

For the privilege of presenting the foregoing material, and for courteous suggestions throughout its preparation, I am indebted to the kindness of Prof. Udo J. Wile.

THE WASSERMANN TEST AND ITS LIMITATIONS IN DIAGNOSIS AND TREATMENT *

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In spite of many publications that have described modifications of the original technic of the complement fixation test for syphilis, and in spite of the fact that these publications have more or less clearly indicated the limitations of the reaction, it is evident that these limitations are in many instances not yet clearly comprehended. The present paper has been written, not with the idea of adding further complications to the problem, but to present in concrete and statistical form our experiences in some 28,000 tests. Particularly interesting are our results in 1,200 cases of syphilis under observation for periods up to three years, and in a series of 148 cases under observation for five or more years. In all of these cases the serologic course of the disease has been followed at frequent intervals. The survey covers the period from 1912 to 1919, inclusive.

The numerous publications describing various changes in the original Wassermann technic deal mainly with three influencing factors: (*a*) the patient, (*b*) the collection of the specimen, and (*c*) alterations in technic.

As regards the patient, it has been pointed out repeatedly that the ingestion of even small amounts of alcohol within twenty-four hours of withdrawal of the blood may produce a false negative reaction. We shall not further elaborate on this point; it is a fact to be remembered even with the advent of prohibition. Fever may occasion a false positive; Herz has described this in connection with pneumonia, and we have observed it in other febrile conditions when during the height of the febrile period a positive reaction occurred, while a few days later the same individual in an afebrile state gave a negative reaction. There is a group of diseases (yaws, malaria, relapsing fever, yellow fever, tubercular leprosy, scarlet fever, trypanosomiasis and Vincent's angina) in which occasional nonspecific positive reactions are said to occur, but our experience includes too few of these to be of value.

As regards the influence of treatment, a period of at least eight weeks should elapse after treatment before a negative report is considered an indication that the disease is being overcome. Even then another test should be made after a short interval to confirm this negative result.

The second group of factors that may influence the reaction has to do with the collection of the specimen. All containers should be absolutely clean and dry, and the serum should be separated from the clot within twenty-four hours, even when the specimen is kept on ice. Failure to observe these precautions, particularly in warm weather, not infrequently results in reports of "anticomplementary serum." When these precautions have been observed and the specimen is still reported as anticomplementary, it has been our experience that most such specimens are subsequently shown to be positive.

A third group of factors has to do with the actual technic of the test. Although this aspect of the problem may not appeal to the clinician, nevertheless it is of such essential importance that the time spent in mastering the details is well worth while, even though the clinician may never expect to perform the actual test himself.

CAUSES OF CONFLICTING REPORTS

Antigen.—There are in general use three types of antigen: cholesterinized, acetone insoluble, and alcoholic; and these three types are usually extracted from either beef or guinea-pig heart. The delicacy of these reagents varies, the cholesterinized generally being the most sensitive, the acetone insoluble next, and the alcoholic least sensitive. Usually antigens made from beef heart are less sensitive than those made from guinea-pig heart. It is not uncommon to find a serum which is negative with an alcoholic antigen and four plus positive with a cholesterinized antigen, both tests having been performed at the same time on different portions of the same serum. In a series of 6,000 serums in which both antigens were used, we found this to occur ninety-eight times. It is easily conceivable that one laboratory using only the alcoholic antigen may report negative, while another using only the cholesterinized antigen may report positive on the same serum, and still both laboratories be certain of their results according to their individual technics. It is for this reason that we believe that a laboratory report should state the type of antigen used.

Fixation.—One of the steps in performing the reaction consists of allowing the antigen and antibodies present in the serum to fix themselves to the complement. This is known as fixation, and may be done either in the incubator or water bath at 37 C. for one hour, or in the icebox at from 4 to 10 C. for three or more hours. Icebox fixation has been shown by various workers to be more sensitive, thus giving more positives, than is fixation at higher temperature. Again, we are confronted with the possibility of a negative report from one worker using the water bath, and a positive report from another using the icebox. Each may be right according to his method; but unless the clinician knows which method has been used, the interpretation of the report may be incorrect. In a series of 1,800 tests in which both icebox and water-bath fixation were used on the same serums and with the same antigen, twelve instances occurred in which water-bath fixation gave a negative, and icebox fixation gave a four plus positive.

Natural Amboceptor.—It is well established that certain human serums contain a natural amboceptor against sheep's red blood cells in such amounts that, unless it is allowed for, false negatives will result if the usual dose of amboceptor from a rabbit is added. Here, again, one laboratory not allowing for the presence of natural amboceptor may report negative, while another laboratory in which this factor is controlled may report positive on the same specimen. In a series of 350 serums run in duplicate, one set tested for natural amboceptor, the other not, four instances occurred in which the natural amboceptor was present in amounts large enough to have altered a positive reaction to a negative, unless the presence of the natural amboceptor had been allowed for.

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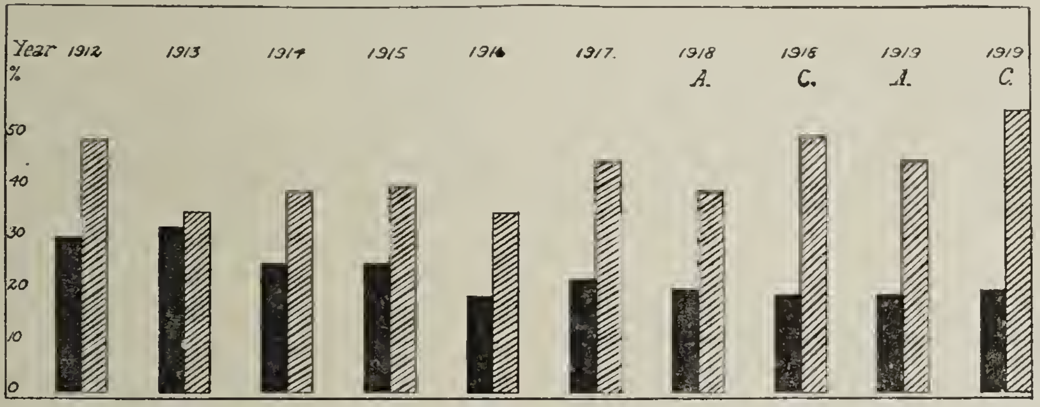
* From the Laboratory of the Lenox Hill Hospital.

* The serologic examinations considered in this report were made in the serologic department under the direction of Dr. Garbat. The clinical material is from the service of Dr. Sigmund Pollitzer and Dr. Leo Spiegel.

The foregoing paragraphs briefly point out the causes which occasion different reports on the same specimen when sent to different laboratories. The larger proportion of the differences that thus arise are due to technical factors which, under present conditions, are apparently not convertible into a standardized technic for common use in all laboratories. It is essential, therefore, that the clinician should be advised of the technic employed, whether alcoholic, cholesterinized, or any modified antigen was used, whether natural amboceptor was present, and whether icebox or water-bath fixation was employed. Furthermore, we believe it to be the duty of the clinician to acquaint himself sufficiently with complement fixation technic so that he can properly interpret the laboratory reports. We believe that such cooperation between the laboratory and the clinician will lead to more satisfactory understanding of the results of the test.

ADDITIONAL DATA

Further data bearing on some of the points just discussed are given by a statistical study of our 27,956 complement fixation tests. The data are presented in chart form, and confirm the experience of other observers in several particulars. The cases have been grouped as A, those with negative history or no history obtainable, or no symptoms of syphilis demonstrable, and B, those with positive history or symptoms of syphilis. The results have been tabulated as either positive or negative, the usual gradations having been discarded. The cases in Group A were for the most part ward inmates, while those in Group B were for the most part from the outpatient department.



Percentage of positive Wassermann tests in Group A (solid black area) and Group B (shaded area). From 1912 to 1917, alcoholic antigen, icebox; *A*, alcoholic antigen, icebox; *C*, cholesterin antigen, icebox.

Since Wassermann tests were performed in approximately 95 per cent. of all ward cases as a routine procedure, irrespective of complaint or symptoms, it is of interest to note that the ward cases giving positive reactions varied from 18 to 24 per cent.

The comparatively low percentage of positive results in undoubted clinical cases of syphilis (though not necessarily cases with active lesions) is due to the fact that many of the tests were taken while the patients were under treatment and, in consequence, were temporarily or permanently negative. The percentage of positives in clinically active cases, as will be shown later, approximated 92.

For the years 1912 to 1917, inclusive, the technic used was that of alcoholic antigen and water-bath fixation. It will be noted that the percentage of positives varied from 18 to 33 in those of Group A, and from 33 to 54 in those of Group B. During the years 1918 and 1919 the technic was changed, both alcoholic and cholesterinized antigens being used, the fixation being in the icebox. With this alteration in technic the positive reactions in Group A showed little or no variation as between the two antigens; the cases in Group B, however, showed a larger percentage (from 10 to 12) of positive reactions with the cholesterinized than with the alcoholic antigen.

In the study of the 1,200 cases of clinically definite syphilis, two types of variation became evident which cannot be explained by any of the factors to which previous reference has been made. It is known that occasionally a case which is clinically an old syphilis may give a negative test. It is also well known that occasionally the negative serologic test changes to positive under the influence of treatment. This observation has prompted the use of what is termed the provocative test, a procedure which Pollitzer and Spiegel have shown to be valueless as a test of cure. Forty-six of the old syphilitics in our series gave negative tests on first examination; of these, thirteen became positive during or after treatment. The average medication given up to the first notation of a positive reaction in these cases was four doses of 0.5 gm. of arsphenamin and ten 0.1 gm. injections of mercuric salicylate.

Another type of unexplained fluctuation (through personal communication we have found that other laboratory workers have also encountered it) consists of sudden changes from negative to positive or vice versa with no relation whatever to treatment. In 3,165 tests on known syphilitics, these sudden changes occurred 108 times. Isolated occurrences of this type would, of course, at first be attributed to some error in technic or to a "mix-up" in specimens. The recurrence of the affair prompted checking of the work by submission of duplicate specimens to another laboratory. Our results were confirmed in thirty-eight of forty-two specimens. During the occurrence of these vacillations, the technic of the test was not altered. Changes of this type occurred with both water-bath and icebox fixation, and with both alcoholic and cholesterinized antigen. Table 1 gives the numerical data. We have no explanation to offer for their occurrence, except to point out that they are not due to technical errors. It is our impression that if specimens were taken frequently (for example, once a week) on a series of known syphilitics, such variations would probably be shown to be of rather frequent occurrence. Craig has also made the same suggestion.

TABLE 1.—OCCURRENCE OF UNEXPLAINED FLUCTUATIONS

	Times
Changes from positive to negative	69
Changes from negative to positive	39
Changes observed in specimens taken one week apart	24
Changes observed in specimens taken three weeks apart	56
Changes observed in specimens taken twelve weeks apart	28

An analysis of 148 cases of syphilis under observation for a period of at least five years, in which the serologic examinations have been correlated with treatment, furnishes still more interesting data. These cases have been divided into three groups: (*a*) abortive cases, diagnosis being made by the finding of spirochetes (dark field) in the initial lesion; (*b*) early cases, infection not more than one year old, and (*c*) late cases, infection more than one year old. The last group was divided into active cases and asymptomatic cases. In the analysis, all positive serologic reports, regardless of degree, have been grouped under one heading.

Taking into consideration that this group consisted of outpatients, who are notoriously difficult to control and follow up and who in the vast majority of cases promptly disappear on the return of the first negative blood test, we believe they have been treated as intensively as possible. The procedure adopted in treating them may be thus outlined: From 1912 to 1916, inclusive, they received a series of six injections of arsphenamin given either weekly or biweekly. These injections were followed by a series of ten mercuric salicylate injections (from 1 to 2½ grains each), and these injections in turn were followed by a period of rest of from five to six weeks. A blood Wassermann test was then taken and noted, but the course of treatment and blood test were repeated every six weeks for the first two years after the patient reported for treatment, irrespective of the serologic report. Since 1917, the patients have been treated almost exclusively with arsphenamin, mercury being used only in cases with late manifestations. Since 1917, all cases of abortive and early syphilis were treated according to the intensive method advocated by Pollitzer (daily injections of arsphenamin for three days in the proportion of 0.1 gm. for every 30 pounds of body weight). This intensive treatment is followed by a period of six weeks' rest and then repeated. These treatments are kept up for the first two years after the patient has come under observation, irrespective of the serologic report. In the third year, two courses of arsphenamin (four injections each) are given at weekly intervals.

TABLE 2.—SUMMARY OF CASES

			Average Total Medication Given			
			Cured		Not Cured	
Type of Case	Number	Percentage Serologically Cured	Mercury	Arsphenamin	Mercury	Arsphenamin
Abortive..........	3	100	14	7	..	..
Early..............	48	86	41	18	44	15
Late active.......	85	49	67	19	80	30
Late quiet........	12	53	44	15	48	34

In summarizing our cases we have arbitrarily adopted, as the standard for a serologic cure, a continuously negative Wassermann test and an absence of all signs of activity for a period of three years after the cessation of all treatment. It is possible that this standard is not sufficiently rigid, for we have observed in this series of 148 cases five patients in whom the Wassermann test again became positive after having been continuously negative for three years without treatment. Spinal puncture with an examination of the obtained fluid is unfortunately a procedure which cannot be performed with safety in the outpatient department; and though a large proportion of our supposedly cured patients have been admitted to the hospital in order to have this final examination made, the data are not sufficiently numerous to warrant analysis. This fact must be considered in a strict evaluation of the results obtained.

The summary of cases as shown in Table 2 is instructive in several ways. The abortive group is small and does not represent all of the cases of this type treated, but only those which we have succeeded in keeping under observation. None of these three patients ever had a positive blood.

Of the early cases, 92 per cent. gave positive reactions before receiving treatment. After being under treatment for three months, 8 per cent. were still positive; and at successive later intervals, in spite of treatment, the percentage of positives gradually increased until after two years' treatment 14 per cent. were positive. After the second year, further treatment did not result in any lowering of this percentage. These results would indicate either that there are probably several strains of spirochetes, some of which are resistant to treatment, or that the correct method of treatment is one that is intensive at the onset; for it is apparent that the first period of treatment is the most effective. This point is probably the correct one, as is shown by the comparison between the results obtained with abortive cases and early cases and a further comparison between the results obtained with early and late cases.

The late active cases gave 90 per cent. positive tests before treatment was received, and here again the powerful influence of the first period of treatment is indicated by the fact that while three months of treatment resulted in a reduction of the percentage of positives to 21, in spite of continuous treatment according to the scheme previously given, there was a gradual increase in the percentage of positives until, after three years' treatment, 51 per cent. of the original number were again positive. Some of these patients had the first negative blood test after six years' persistent treatment. Several of the patients in this group received heroic treatment, as many as sixty-eight injections of arsphenamin and 165 injections of mercury being given.

The late quiet cases show slightly better results than do the late active cases; for, while they gave 100 per cent. positive tests before treatment, only 47 per cent. of the group were positive after three years' treatment, as compared with 34 per cent. positive after three months' treatment. In this group there were six cases of hereditary infection; and in none of these, in spite of enormous dosage and long treatment (for example, in one case for seven years), have we been able to produce even a temporary negative.

CONCLUSIONS

The Wassermann test is not infallible, and its value is greatest when its limitations are clearly comprehended.

Some of these limitations are dependent on technical details with which the clinician must familiarize himself until the time arrives when all serologists agree on a standardized technic.

Other limitations are dependent on the biologic processes involved.

Accepting the test as diagnostic in the vast majority of cases, it also serves as an indication of the success of treatment.

The data presented in this report emphasize that the earlier treatment is instituted and the more vigorous the early treatment is, the greater the likelihood of obtaining a serologic cure.

Human Engineer.—One of the big problems the human engineer can help to solve is that of placing the handicapped worker where his services can be of most value to himself and to industry. By so doing the economic independence of the worker is assured, his mental attitude is directed into right channels and he becomes a community asset rather than a liability.—F. L. Rector: *Public Health Rep.*, Jan. 9, 1920.

HIGH GRADE HEART BLOCK

THE INFLUENCE OF POSTURE, RESPIRATION AND EXERCISE

S. CALVIN SMITH, S.M., M.D.
PHILADELPHIA

The case of high grade heart block herein reported has certain unusual features which make it of clinical and scientific interest. In the first place, there was an absence in the previous history of those diseases which so frequently induce heart block, such as syphilis, diphtheria or other long-continued or acutely severe infections. Secondly, the clinical laboratory and roentgen-ray examination confirmed, respectively, the negative findings of the clinical history and the positive findings of the physical examination. In the third place, the phenomenon occurred in a young man of 20 years, who is apparently in robust health and totally unconscious of such physical limitations as heart block may be expected to induce. Fourthly, the heart exhibited high grade block under various circumstances of test until the patient forcibly expelled the air from his lungs; there then ensued the unquestionably *normal* sequence of atrioventricular events graphically recorded in Figure 6. So far as I know, the combination of findings in one patient is unique.

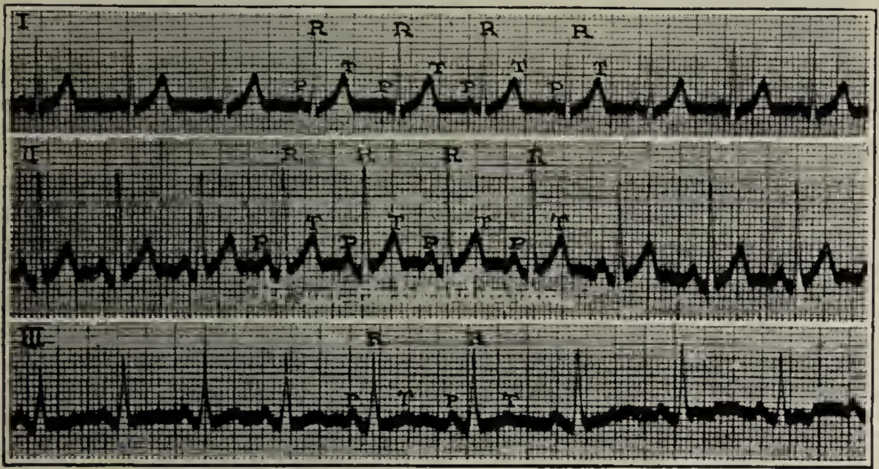


Fig. 1.—Normal electrocardiogram of girl of 16 years, for comparison with Figure 2 and others of this series. The *P* wave is produced by the impulse which precedes contraction of the auricles. In normal sequence, the auricular impulse is followed at a later interval (varying from 0.12 to 0.18 second) by the ventricular complex *R* and *T*, which represent, respectively, initial and final activity at the base of the ventricles. However, the contraction impulse may be blocked in its course so that no impulse gets through from auricle to ventricle, and the ventricles then contract utterly independently of the auricle; such complete dissociation produces the complete heart block shown in the following records.

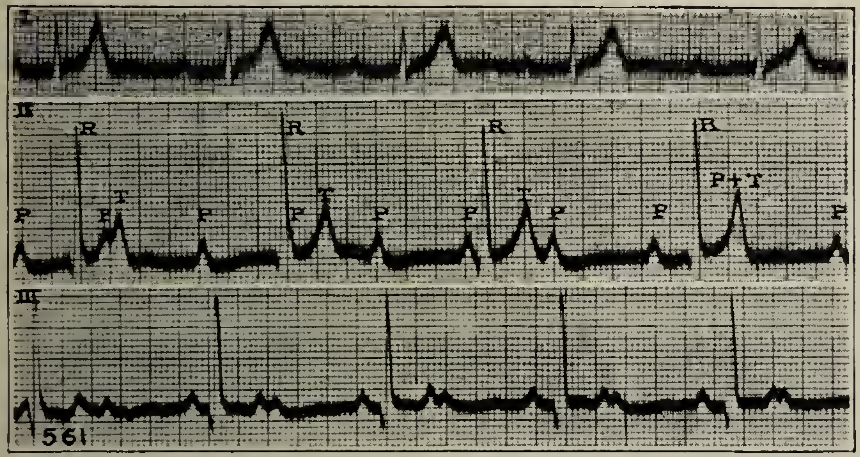


Fig. 2.—Heart block in an apparently healthy youth of 20 years, sitting; ordinary quiet breathing; auricular rate, 100; ventricular, 44; grade of block, complete. (Time interval between the heavier perpendicular lines = two-tenths second.)

REPORT OF CASE

History.—W. Z., an unmarried merchant, aged 20, and a Pennsylvanian by birth, came to Philadelphia to have an operation for the correction of a deflected septum and for the removal of a hypertrophied turbinate. It was discovered that his pulse rate was 48 beats per minute. He was placed under observation in a hospital for three days and, when there were no further developments and as the pulse showed no change in rate, the patient was referred for cardiovascular study.

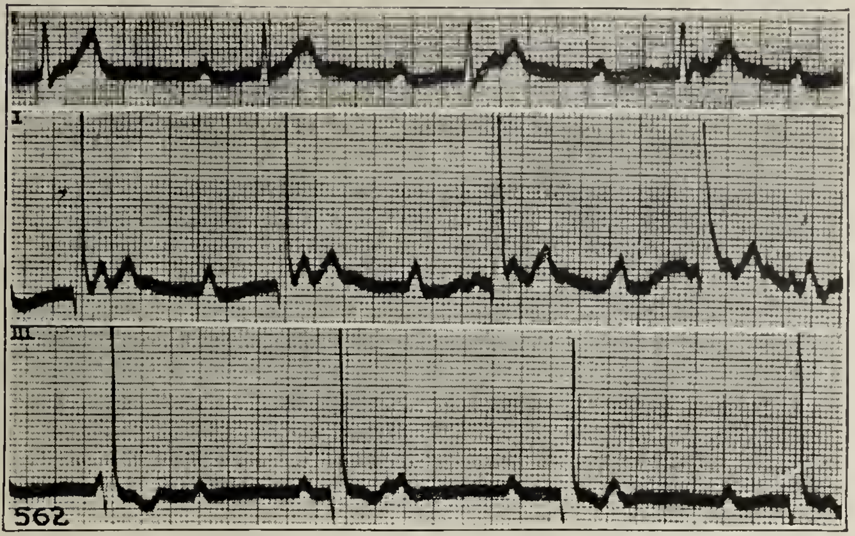


Fig. 3.—Patient recumbent; ordinary quiet breathing: auricular rate, 84; ventricular, 42; grade of block, complete.

The youth had no symptoms whatever of which he could actively complain, and regarded with amusement the concern which his surgeon displayed over his physical condition. He had that week played baseball and had run the four bases with no more distress and with no more shortness of breath than his fellows. Being fond of dancing, he frequently danced until the morning hours and had never felt physical discomfort. He was symptom free.

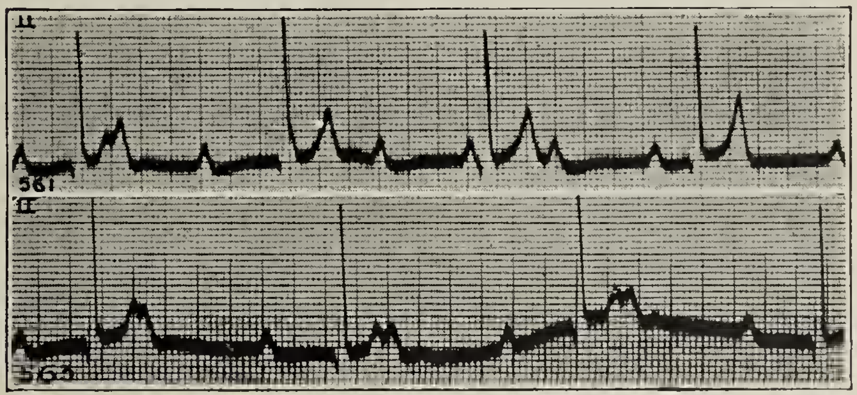


Fig. 4.—Patient in knee-chest position (the patient's customary Lead II surmounts the experimental record for comparison): auricular rate, 82; ventricular, 40; grade of block, complete.

The father died at the age of 57 of cancer of the liver; the mother is living and in good health at the age of 69. The patient is the youngest of a family of eight children who range in age from 40 to 20 years, all but one of whom are living and in good health, a sister having died in her eighteenth year of pneumonia.

When 3 years of age, Mr. Z. was first found unconscious in the yard of his home. An elder sister recalls that he subsequently had such periods of unconsciousness at unexpected moments and at intervals of perhaps three or four months for the next six years; she described the child as suddenly turning white, falling heavily to the floor, lying motionless for five or six minutes, and shortly after resuming play.

At the age of 7 the patient had measles and was in bed for nine days; there were no complications or sequelae.

At the age of 9 the last periods of unconsciousness occurred, one while at an evening wedding and the other on the following morning. These were similar to other attacks, but lasted for perhaps ten or fifteen minutes. Throughout his school days the boy played, as did other boys, physically undisturbed and without recurrence of the fainting spells. He was in bed for ten days with influenza during the epidemic of 1918, convalescence being prompt and uneventful.

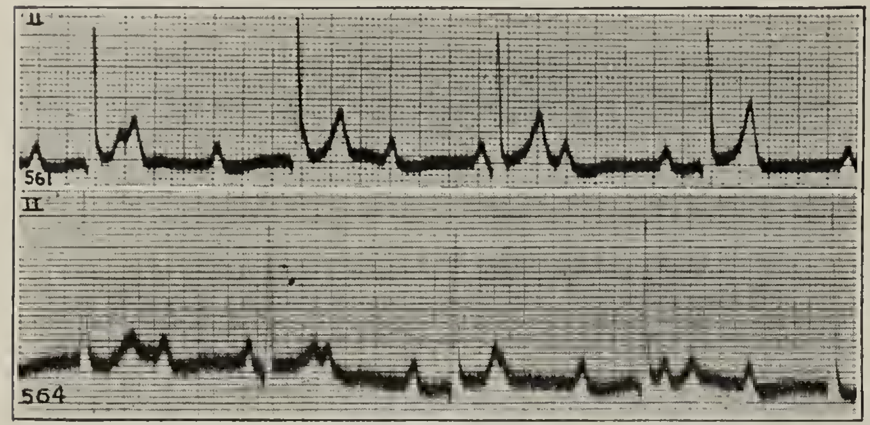


Fig. 5.—Patient standing; forced inspiration (the patient's customary Lead II surmounts the experimental record for comparison): auricular rate, 110; ventricular, 48; grade of block, complete.

Positive Physical Findings.—The patient was a robust and moderately muscular youth of healthy appearance, mentally alert and of tranquil disposition. The weight was 148 pounds, in physiologic ratio to his years and height of 67 inches.

The right nostril was occluded. The lobes of the thyroid were slightly enlarged, symmetrical, smooth, nonindurated and nonpulsating. The anterior tonsillar pillars were reddened, and the tonsils moderately enlarged with well developed tonsillar crypts.

The right upper first bicuspid tooth had a large filling, as had also the left first molar and lateral incisor. None of the teeth were sensitive, nor did they give sensations of elongation or tenderness.

The radial arteries were slightly resistant, the pulse deliberate and well sustained, with radial and ventricular rates, 43.

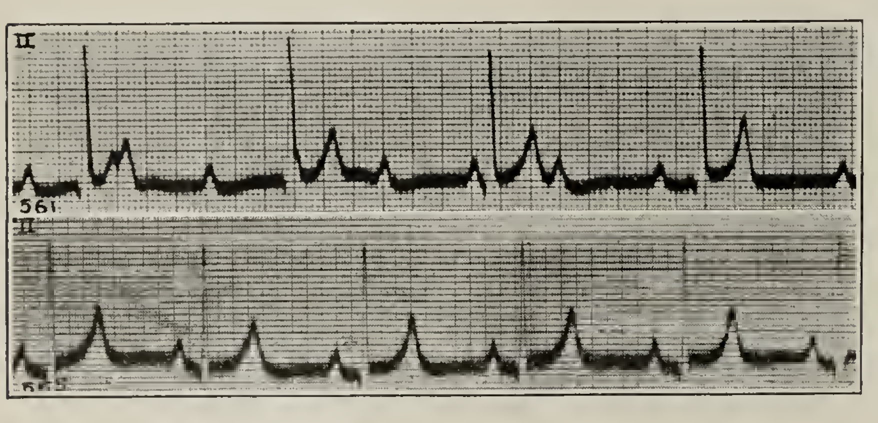


Fig. 6.—Patient standing; forced expiration (the patient's customary Lead II surmounts the experimental record for comparison): auricular rate, 58; ventricular, 58; grade of block, none. (Time interval between perpendicular lines = one-tenth second.)

The precordial impulse was circumscribed, distinct and striking, the maximum impulse being in the fifth interspace, 9.5 cm. to the left of the midsternal line. The percussion diameter of the aortic arch was 7.5 cm.; right cardiac border, 3 cm. from the midsternal line; left border, 11.5 cm., making a total transverse cardiac diameter of 14.5 cm., which constitutes cardiac enlargement in this long type of chest. There was an apical systolic murmur present: there was a basal systolic murmur transmitted over the right subclavian artery.

TABLE 1.—BLOOD PRESSURE ESTIMATES

	Standing	Recumbent	Recumbent After Ten Bending Movements
Systolic	130	138	138
Diastolic	80	92	78
Pulse pressure	50	46	60

Electrocardiographic Studies.—The legends of Figures 2 to 10, inclusive, are for the most part sufficiently explanatory and confirm the clinical suspicion of heart block. The knee-chest record (Fig. 4) was taken to inquire what effect would be produced on the cardiac mechanism by the upward pressure of the abdominal contents on the heart. In Figures 7 and 8, the pneumogastric nerves were compressed to determine whether right vagal pressure would decrease the rate of the heart or whether left vagal pressure would alter the rhythm. In Figure 10, atropin sulphate, $\frac{1}{60}$ grain, was administered hypodermically at the conclusion of the studies, half an hour prior to the taking of the record, for the purpose of releasing the heart from vagal control and thus determining whether the vagus nerve played any part in the production of heart block.

Roentgen-Ray Studies.—Roentgen-ray studies of this patient were considered advisable for the purpose of confirming the cardiac enlargement; to inquire into the condition of the aorta; to determine the presence of intrathoracic conditions which might be exerting pressure on the heart or altering its position, and to confirm, by fluoroscopic recognition of multiple auricular contractions, the presence of heart block.

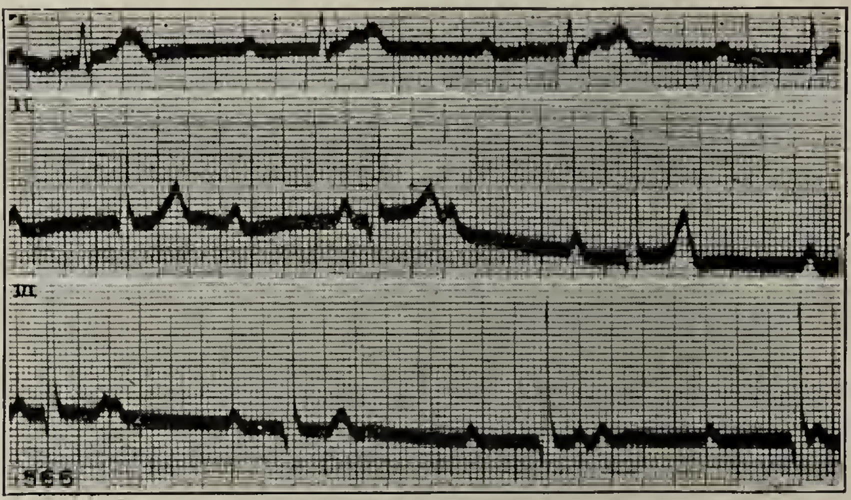


Fig. 7.—Patient recumbent; right vagal pressure: auricular rate, 86; ventricular, 38; grade of block, complete.

Dr. G. E. Pfahler made these observations on the roentgen-ray studies:

"In the teeth there is an abscess about the roots of the upper left lower first molar. There is decay under the filling on the posterior surface of the left lower second molar. There is some slight pyorrheal absorption elsewhere.

"As you will recall from our fluoroscopic studies of the chest, we found the heart increased in size. By careful illumination we were able to see two auricular beats to one ventricular beat. Preceding the first auricular beat there was a very strong auricular dilatation, and this auricular dilatation followed immediately after a strong ventricular contraction. During forced exhalation the heart was tilted upward to the left. The upper mediastinal shadow was increased in size. You will recall then that we made two teleoroentgenograms at a distance of 2 meters from the source of the rays so as to eliminate any exaggeration. One of these was made while the patient held his breath supposedly at normal inspiration. The second was made supposedly during forced expiration.

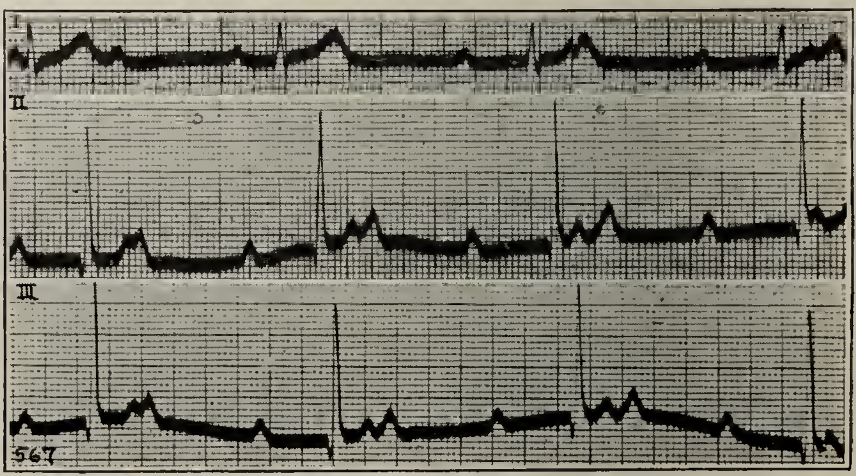


Fig. 8.—Patient recumbent; left vagal pressure: auricular rate, 84; ventricular, 40; grade of block, complete.

"When comparing the two [Figs. 11 and 12] you will see that during forced expiration the right side of the diaphragm is raised one-half inch higher than in normal inspiration, and the left side of the diaphragm is raised three-fourths inch higher than during normal inspiration. As a result, the width of the shadow of the heart is increased 1 inch, which is due to the tilting upward of the apex of the heart and causing the heart to lie in a more horizontal position. This would naturally relax the support of the heart to a considerable extent and relieve any tension that would be due to traction on the nerves or any support of the heart.

TABLE 2.—VARIATIONS IN RATE OF FIGURES 2 TO 10

Circumstance	Auricular Rates	Ventricular Rates	Degree of Block
2. Seated	100	44	Complete
3. Recumbent	84	42	Complete
4. Knee-chest	82	40	Complete
5. Forced inspiration	110	48	Complete
6. Forced expiration	58	58	None
7. Right vagal pressure	86	58	Complete
8. Left vagal pressure	84	40	Complete
9. Exercise test (100 hops)	106	64*	Complete
10. Thirty min. after atropin	94	56*	Complete

* Indicating that the lower pacemaker (ventricular, in the atrioventricular node) was under nerve control.

"The width of the cardiac shadow in forced inspiration is 14.5 cm. The thoracic cavity diameter in forced expiration is 24 cm. The width of the cardiac shadow in normal inspiration is 13 cm. The thoracic cavity width in normal inspiration is 25 cm. Therefore, the cardiothoracic ratio is 54 per cent., normal being from 43 to 50 per cent."

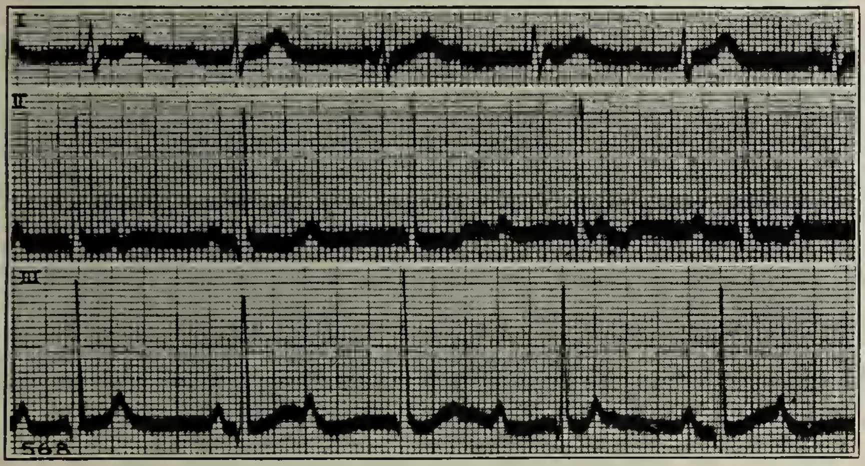


Fig. 9.—Patient sitting, immediately after exercise test of hopping 100 times on one foot: auricular rate, 106; ventricular, 64; grade of block, complete.

Clinical Laboratory Findings (by Dr. Russell Richardson).—Blood examination revealed: Wassermann test, negative; red blood cells, 5,120,000; hemoglobin, 98 per cent.; white blood cells, 9,100. The differential count revealed polymorphonuclears, 61 per cent.; large lymphocytes, 4 per cent.; small lymphocytes, 25 per cent.; transitionals, 7 per cent.; large mononuclears, 2 per cent.; eosinophils, 1 per cent.

Urine examination revealed: Evening specimen; amber; turbid; no sediment; acid; specific gravity, 1.014; no albumin; no sugar; microscopically, only a few epithelial cells. Morning specimen: amber; clear; no sediment; acid; specific gravity, 1.016; no albumin; no sugar; microscopically, a few epithelial cells and leukocytes.

Treatment and Subsequent Observation.—In the search for a focus of infection, and in the absence of any systemic affection that might perchance throw an additional burden on a heart mechanism already abnormal from childhood, suspicion had fastened on the probability of infective teeth and, to a lesser degree, on the tonsils. It was felt that such a diseased condition of the tonsils as might be present could be in a sense secondary to the dental infection, and that attention should first be directed to the teeth; consequently, the left lower first molar and second bicuspid were extracted. Earle C. Rice, D.D.S., reported that 30 minims of a 2 per cent. solution of procain in combination with suprarenin were injected; the peridental membrane was undoubtedly infected; it presented a deep red color and was slightly thickened; on curettement there was but little inflammatory tissue in the socket. It is of interest to note that the employment of procain-suprarenin caused no variation in the pulse rate, which was 48 beats per minute before employment of the drug and throughout the extraction, despite the fact that the drugs, so employed, frequently cause a marked acceleration in pulse rate. Dr. Richardson subsequently reported that cultures of the tooth socket showed many hemolytic streptococci, and prepared a vaccine containing 1,000 million such bacteria to each cubic centimeter, which is now being employed in the case.

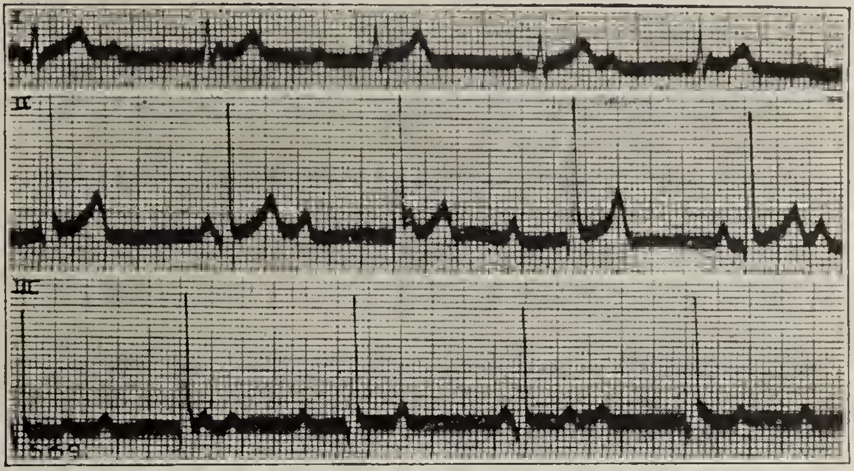


Fig. 10.—Patient recumbent, thirty minutes after $\frac{1}{60}$ grain of atropin; auricular rate, 94; ventricular, 56; grade of block, complete.

The rationale of such therapeutics is based on the thought that infective processes and septic absorption frequently cause an acceleration in heart rate; by removing the cause and increasing the individual's resistance to an autoinfection, the heart could be expected to lessen in rate; in this particular case the abnormal heart mechanism apparently became normal (Fig. 6) when a lessened auricular rate permitted the ventricle to respond to each auricular impulse. Hence, it is logical to employ such measures as could be reasonably expected to aid in establishing a normal rhythm to the cardiac mechanism.

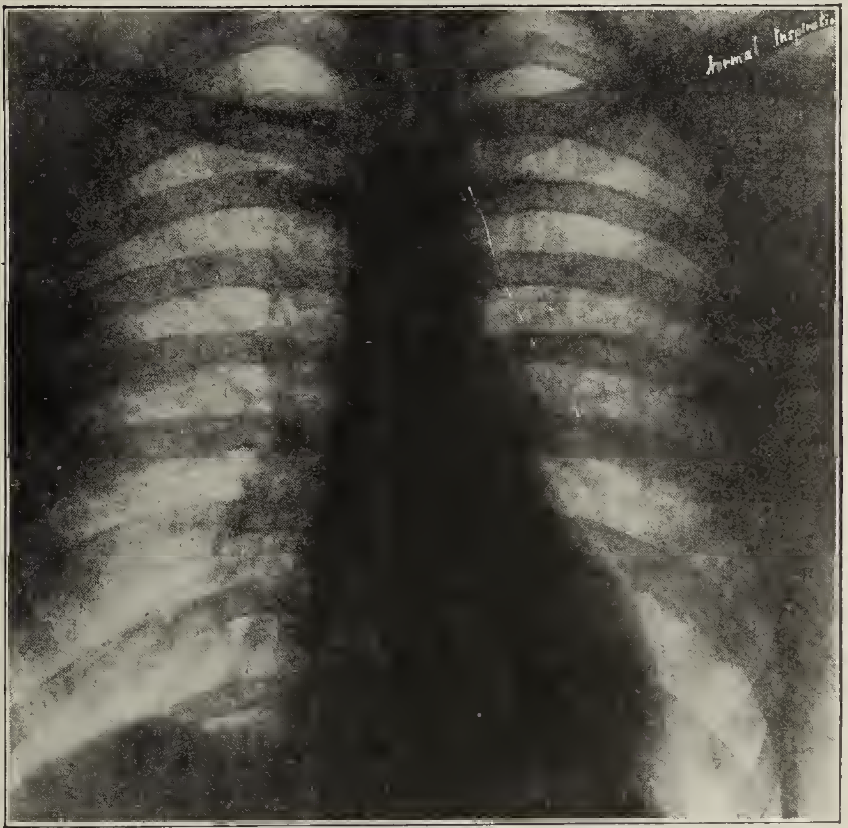


Fig. 11.—Cardiac outlines of patient during normal respiration. (The roentgen studies were made by Dr. G. E. Pfahler.)

CONCLUSIONS

First of all, one is convinced from the records herein presented that the customary method of taking electrocardiographic curves — the recording of but twenty or thirty heart beats of the 108,000 or more which the heart makes in its twenty-four hour day, and the making of such records with the subject in the sitting position alone—is unfair to the physician, unjust to the patient, unscientific on the part of the cardiologist, and constitutes an abuse of the splendid possibilities of electrocardiography. Records should at least be taken before and after exercise, and at such time of the day as the patient is the more often conscious of his heart affection. In this manner valuable information may be secured which would be altogether missed in the casual snap-shot electrocardiogram.

Many problems, deviating from the customary management of a patient with high grade heart block, present themselves in the light of these records. Unquestionably, the prognosis in this instance is not the same as one would give in the usual case of heart block, where the life expectancy is three years. The behavior of the pulse under procain-suprarenin solution at the time of dental extraction is sufficient warrant for sending the patient back to the rhinologist with the opinion that there is no present contraindication to the proposed nasal operation if performed under local anesthesia.

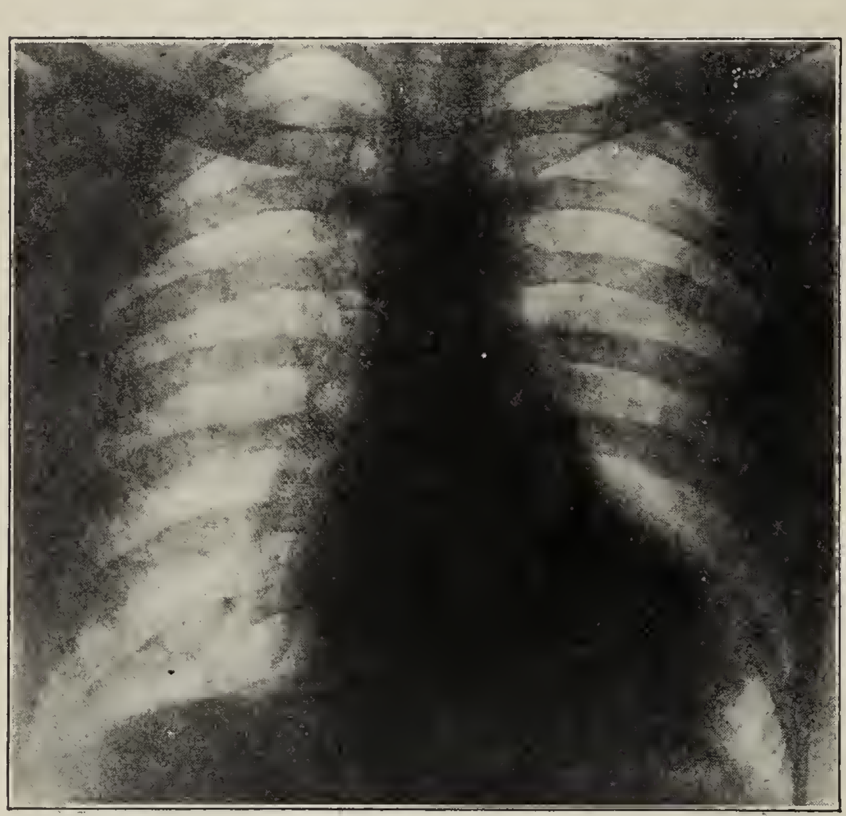


Fig. 12.—Cardiac outlines of patient during forced expiration. The heart is more horizontal and its shadow increased 2.5 cm.

The favorableness of the prognosis as to life (even though one be less hopeful as to cure) brings up the question of latitude in management. Shall this young man be required to forego athletic games and dancing and be consigned to a life of daily heart care? Should marriage be advised against? Would life at a lower altitude than that of his present mountain home offer sufficient hope of heart correction to warrant him in abandoning a prosperous business? Certainly he should pay strict attention to the rules of hygiene and proper living, and should be made aware of the fact that ordinary infections are fraught with an unusual degree of danger to one with a heart already abnormal—*but should he lead the life of a cardiac invalid?* The questions are answered in the affirmative: high grade heart block is a condition in which a cardiac emergency may arise with alarming suddenness—and the professional obligation is to guard against such cardiac emergency.

SUMMARY

1. A case of high grade heart block, in an active youth of 20 years with negative previous history, has evidently existed since childhood, despite the fact that heart block is usually encountered in persons past the meridian of life with definite histories of previous infections, and despite the fact that the average life expectancy in high grade heart block is three years.

2. The case was studied under various circumstances, including the changes induced by posture, respiration, exercise, vagal pressure and drug administration; the graphic records indicated that on forced expiration the heart block disappeared and that a normal sequence of cardiac events ensued. Fluoroscopic study confirmed these findings.

3. Roentgenograms indicated that the position of the heart was altered when the cardiac mechanism became experimentally natural, thus suggesting that the lessening of traction or the relief of pressure on heart tissue may play a part in the experimental reestablishment of natural cardiac rhythm.

323 South Eighteenth Street.

THE TREATMENT OF ACUTE TETANUS

REPORT OF A SUCCESSFUL CASE *

ROBERT A. KILDUFFE, A.M., M.D.
Director of Laboratories, Pittsburgh and McKeesport Hospitals
AND
W. B. McKENNA. M.D.
Visiting Surgeon, Pittsburgh Hospital
PITTSBURGH

The case herewith reported derives its interest from the successful result obtained in a well marked and typical example of acute tetanus in which the beginning of treatment was delayed.

The treatment of tetanus, in essence, consists of neutralizing the toxin, allaying the symptoms, and keeping the patient alive.

For the neutralization of the toxin there is only one method of treatment: the early and vigorous use of antitoxin in sufficient amount. The *early* administration of antitoxin is of paramount importance, as the presence of symptoms is conclusive evidence that there is serious poisoning, that the toxin has been present and in contact with the cells for some time, and that union has occurred—a union which, so far as is known, is not susceptible to dissociation.

There is experimental evidence, however, to show that there is, apparently, an interval of time during which the toxin is in contact with the cellular surface and within the cellular fluids before true union occurs. Experiments have also shown that if, during this time, the cells are surrounded by an antitoxin in strong concentration, a part, at least, of the toxin may pass out of the cells by a process of osmosis, union with the cell being thereby prevented. The route by which the antitoxin is administered is of great importance and was carefully considered in the present case.

As the major portion of the toxin enters the blood and thence passes into the tissues, the injection of the neighboring nerve trunks was not considered essential or of sufficiently pronounced efficiency to warrant the use of this method. Intraspinal injection was considered, but, as the serum so administered does not come into contact with more than the surface of the cord, the underlying, deeper portions being unaffected, and, as in any event, serum—and toxin—must first be accumulated in the blood before passing out into the tissue fluids by which the cells are bathed and through which contact with them is established, this route was not chosen.

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* From the laboratories and the surgical department of the Pittsburgh Hospital.

Intracerebral injections must also be absorbed by the blood; they add, moreover, an element of danger and shock. They, also, were therefore discarded, while the subcutaneous and intramuscular channels are too slow in absorption.

The intravenous injection of antitoxin, on the other hand, causes the immediate neutralization of all toxin present in the blood as, also, within a few hours, of all toxin present in the lymph and cellular fluids, and was therefore the method of choice. The problem, then, was the comparatively simple one of keeping the blood saturated with antitoxic antibodies.

The importance of large dosage was obvious, particularly in this case, in which treatment had been delayed. The large dosage administered was not given with the thought that the blood necessarily contained large amounts of toxin, but because of the fact that only a relatively small proportion of the antitoxin so administered passes out into the cellular fluids. In order to get the antitoxin to the cells in appreciable amount, with the hope of neutralizing toxin present but not yet actually united with the cells, a high concentration is necessary in the blood.

Amputation of the affected part for tetanus alone, when the surgical condition does not demand it, is not advised, as the accompanying shock does more harm than good.

The Baccelli treatment by injections of phenol (carbolic acid) was rejected, as it has not proved successful in experimental tetanus in animals, and it was felt that antitoxin offered the best and only chance.

Drugs are of some assistance as aiding in the conservation of the strength of the patient and in relieving pain. Magnesium sulphate was not used in this case, though a powerful anodyne, because of the danger of profound respiratory depression. Chloroform presents the danger of toxic effects when its use is prolonged or frequent, and reliance was placed on chlorbutanol.

REPORT OF CASE

History.—J. McC. (Serial No. 119), a colored man, was admitted to the Pittsburgh Hospital, Sept. 20, 1920, for stiffness of the jaws and pain in the neck and shoulders. While he was trying to jack up a truck, September 9, the index finger of the right hand was crushed between the wheel of the truck and the street. The wound received hospital treatment, but a prophylactic injection of tetanus antitoxin was not administered. It was thereafter dressed at irregular intervals, the patient remaining at work. Eight days after the original injury, the patient was conscious of pain in the jaws and arms, and some slight stiffness of the jaws which became progressively worse. He consulted a physician, receiving some medicine which gave no relief. The following day he was no better, had been unable to sleep that night, and came to the hospital in the morning.

Examination.—On admission, the patient, who was slender and of spare build, was in evident pain and discomfort. He was unable to open his mouth more than half an inch, had obvious difficulty in sitting down, and complained of stiffness of the neck and pain in the jaws and shoulder muscles. The abdominal muscles were as rigid as iron, the abdomen everywhere giving a sensation of stony hardness to the touch. The wound of the finger was covered with a grayish necrotic slough, and oozed a sanguineous serum. There was no general rigidity of the body, though there was some indication of stiffness of the back and legs. The temperature was 99 F., shortly afterward rising to 102. The admission pulse was 88, shortly afterward rising to 110.

Treatment and Course.—Immediately on admission, the patient was given 10,000 units of antitoxin—all that was on hand. A few hours later he became extremely rigid, the jaws tightly clenched, and a slight retraction of the neck was noticed, though typical bowing of the body as a whole did not occur. He complained bitterly of pain.

The wound, after having been thoroughly cleansed and after drainage was established, was kept wet with a constant hydrogen peroxid drip, utilized because of its free generation of oxygen. Smears from the wound showed streptococci. Anaerobic cultures (hydrogen and pyrogallic acid technic) gave a growth of typical tetanus bacilli of classic shape.

Five hours after admission the patient received 20,000 units of antitoxin intravenously. He was also given 40 grains of chlorbutanol by rectal injection, every four hours for two days.

The antitoxin treatment was entirely intravenous, the injections being given as follows:

September 20: 10,000 units, 9 a. m.; 25,000 units, 2:30 p. m.
September 21: 20,000 units, 9 a. m.; 20,000 units, 6 p. m.
September 22: 20,000 units, 9 a. m.
September 23: 20,000 units, 9 a. m.
September 24: 20,000 units, 9 a. m.
September 25: 5,000 units, 9 a. m.

A total of 140,000 units was given, all told.

On the 21st, the general condition was about the same. The neck, however, was perceptibly drawn back, the jaws rigid, and the patient complained of severe pain in the back and abdomen.

On the 22d, there was a slight improvement in that the attacks of pain were less frequent and less severe, the general rigidity being unchanged, however.

On the 23d, there was much less pain, the jaws could be slightly opened, the neck was not so stiff, and the patient was able to take liquid nourishment with more ease. The finger wound on this day was clean in appearance and doing well.

On the 24th and 25th, there was progressive improvement, though of slight degree. The patient slept fairly well in snatches, and was able to take liquids freely. On the 26th and 27th, the condition rapidly improved, the jaws relaxing to a well marked degree, and from this time on improvement was steadily observed.

October 1, the jaws were freely relaxed, there was no pain, and the neck was limber. The abdominal muscles, however, were still stony hard.

October 5, the finger wound was all closed and covered with healthy tissue, and the patient was on full diet and feeling well and comfortable.

At no time was the temperature over 102 F. or the pulse above 120.

The urinalyses disclosed only a trace of albumin and a strong acetone reaction, both of these reactions clearing up before discharge.

The patient was discharged, October 11, perfectly well except for some muscular aching in the limbs comparable to that found after severe or unaccustomed muscular exercise, the abdominal muscles still being somewhat rigid.

COMMENT

We are aware that the frequent administration of large doses of antitoxin is not deemed necessary if a sufficiently large amount is given early in the treatment. It was hoped, however, that by keeping the blood saturated with antitoxin, perhaps some of the toxin present in but not yet united with the cells might be neutralized, or its union with the cells prevented.

If the treatment in this respect was not secundum artem, it was, nevertheless, successful.

We report the case simply as another illustration of the probabilities inherent in the vigorous and continued use of antitoxin even when an initial delay renders the prognosis extremely dubious.

RHABDOMYOMA OF THE NOSE

REPORT OF A CASE

GEORGE S. REITTER, M.D.
INDIANAPOLIS

Its unusual feature, together with its being classed as rare, has prompted me to report this case.

I find that only one other case of a rhabdomyoma located on the nose has been reported, that by Erdman.[1]

The early classification of rhabdomyoma is not at all uniform, some authorities calling it teratoma, on account of its being of the mixed variety of embryonal type of tissue. It was first classified as a tumor by Rokitansky,[2] who described a rhabdomyoma of the testicle. Brock[3] referred to Rokitansky's case, and had collected sixty-seven published reports of the condition, occurring in various parts of the body.

Wolbach[4] reported a series of twelve cases of rhabdomyoma of the heart, in seven of which there was cerebral sclerosis.

In Wolfenberger's[5] review of sixty-three cases of rhabdomyoma, thirty-eight cases involved the urogenital system. Squier[6] reported one of the prostate of the mixed type (rhabdomyomatous sarcoma), while Kauffman reported three others of the same type. Ludwig Pick reported fourteen cases occurring in the vagina of children, with one extending to the rectum. In this location, they are rapidly fatal. In reviewing the literature, Holmes,[7] in 1907, reported thirty-nine cases occurring in the vagina of infants, though the descriptions of them are much diversified. Vincenzi found one in the urinary bladder. Ewing[8] gives a comprehensive survey, and cites, in addition to the foregoing, rhabdomyomas of the esophagus, stomach, tongue, parotid gland, breast, left lung, spinal vertebrae, tibia, and skeletal muscles in various parts of the body and extremeties.

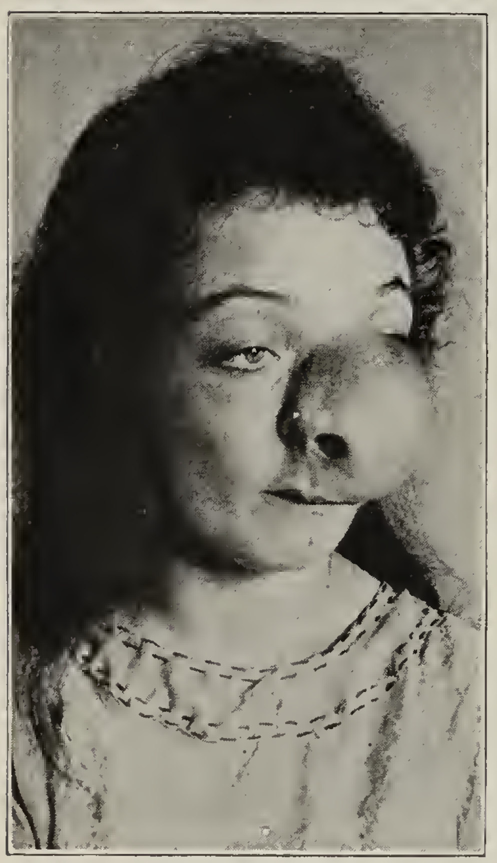

Fig. 1.—Appearance of growth from the right.

REPORT OF CASE

A girl, aged 14, who entered the Indiana Radium Institute, June 29, 1920, and whose family history was negative, had been struck on the left side of the nose with a ball, eight years before. At that time there was only a bruise, which apparently healed. Eight months afterward, a small swelling was noticed which gradually grew to be a good sized tumor. It had always been hard, the skin over it quite normal, with no pain at any time. For the last four years her father had not noticed any further enlargement of it.

The tumor was located a little more on the left side of the nose than on the right, though it involved virtually all of the nose and completely distorted the normal relations of the parts, as shown in the accompanying illustrations. The external nares were twisted round to the right side. The nasal passages were completely closed. Evidences of invasion of the superior maxilla were shown in the hard palate and left superior alveolar ridge. On palpation, the tumor felt like cartilage, and the skin was not adherent to it. From cheek to cheek the tumor measured 6¼ inches. From the lower border at the middle of the upper lip to the upper border between the eyes, it measured 5 inches. The roentgen ray detected no evidence of bony structure in it.

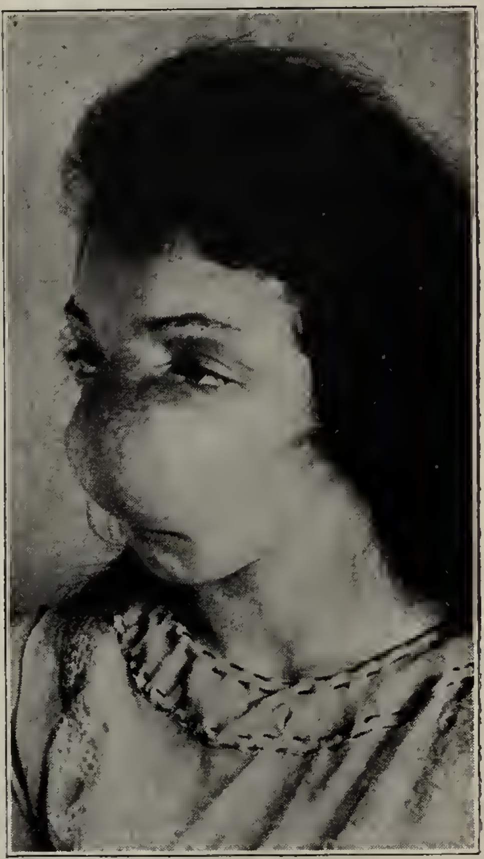

Fig. 2.—Appearance of growth from the left.

A Wassermann test was negative. A section was removed for histologic examination, and Dr. Virgil H. Moon reported that the specimen was pale red, and had no gross features of significance. Paraffin sections, stained with hematoxylin and eosin, on microscopic examination were found to consist of irregular bundles of fibers closely resembling those of striated muscles. These bundles consisted of varying numbers of fibers running in many directions without regular arrangement. Each fiber had a distinct sarcolemma, and cross-striations were visible. The fibers were somewhat coarser than those of normal striated muscle. The bundles of fibers were separated by areas of delicate connective tissue containing numerous vessels. There were no areas of necrosis in the sections examined. No mitotic figures were visible, nor other evidences of malignancy.

The diagnosis was rhabdomyoma.

As the father refused to consider any surgical procedures, an attempt was made to reduce it with radium, July 24 and 25. Only the gamma rays were used. Three hundred milligrams of radium element, screened with 3 mm. of lead and 2 mm. of rubber, at a distance of 2 cm., a total of 6,500 milligram hours, were applied to four areas, which completely covered the surface of the tumor. Macroscopically, no change in the tumor was noted, except for a slight transitory erythema that lasted for three days.

August 19, the tumor measured from cheek to cheek 5 inches, and from the lower to the upper border, 4¼ inches, a reduction of about an inch in the outside circumference.

September 20, the girl's father informed me by letter that there had been no further reduction in its size, and that he refused to allow any more radium to be used.

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[1] Erdman: Virchows Arch. f. path. Anat. **43**.
[2] Rokitansky: Ztschr. f. Gesellsch. d. Aerzte, Vienna **5**: 331, 1894.
[3] Brock: Ztschr. f. Gesellsch. d. Aerzte, Vienna **5**: 331, 1894.
[4] Wolbach, S. B.: J. M. Res. **16**: 495 (July) 1907-1908.
[5] Wolfenberger: Beitr. z. path. Anat. u. z. allg. Path. **15**, 1894.
[6] Squier, J. B.: Progr. Med., December, 1916.
[7] Holmes, O. L.: Pediatrics **19**: 95, 1907.
[8] Ewing, James: Neoplastic Diseases, Philadelphia, W. B. Saunders Company, 1919, p. 213.

COMMENT

A search of the literature does not show any cases of rhabdomyoma that have been treated with radium.

My experience with this case leads me to believe that rhabdomyomas that have an abundance of the connective tissue elements will show partial, if not complete, retrogression when treated with heavy doses of radium.

1108 Central Avenue.

FOOT DROP FOLLOWING LAPAROTOMY *

J. W. DUNCAN, M.D.
OMAHA

I have observed two cases of paralysis of the anterior tibial group of muscles with complete foot drop immediately following laparotomy in which the Trendelenburg position was employed. Both resulted in early and complete recovery.

REPORT OF CASES

Case 1.—Mrs. C. C., aged 24, widow, clerk, operated on, Sept. 24, 1915, for double pyosalpinx of gonococcic origin, was placed in the Trendelenburg position for laparotomy, the position being maintained by securing the legs at about the middle third with a broad quilted muslin band passed through perforations in the table. The operation lasted one hour and was completed without incident. Immediately on awakening, the patient complained of a left foot drop. Examination revealed no cause for this. There was no pain in the leg. Operative recovery was uneventful, but the patient was incapacitated for one and one-half months on account of foot drop. This gradually improved on ordinary treatment to complete recovery.

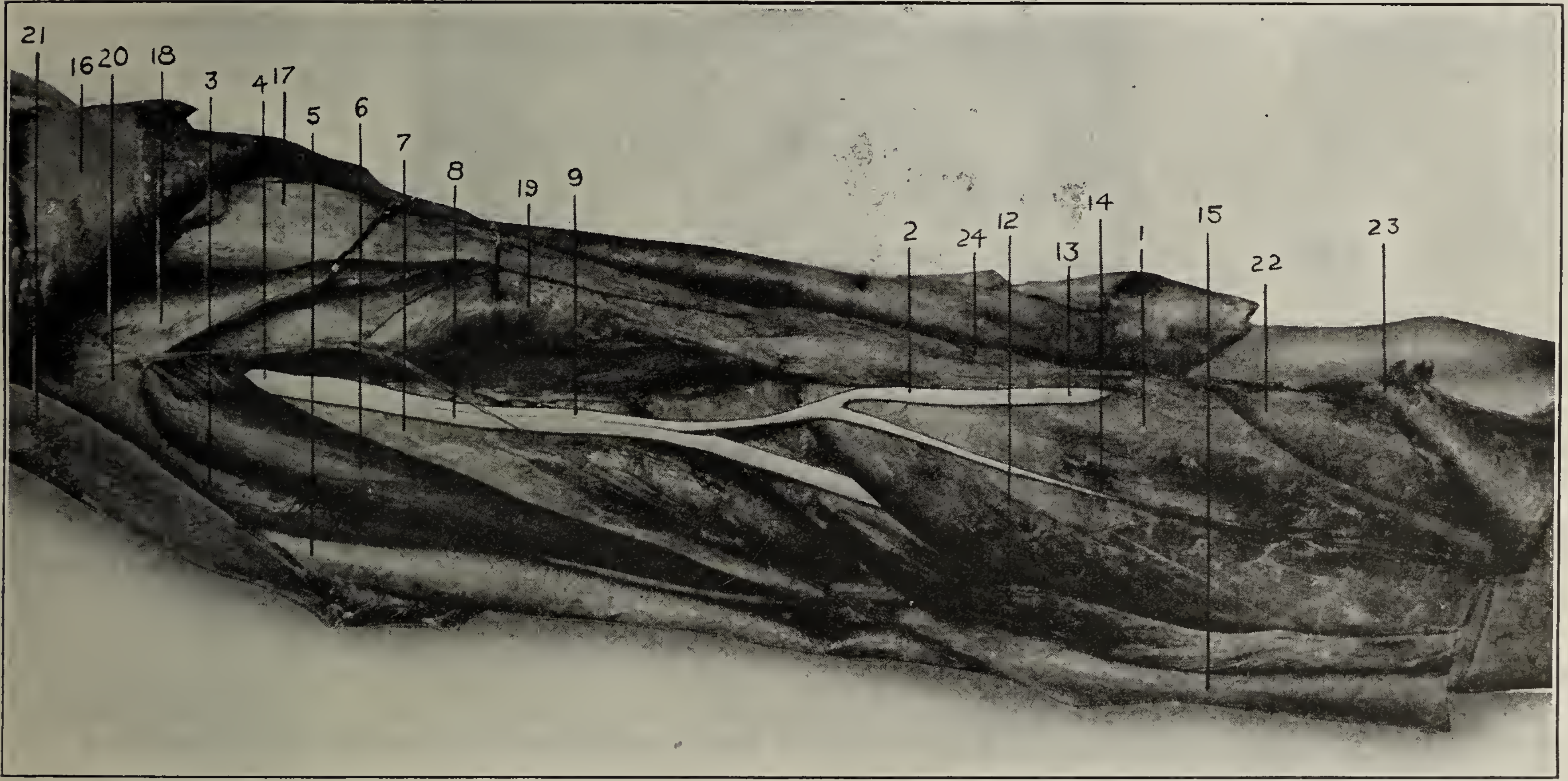

Fig. 1.—Dissection of muscles and nerves of posterior aspect of knee joint: 2, 13, nervus peroneus communis extending downward over posterior aspect of head of fibula, and disappearing under biceps tendon; 3, musculus gracilis; 4, nervus sciaticus; 5, 15, 16, 21, 23, reflected skin; 6, musculus semitendinosus; 7, musculus semimembranosus; 8, internal popliteal nerve; 9, external popliteal nerve; 12, musculus gastrocnemius (internal head); 1, musculus gastrocnemius (external head); 14, nervus peroneus communicans; 17, musculus vastus externus; 18, musculus biceps femoris (long head) reflected, exposing nerves; 19, musculus biceps femoris (short head) reflected, exposing nerves; 20, superficial fascia; 22, musculus soleus; 24, biceps femoris tendon.

Case 2.—Mrs. S. S., aged 35, married, with five living children, operated on, May 24, 1920, for left pyosalpinx, following an abortion, probably self induced, was anesthetized and placed in the Trendelenburg position, the legs being secured as in the previous case. The operation lasted fifty minutes and was completed without incident. Immediately on regaining consciousness the patient, who did not speak English, complained to a friend of a right foot drop. This was not called to the attention of the nurse or the surgeon until an attempt was made to walk twelve days after the operation. A marked foot drop was present, and examination revealed distinct tenderness posteriorly over the head of the right fibula. Under support and massage, the condition gradually improved to complete recovery in six weeks.

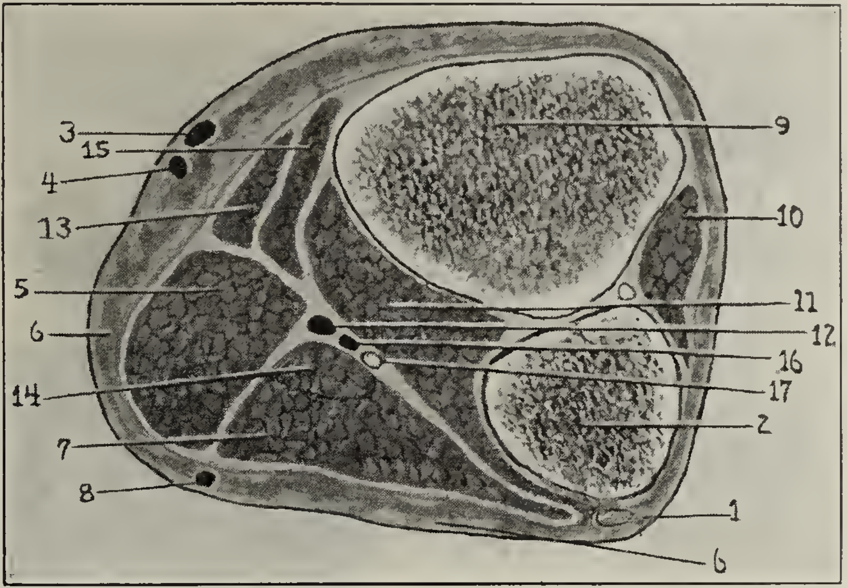

Fig. 2.—Cross-section of right leg just below head of fibula: 1, nervus peroneus communis (external popliteal); 2, fibula; 3, vena saphena magna; 4, vena saphena accessoria; 5, musculus gastrocnemius (medial head); 6, skin and fat tissue; 7, musculus gastrocnemius (lateral head); 8, vena saphena parva; 9, tibia; 10, musculus extensor longus digitorum; 11, musculus popliteus; 12, arteria poplitea; 13, musculus semitendinosus tendon; 14, musculus plantaris; 15, musculus semimembranosus tendon; 16, vena poplitea; 17, nervus tibialis (posterior tibia).

COMMENT

In both these cases a paralysis, not preexistent, was noticed immediately on recovery from the anesthetic. This paralysis seems clearly to have been incurred in

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* From the Department of Surgery of John A. Creighton Medical College.

some way between the time the patient left the bed for the operating room and that at which she returned.

The muscles involved—the extensors of the toes and foot, the tibial anticus and the peronei—are supplied by the external popliteal nerve, and the explanation of the paralysis, I believe, lies in pressure on that nerve when the patient is placed in the Trendelenburg position.

The peroneal nerve, in the upper part of the popliteal space, lies underneath the biceps, but in its descent inclines gradually outward between the tendon of the biceps and the outer head of the gastrocnemius. Passing over the latter, it lies posterior to the head of the fibula, where it is covered only by a small amount of fat, the superficial fascia and the skin.

If one flexes the knee to a right angle and makes pressure just behind the insertion of the tendon of the biceps into the head of the fibula and on the posterior surface of the fibular head, the nerve, like the ulnar behind the elbow joint, is easily located, especially if there is little subcutaneous fat. Further, if one assumes the Trendelenburg position on the operating table, the legs having been secured and no shoulder support having been used, it will be found that the unprotected posterior surface of the head of the fibula lies firmly in contact with the lower leaf of the table. It is easily conceivable that the peroneal nerve is sometimes pinched between the fibular head and the operating table if care is not taken to prevent it.

The practice of "breaking" the table and dropping the knees quickly may easily pinch the nerve. Or, placing the patient too high on the table, so that accurate adjustment of the knee joints to the break in the table is not secured, will cause pressure. Also, the practice of depending on the flexed knees with the legs secured to the table to maintain a satisfactory Trendelenburg position is reprehensible. In every case, shoulder supports should be used to prevent slipping of the body and thus protect the peroneal nerve from pressure.

Care is customarily taken to protect the musculospiral nerve from pressure while the patient is under anesthesia to prevent wrist drop. The peroneal nerve is the homologue of the musculospiral in the lower extremity, and I believe that my experience demonstrates the necessity for its adequate protection from injury when the Trendelenburg position is employed.

1520 City National Bank Building.

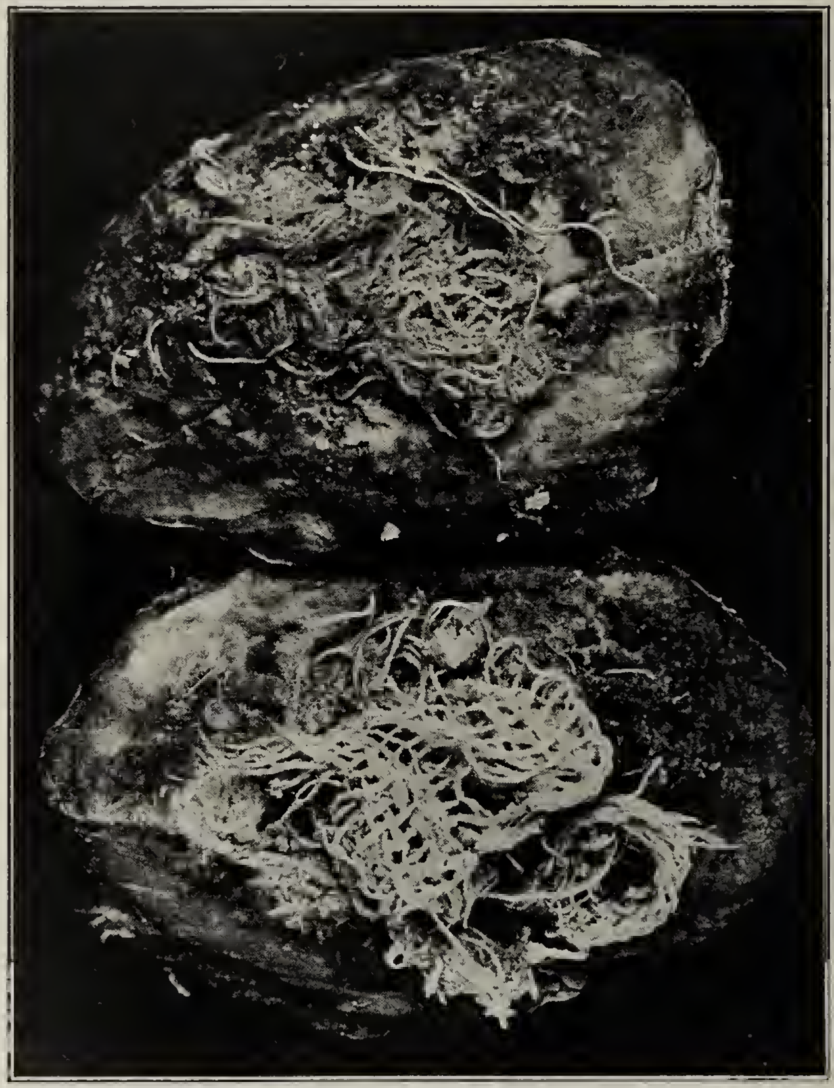
Congenital Syphilis.—At a recent medical congress in Germany the gynecologist Löser stated that one child out of every twenty-five born now has syphilis.

GAUZE SPONGE IN THE ABDOMINAL CAVITY FOR FOURTEEN YEARS

WITH SIMULATION OF ECTOPIC GESTATION *

FRED C. WATSON, M.D.
AND
P. H. DESNOES, M.D.
Chief Surgeon and Surgeon, Respectively, United Fruit Company Hospital
BOCAS DEL TORO, PANAMA

We report a case we believe to be unique, in which the symptoms and signs of an early ectopic gestation were closely simulated by a gauze sponge that had been present in the abdominal cavity for fourteen years, following an operation for chronic appendicitis. No symptoms other than constipation could be attributed to the presence of the gauze sponge until the onset of the present illness.



Encapsulated sponge, × 1.6.

CLINICAL REPORT

History.—Mrs. D., a white woman, aged 29, Canadian, admitted to the hospital Feb. 1, 1920, whose family history was unimportant, as a child had had measles, scarlet fever and whooping cough. Her tonsils were removed at the age of 9 years. An operation was performed in Halifax, Nova Scotia, fourteen years previously, for chronic appendicitis, at which time she was told that the appendix and a small cyst from the right ovary were removed. The menses began at the age of 13; they were always regular and of the twenty-eight day type, and lasted for six or seven days. In November, 1918, three months after she was married, she had a miscarriage. Bleeding was profuse, necessitating curettage. Recovery was uneventful. In April, 1919, she had another miscarriage and had to be curetted on account of repeated hemorrhages. Recovery was complete and uneventful. Each of these miscarriages occurred at the end of the second month of pregnancy. The last menstrual period, which began, Dec. 13, 1919, was normal, lasting seven days. She had missed her January period and considered herself pregnant.

Present Illness.—On the day of her admission to the hospital she was suddenly seized with severe cramplike pains in the lower abdomen. These were exaggerated on movement of the body and after urination and defecation. The pains were first felt in the hypogastric region, and radiated up each side to the sacral region. The duration of the pains was about four minutes, and the bearing-down character of labor pains was simulated. There was no bloody discharge from the vagina. Nausea was present for two or three weeks before the onset of the pains, and was especially marked in the mornings before breakfast. Vomiting of mucus and sour fluid was occasionally present. The appetite was not impaired. The bowels were constipated, but had been so for several years, so that the patient had taken a cascara pill at bedtime. The temperature showed a fairly constant evening rise to about 99.6 F., with a normal or slightly subnormal reading in the morning. The pulse rate was practically normal. The heart and lungs were negative. The abdomen moved freely with respiration. In the right lower quadrant there was a 4-inch linear scar from the operation for the removal of the appendix. There was no rigidity of the abdominal muscles. There was, however, definite tenderness low down in the pelvis and just to the right of the median line. Blood examination revealed: hemoglobin, 95 per cent.; white blood cells, 9,600; polymorphonuclears, 82 per cent.; small lymphocytes, 16 per cent., and eosinophils, 2 per cent. Urinalysis was negative. Vaginal examination revealed the uterus in good position, apparently slightly enlarged but not tender. The cervix was normal. There was slight tenderness in both lateral fornices, and an indefinite indurated area in the right fornix.

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* Read by proxy before the Medical Association of the Isthmian Canal Zone, May 21, 1920.

The patient was kept in bed under close observation for a week. During this time the frequency and severity of the pains subsided somewhat, but the nausea and vomiting remained about the same. The time for her February period came and the pains became very much worse both in frequency and severity. There was no menstrual discharge. The evening temperature was now usually around 100 F. Blood examination revealed 14,500 leukocytes, with 85 per cent. polymorphonuclears. Vaginal examination disclosed the indurated area in the right side of the pelvis to be somewhat larger and decidedly more tender. The uterus was freely movable and apparently a little more enlarged than at the previous examination.

A slowly rupturing ectopic gestation was considered highly probable, and operation advised.

Operation and Result.—February 18, under ether anesthesia, a low median incision was made by Dr. Watson, who found the uterus markedly congested and enlarged to about the size of a six or eight weeks' pregnancy. The left tube and ovary were normal. In the region of the right tube and ovary and densely adherent to these structures there was a hardened semisolid mass about one and one-half times the size of an English walnut. The right ovary was markedly atrophied, being about the size of a hazelnut. Dense omental adhesions completely surrounded the mass. The lower end of the ileum was likewise involved in the mass of adhesions. The tumor mass, together with the right tube and ovary, was removed. The adhesions about the lower end of the ileum were liberated and the abdomen was closed in the usual manner.

On section, the tumor mass was found to be an encapsulated gauze sponge.

At 2 p. m. on the first day following the operation, griping pains were felt in the lower abdomen over the uterus; a number of large blood clots were expelled from the vagina, and in a short time a fetus from 6 to 8 weeks old. The usual temporizing measures were instituted, and the hemorrhage ceased.

Recovery from the abdominal operation was comparatively uneventful. The wound healed by primary union. The stitches were removed on the twelfth day, and the patient was allowed out of bed on the same day. At 7 p. m., March 8, the patient complained of severe bearing-down pains over the uterus, and several large blood clots were expelled. Vaginal examination revealed retained placenta. Under anesthesia, the uterus was curetted, after which recovery followed.

The patient was discharged from the hospital, March 28.

PATHOLOGIC REPORT

We are indebted to the staff of the board of health laboratory, Ancon, Canal Zone, for the pathologic report and accompanying photograph of the specimen.

Gross Examination: Surgical specimen No. 8914 (fixed in formaldehyd) consisted of two pieces: an ovary with the distal end of a tube adherent over part of its cortex, and an encapsulated tuft of a gauze sponge. The ovary measured 15 mm. in its greatest diameter. It was a dense, contracted, rough ball of ovarian tissue with a few little cysts from 2 to 5 mm. in diameter. The fragment of tube consisted apparently of the distal quarter of the organ. The fimbriated end was adherent in an irregular manner over the cortex of the ovary and the neighboring tags of fat. It was slightly distended with a clear fluid held in small cystic compartments, but no marked hydrosalpinx had been formed. The encapsulated gauze sponge formed a large, yellowish-white, olive shaped mass measuring 4.5 cm. in its long diameter and 3.5 cm. in its short dimension. It weighed 25 gm. The split specimen presented a capsule wall ranging from 10 to 15 mm. in thickness. The cavity dimensions were 3 by 2.5 cm., and this space was filled with a ball of white gauze. The cortex of this ball of gauze was unraveled, and the fibers were firmly incased by the tissue forming the inner surface of the capsule. The center of the sponge showed layers of white gauze with a normally arranged meshwork, having no sign of a tissue infiltration. It looked like normal fresh gauze. Considerable traction was required to break a thread by pulling on its ends with thumb forceps. These fibers were not, however, as strong as a fiber taken from a new gauze sponge. The exterior of the capsule was quite tough and fibrous, while the interior was granular and friable. A large area, occupying nearly all the internal surface of one hemisphere of the specimen, had a gray slate color and was softened. A gray, semifluid material could be expressed from the cut surface of this area.

Microscopic Examination: Ovary: There was extreme atrophy, approaching the senile type. The stroma was dense, and fibrosis of the follicles was so general that no well-defined follicles could be found in any of the sections prepared. A few small cysts were present. Beneath the cortex was a broad zone of vacuolated, nonstaining tissue suggesting a subcortical fatty metamorphosis.

Fallopian Tube: The fimbriated, slightly cystic end of the tube was adherent to the cortex of the ovary The lumen was empty and distended.

Encapsulated Gauze Sponge: The external portion of the capsule presented a dense fibrosis in which many of the cells were found to contain an abundance of golden pigment. Very few places in this part of the capsule showed the presence of sponge fibers or recent focal disturbance.

The intermediate area in the capsule represented a mixed picture of fibrosis and of numerous fibroblastic accumulations with fibers at the center of the fibroblastic areas.

The inner zone of the capsule was composed of a vast number of round and oblong foci of cell activity arranged about gauze fibers as a center. These little lesions were so numerous that they fused in many places. The fibers appeared as nonstaining hyaline threads or distorted fragments of these. Immediately about the fibers were great numbers of bizarre "foreign body" giant cells. These giant cells were surrounded by an accumulation of enormous numbers of plasma cells, phagocytic cells containing pigment, and fibroblasts.

In some places new capillaries could be followed almost to the position of the incased gauze fiber; such vessels contained an abundance of neutrophilic leukocytes. No marked evidence of necrosis could be found in the tissue composing the capsule, except for the internal surface of the hemisphere, where it was noted on the gross examination to be softened and of a gray-slate color. This region revealed a large patch, on the internal surface, of amorphous débris with an extensive collection of leukocytes at the border. No bacteria were found in the sections.

Ointment Bases.—Sixteen representative pharmacists of Philadelphia were asked to determine how many prescriptions called for ointments and how many of these called for lard, petrolatum and other bases. The returns showed "out of 32,319 prescriptions examined, 1,246, or about 4 per cent., called for ointments. Of these, 791, or about 63 per cent., called for a petrolatum base and 236, or about 18 per cent., for a lard base, the balance (19 per cent.) calling for lanolin and mixed bases."—E. T. Hahn and R. P. Fischelis, Proceedings Forty-Second Annual Meeting of the Pa. Pharm. Ass'n., 1919, p. 165.

THE PRESENT STATUS OF DIGITALIS THERAPY *

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ST. LOUIS

Although the attention of medical men was directed to digitalis as long ago as 1785, and although it is and long has been one of the most widely used of drugs, our knowledge of its action clinically did not attain any degree of exactness until within comparatively recent years, and many phases of its action on patients are still unsettled. It is interesting to remember that Withering himself thought of it and described it as a diuretic. Now it is universally thought of primarily as a cardiac drug. It is given to all sorts and conditions of patients with real and suspected heart disease, sometimes with confident expectation of beneficial results, sometimes with vague hope that it will in some way work a magic cure.

Pharmacologists have been in advance of clinicians in arriving at conclusions regarding the action of digitalis. The question to be determined, of course, is: How completely can the results of pharmacologic research be applied to patients?

The basis for the commonly accepted notions about the action of digitalis on patients rests on the pharmacologic findings [1] of some years ago, after investigation of its action on frogs. A twofold action was recognized: (*a*) a stimulation of the vagus center in the medulla which tends to slow the rate, weaken systole and prolong diastole; (*b*) a direct action on the heart muscle, increasing its tone, and thus causing relaxation to be imperfect while contraction is strengthened. In the therapeutic stage the latter action was said to predominate, thus increasing the efficiency of the heart. After large doses, however, the inhibitory effects were found to predominate, and by increasing relaxation, lessening contraction and slowing the rate, the heart's efficiency was lessened. Irregularities developed, the auricle and ventricle perhaps beat independently, and finally a rapidly beating ventricle passed into fibrillation and death. The clinician, then, reasoned that by giving only enough digitalis to produce the initial effects, the tone of the heart muscle was increased, contraction was stronger, and more blood was pumped out not only with each systole, but also—since the rate was slowed little or not at all—in a given space of time. Such reasoning, if based on correct premises, would certainly appear to be sound; but in recent years, with more exact methods of study, two questions have arisen which leave the matter somewhat less definite than was formerly supposed.

In the first place, when digitalis is given to human beings, do the same events occur, and in the same succession, as when it is administered to frogs and other animals in the laboratory? Is the human heart influenced by the same distribution of nerves and specialized tissue exactly in the same way as the heart of the animals on which the effects of digitalis have been studied in the pharmacologic laboratory? In other words, are the results of animal experimentation wholly transferable to man? If such results are not transferable to patients, then the results obtained on animals afford us little help in trying to determine the action of digitalis on the human heart. Pharmacologic findings must be verified clinically as far as possible; and if it is found that these results are transferable, the question at once arises, in the case of a drug that has been found to have two antagonistic actions on the isolated frog's heart, as to whether its dosage can be so controlled as to bring out the one action which, occurring alone, would be beneficial, without at the same time exhibiting the antagonistic effect which would not be beneficial, but might even be harmful.

This twofold and antagonistic action of digitalis on the heart of the frog, which pharmacologists have shown to be both a stimulation of the vagus center and a direct action on the heart muscle, must therefore be investigated clinically to determine as far as possible its applicability to the human heart. If it is found that the same effects are produced on patients, it must also be determined whether and in what cardiac conditions the combined antagonistic effects produce favorable results. Let us consider first the question of vagus stimulation by digitalis when administered to patients.

EFFECT OF DIGITALIS ON VAGUS NERVES

The rhythmicity inherent in heart muscle, which causes contractions to recur after short periods of rest, is greatest at the sinus area near the mouth of the great veins. It is here that the contraction waves start, therefore, and thus it is that this area is called the pacemaker. Now, this inherent rhythmicity would drive the heart at a much faster rate were it not for the vagus nerves, which depress rhythmicity and thus hold the heart somewhat in check. This vagus control is exercised, of course, at the pacemaker in large degree; and vagus stimulation, therefore, will find its expression here in a depression of rhythmicity and a consequent slowing of rate. This has been shown by Robinson and others to occur in human beings when the vagus is stimulated by digital pressure applied in the neck.

But this is not the only action of the vagus on the heart. As the contraction wave spreads from the sinus area over the auricle to the ventricle, it is conducted to the ventricle along a bundle of specialized tissue, the auriculoventricular bundle, or the bundle of His. If the conductivity of this pathway is sufficiently interfered with, the impulse to contraction will be delayed or it may even not reach the ventricle. Here, again, the action of the vagus is manifested. Vagus stimulation by pressure may be shown by the electrocardiograph so to depress the conductivity of the auriculoventricular bundle as even to block completely the passage of the impulse from auricle to ventricle. It may be mentioned in passing that it seems probable that the right vagus is largely responsible for the slowing effect at the sinus, while the left vagus exercises the greater influence in depressing conduction.

It has long been recognized that digitalis does produce vagus stimulation in the human subject. The important fact is that this stimulation produces effects by its depression of auriculoventricular conduction that are far more striking than any effect at the pacemaker. It is in this depression of conduction between auricle and ventricle that digitalis affords its most dependable and remarkable effect to benefit patients. Whatever may be said of other effects, there is unanimity of opinion here.

The clinical condition in which advantage is taken of this depression of conduction by digitalis with such striking results is, of course, cardiac decompensation with auricular fibrillation. In this condition, with auricular fibrils contracting independently and sending down myriads of impulses to a distressed and overworked ventricle, the latter cannot find sufficient rest. By depressing conduction, digitalis blocks off a number of these crowded and irregular impulses and thus allows the ventricle time to rest. There is no more pronounced and striking result in medicine than the rapid improvement in comfort of a patient with decompensation attending auricular fibrillation with rapid heart rate, after a large dose or two of digitalis. The improvement in signs is no less remarkable. A heart that was working so hurriedly that many beats were too weak to cause a radial pulse becomes, ofttimes within a few hours, so much improved that few if any of its contractions fail to give a radial response. Digitalis here, let it be remembered, gives its beneficent result, not because of any stimulating effect on the heart, but rather, as Lewis [2] says, because it is a heart sedative. It helps the heart to rest. In auricular flutter, also, digitalis is practically specific, by the same action in depressing conduction and blocking off from the ventricle the too frequent impulses arising in the auricle.

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* Read before the Central Illinois District Medical Association, Oct. 26, 1920.

[1] Cushny: A Text-Book of Pharmacology and Therapeutics, Ed. 4, Philadelphia, Lea Brothers & Co., 1906.

In cases exhibiting a normal rhythm with evidences at the same time of injury to the auriculoventricular bundle, the drug should be used cautiously, if at all, because of the liability of inducing heart block. While the production of complete block by digitalis in most instances is of no particular consequence, it must be remembered that the period of transition to complete block might be attended by serious consequences. The probability of such an outcome is so small, however, that it would not deter us from administering the drug in such cases, provided any advantage from its action directly on the muscle were at all probable. This phase of the question of digitalis action will be discussed later. Here it may be said that no benefit certainly can be expected from any further depression of auriculoventricular conduction in such cases, in which the ventricle is not receiving too frequent impulses from the auricle.

Opinion is not divided, then, on the question of the effect of digitalis in depressing conduction and in thus benefiting cases with auricular fibrillation that show a rapid rate. As to the other vagus action described by pharmacologists, namely, a lowering of rate by action at the sinus area, opinion is not so unanimous with regard to its action clinically. Various clinicians [3] have reported heart slowing of sinus origin after digitalis administration, but few figures showing the amount of this slowing after the effect of rest is eliminated are given. Other observers [4] find little evidence of any slowing effect in patients with normal mechanism that do not show spontaneous changes in rate when not under digitalis. Of the ability of digitalis to slow the heart rate of man through any stimulation of the vagus at the pacemaker, when administered in therapeutic doses, little more can be said, then, than that there is no such general agreement as there is in regard to its action in auricular fibrillation (and flutter) in depressing auriculoventricular conduction.

EFFECT ON HEART MUSCLE

Let us now turn to the other effect that has been described by pharmacologists, i. e., the effect of digitalis on the muscle. The question of its action on the human heart muscle, when given in therapeutic doses, is still the subject of much speculation and investigation. That it has some effect on the heart muscle when so administered there appears to be little doubt. Cohn, Frazer and Jamison [5] described in 1915 the changes in the T-wave of the electrocardiogram which occur under digitalis administration and disappear after its discontinuance. These changes are now generally ascribed to an action of the drug on the heart muscle, but the exact nature of its action and the results of it are not clear. Cohn and his co-workers believe that it indicates a prolongation of muscular activity at the apex of the heart. This would be in line with former conclusions arrived at from observations on the heart of the frog. But the important question clinically is: Does such action, if it occurs, result in increased cardiac efficiency? And to this question there is no very satisfactory answer. In reporting the results of giving digitalis to cardiac patients in whom fibrillation of the auricles was not present, various clinicians [3] have reported clinical improvement of more or less definiteness. Others [6] do not share this opinion of the value of digitalis in cases of decompensation without fibrillation, and hold either that no improvement should be expected in such cases or that at best improvement can only be rather vaguely hoped for. None of these other cases certainly have shown as rapid and conclusive evidence of improvement, either in symptoms or in physical signs, as commonly occurs in cases showing auricular fibrillation under digitalis therapy.

Cohn and Levy [7] have recently reported that the output of the heart under digitalis was increased in most of their experiments on dogs, but that it was diminished in the case of cat experiments. The question of the effect of digitalis on the output of the human heart must remain for the present an open one. The same thing, it seems to me, must be said in regard to the question of benefit from digitalis therapy in cases of decompensation exhibiting a normal cardiac mechanism.

There is likewise some difference of opinion as to the effect of digitalis on blood pressure. The prevailing view is that the drug in therapeutic doses has no appreciable effect primarily on blood pressure and that any effects that occur are secondary, resulting from its cardiac action. High pressure, then, appears to be no contraindication to its administration.

The same in general may be said of its diuretic action. Most observers regard such effects as secondary. It may be expected to increase the output of urine in those cases in which it improves the circulation.

The effects of the drug need to be studied more exactly in nonfibrillating cases. Careful records of pulse, respiration, urine output, vital capacity, symptoms, electrocardiographic findings, etc., taken when the patient first comes under observation, should be compared with similar records made after a period of rest in bed. Then digitalis should be administered in standard fashion without any change in other treatment. Any changes following this could reasonably be attributed to the drug. Each case must be studied exactly, and our conclusions not formed merely from impressions.

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[2] Lewis, Thomas: On Cardinal Principles in Cardiological Practice, Brit. M. J. **2**: 621 (Nov. 15) 1919.

[3] Christian, H. A.: Digitalis Therapy: Satisfactory Effects in Cardiac Cases with Regular Pulse Rate, Am. J. M. Sc. **157**: 593 (May) 1919. West, H. F., and Pratt, J. H.: Clinical Experience with a Standardized Dried Aqueous Extract of Digitalis, J. A. M. A. **75**: 77 (July 10) 1920. Eggleston, Cary: Digitalis Dosage, Arch. Int. Med. **16**: 1 (July) 1915.

[4] Lewis (Footnote 2). Cohn, A. E.: Clinical and Electrocardiographic Studies on the Action of Digitalis, J. A. M. A. **65**: 1527 (Oct. 30) 1915.

[5] Cohn, Frazer and Jamison: The Influence of Digitalis on the T-Wave of the Human Electrocardiogram, J. Exper. Med. **21**: 593 (June) 1915.

[6] Lewis, Thomas (Footnote 2). Wilson, F. N.: Diagnosis of Chronic Myocarditis, J. Missouri M. A. **17**: 403 (Oct.) 1920.

[7] Cohn, A. E., and Levy, R. L.: Effect of Therapeutic Doses of Digitalis on the Contraction of Heart Muscles, abstr. J. A. M. A. **74**: 1597 (June 5) 1920.

SUMMARY

It may be said that digitalis stimulates the vagus when administered clinically: that this stimulation affects chiefly conductivity, and that by blocking off from the ventricle many impulses to contraction in cases of decompensation showing auricular fibrillation (or flutter), it protects the ventricle and allows it to rest and restore its efficiency.[8] It may be said further that while it has been shown that digitalis has an effect on the heart muscle, the exact nature of this effect is not known, and that there is at present difference of opinion as to whether there is any benefit to be derived from administering the drug to patients showing a normal mechanism. In most such cases, indeed, there appears to be no contraindication to its use; but its well known effect in causing premature contractions should be kept in mind. While these, of course, are usually disregarded, it is nevertheless possible that in a case showing a marked tendency toward premature ventricular contractions the effect of large doses of digitalis might be just enough to produce ventricular fibrillation, which indeed is described by pharmacologists as the end-result of an overdose.

In administering digitalis, a consideration of the proper dosage is important. In recent years much larger doses have been given than were formerly employed. It has long been asserted that smaller doses have a tonic effect on heart muscle; but, as was just said, there is no very conclusive evidence that digitalis in any dosage increases the tone of the human heart. In auricular fibrillation, however, in which the effect of the drug can be rather accurately measured, definite ideas as to dosage have been arrived at. The method worked out by Eggleston [9] is now in general use when one is giving the drug under conditions that allow careful and frequent observation of results. Under this method the preparation to be used is standardized in terms of cat units, and the dose of this standardized preparation is made proportional to the weight of the patient. The dose of an average tincture, determined in this way, will be about 15 c.c. per hundred pounds. That is to say, a man weighing 150 pounds would receive 22.5 c.c., or about 5½ drams, of such an average tincture. This may be given at one dose, or better over a period of twelve or eighteen hours. In this way the patient gets quickly the full effect of the drug.

In giving such "massive" doses to patients showing auricular fibrillation and following the results by frequent counting of ventricular and pulse rates, Robinson [10] found that effects begin to manifest themselves within two to five hours after administration, and reach their maximum result sometimes within six hours, but oftenest within from fifteen to twenty-six hours. His results, as well as those of Eggleston and others, indicate that the tincture is usually well absorbed from the alimentary canal and is a satisfactory preparation for administration.

Such "massive" doses cannot, of course, be frequently repeated, nor is it necessary that this be done. The effects persist for a variable time, Robinson finding that the full effect in his cases persisted for from four to fifteen days. Partial effects last a longer time, and it is usually unsafe to give a full massive dose unless one is sure that the patient has not had digitalis for three weeks.

While it is unwise to give such large doses unless the effect can be frequently observed, still their employment with such striking results indicates that dosage has been too small and that better results will be obtained, in cases in which the drug is indicated, under proper dosage.

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[8] Opinion is not unanimous that this depression of auriculoventricular conduction is wholly due to vagus stimulation. It may be due in part to a direct action on the connecting tissues.

[9] Eggleston, Cary (Footnote 3).

[10] Robinson, G. C.: The Rapidity and Persistence of the Action of Digitalis on Hearts Showing Auricular Fibrillation, Am. J. M. Sc. **159**: 1121 (Jan.) 1920.

POSTERIOR SINUS INFECTION WITH OPTIC NERVE INVOLVEMENT

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While some cases have been reported of optic nerve disease secondary to infection of the anterior group of sinuses, it cannot be said that infection of the posterior sinuses was not present in the cases reported. Infection of the anterior group of sinuses could, of course, cause an optic neuritis of toxic type by invasion through the blood stream, just as readily as the posterior group of sinuses or any focal infection. In the discussion of this subject, only the posterior group of sinuses will be considered.

Anatomically, there is every reason why posterior sinus disease should cause optic nerve disease. Posterior sinus disease, acute and chronic, forms a large part of the specialist's practice. Optic nerve disease he sees but rarely. When one considers the intimate relationship of these parts, he is at a loss to explain the rarity of optic nerve disease in posterior sinus infection.

The bony partition separating the ethmoidal cells and the sphenoidal sinus from the orbit and optic canal is thin, and the periosteum on either side is connected with numerous diploic veins. The periosteum in the optic canal is inseparable from the sheath of the optic nerve. In some cases there is an absence of bony wall between the optic nerve and the sphenoidal sinus or the ethmoidal cells, or both. The intimate circulation of these parts readily explains the ease with which direct invasion may occur. The ophthalmic artery and vein and their branches supply and drain the sinuses and the orbit. The nerve head is supplied and drained by a network of arteries and veins which form an integral part of the sinus circulation. The intracanalicular section of the nerve is supplied by small muscular branches of the ophthalmic artery and is drained by the vein of Vossius, which in turn drains into the cavernous sinus. Numerous veins from the periosteum of the posterior orbit and the periosteum of the posterior ethmoidal cells and sphenoidal sinus flow into the vein of Vossius. The lymphatic circulation between the posterior sinuses and the posterior orbital structures forms a network of communication.

Orbital cellulitis, secondary to a posterior sinus infection with or without optic disease, is a different pathologic picture from the class of cases under discussion. I wish to consider only those cases in which the optic nerve is involved as a result of invasion of infection from the posterior sinus group. The intracanalicular portion of the nerve is primarily involved, and the nerve head changes are secondary. The exact method of involvement has been the object of a great deal of discussion. A swollen nerve within the bony canal would cause stasis and consequent nerve head changes. That we may have a toxic neuritis from blood stream invasion is also readily acceptable. In some cases the primary trouble is undoubtedly posterior to the canal, but these cases ought to be classed as meningeal. Cases in the last group are usually fatal, and the optic neuritis is a small part of the pathologic picture.

REPORT OF CASES

CASE 1.—Mrs. C., aged 33, referred to me, March 23, 1920, by Dr. H., an ophthalmologist, had a severe attack of grip, six years before, at which time she had trouble with her nose. After this the nose was not so free as formerly, and she had a great deal of discharge from both sides, although the right side was more troublesome. Since that time she had seemed to have a constant cold in the head. She had had a great deal of frontal headache. Six weeks before I saw her she began to feel ill, with increased headache. Four weeks before, she noticed what she called double vision, which continued for one week. Since this time she had not been able to see to read or sew. With this visual disturbance, severe pain in the head had been continuous ever since. She had not been conscious of a cold in the head, and there had been no fever. The ophthalmologist reported a partial obliteration of both disks, and markedly contracted visual fields on both sides.

Examination of the nose revealed a fairly normal septum. The left middle turbinate was swollen and the anterior ethmoidal cells were covered with pus. The anterior cells showed marked infiltration. The frontal sinus and the antrum were not involved. The right side anteriorly presented no evidence of infection. Postnasal examination revealed a mucopurulent discharge from both sides. The mucous membrane of the nasopharynx and oropharynx was infected. The examination of the ears disclosed no pathologic condition of note. March 25, under general anesthesia, a complete exenteration of the anterior and posterior ethmoidal cells of both sides was performed, and both sphenoidal sinuses were thoroughly opened. The anterior and posterior ethmoidal cells of the left side were found to be in the late stage of infection, the entire ethmoidal capsule being broken down and filled with pus, and cell proliferation was marked. The sphenoidal sinus contained pus and polypi. The anterior ethmoidal cells on the right side contained no pus, but cell proliferation was present. The posterior cells contained pus, and cell proliferation was present. The sphenoidal sinus contained pus. On the third day following the operation, the patient was able to read the newspaper. Previous to the operation she was unable to read even large print. The headache and scalp soreness were entirely relieved by the second day. The patient left the hospital in ten days and was able to return to her home some distance from the city. The patient was seen at intervals for postoperative local treatment. July 20, she reported that she had had no headache and that her eyesight was good. I last saw her September 21, after a period of two months. The nasal condition was satisfactory. She reported that she had been perfectly well and attending to her usual household duties. She considered her eyesight to be as acute as it had ever been. She was reading constantly and sewing daily. The ophthalmologist saw her in April and at that time the optic nerve and visual fields on both sides were apparently normal. The ophthalmologist again reported on his examination of July 20, which was that the eyes had returned to normal and that it was not necessary for the patient to see him again.

CASE 2.—Miss E., aged 19, referred to me, April 29, 1918, by Dr. B., an ophthalmologist, gave no history of previous ill health. She had not been subjects to colds in the head or headaches. April 6, she complained of pain over the left eye. The pain continued for two days. Immediately following this she noticed that she could not see well with the left eye. The diminution in vision becoming more marked, she was fitted for glasses without any improvement in the sight of the left eye. April 26, she was examined by Dr. B., who found an optic neuritis of the left side, with blindness. April 29, there was complete obstruction of the left side of the nose. The inferior turbinate was in contact with the septum, and the middle turbinate filled the middle meatus. The mucous membrane was red and swollen, but no discharge of pus was seen anteriorly. The right side of the nose was normal. Postnasal examination detected no discharge of pus at the time, and the mucous membrane of the nasopharynx showed no evidence of infection. The posterior end of the middle turbinate, however, was red and swollen. A diagnosis of a closed infection was made. On this date, under local anesthesia, I removed the left middle turbinate, opened the frontal sinus, removed the ethmoidal cells and opened the sphenoidal sinus. Operation revealed a great deal of cell proliferation and polypoid degeneration of the ethmoidal capsule. The sphenoidal sinus showed swelling of the mucous membrane and considerable mucoid fluid. The ophthalmologist reported that the optic neuritis showed improvement immediately after the operation, and completely resolved in about two weeks with no atrophy. Restoration of vision was perfect. In response to a note, the patient called at my office, October 25. The nasal condition was satisfactory, and the patient was not conscious of any disturbance whatever. The vision in the left eye was perfect.

CASE 3.—Mrs. T., aged 35, referred to me by Dr. H., an ophthalmologist, April 20, 1920, had had hay-fever every summer for six years, and had been subject to colds in the head. Four years before she had had influenza, since which time she had had frontal headaches constantly. Some time after the influenza she noticed dulness of vision, which gradually became worse. In November, 1919, she found that she was unable to see anything with the right eye. The headaches continued and the vision of the left eye was so bad that she was not able to go about alone, as she was afraid to cross the street. Her family physician reported that he had made a thorough examination of the patient when she consulted him some time in November, 1919. The Wassermann test was negative, and aside from a pathologic condition in the pelvis he could find nothing requiring treatment. Although the Wassermann test was negative and there was no clinical evidence of syphilis, he put her on antisyphilitic treatment. As the blindness in the right eye continued and the vision in the left eye was diminishing, he referred her to the ophthalmologist, who discovered complete atrophy of the right optic nerve and blindness. The left visual field was contracted and the left optic nerve showed neuritis. The picture presented a slowly progressive nerve head change.

Examination of the nose revealed the septum deviated to the left. The left side showed no gross evidence of anterior sinus involvement. The left middle turbinate filled the middle meatus. The right side showed the same condition. The postnasal examination disclosed no active discharge at the time of examination, but the nasopharynx and oropharynx mucous membrane was chronically inflamed, suggesting postnasal discharge. Examination of the ears presented nothing of pathologic significance. In view of complete loss of vision of the right, and increasing diminution of that of the left eye, it was deemed advisable to eliminate the sinuses as a possible source of trouble, though it was evident that the sinus infection that had precipitated the neuritis was quiescent.

April 26, under general anesthesia, the complete operation was performed on both sides. The ethmoidal cells were removed and the sphenoidal sinuses well opened. The posterior ethmoidal cells of both sides contained no demonstrable free pus, but there was cell proliferation. The sphenoidal sinuses contained mucopurulent fluid, and the mucous membrane showed polypoid degeneration. The patient left the hospital at the end of one week and was subsequently treated at the office. After the operation the headaches greatly improved, but did not entirely subside for about three weeks.

June 5, the ophthalmologist reported that there was some improvement in the vision of the left eye. July 20, the condition was unchanged. The patient was not seen again until September 18, at which time the nasal condition was satisfactory and the patient was most concerned with some pelvic symptoms. She was referred to her family physician. The hay-fever did not disturb her the last summer, though she had had some stinging in the eyes.

The report of the ophthalmologist, September 20, stated that there was no further change in the left optic nerve. There was no evidence of progressive trouble. He was certain from his examination that the optic neuritis had entirely subsided, and that the visual changes, while permanent, would not become any more marked.

COMMENT

These cases present a striking contrast for our consideration. In Case 1, the patient was seen during the acute stage of the optic nerve involvement. Prompt operative treatment gave immediate relief. The subsidence of the neuritis was almost immediate, reading vision returning on the third day. This was followed by apparently no change, which again was followed by a period of gradual improvement in the nerve and a complete recovery. In this case we had an active and progressive sinus infection and an active and progressive neuritis. This case is typical of the cases belonging to this group.

The second patient was operated on early. Disturbance of vision was first noticed, April 8, and operation was performed, April 29. Subsidence of the optic neuritis with complete restoration of vision promptly followed the operative procedure. This patient had an acute sinus infection of short duration which had produced a swelling of the canalicular portion of the nerve with the resulting pressure. The acute sinus infection had entirely subsided, but there had remained sufficient induration within the ethmoidal capsule to continue the obstruction of the circulation and the edema of the canalicular portion of the nerve. Operation relieved this at once. Without operation, complete atrophy of the optic nerve would have been the inevitable sequence.

Case 3 presented an entirely different picture. The acute sinus attack and the acute optic neuritis had occurred possibly two years previous to the date of my first examination. Total blindness of the right eye was noticed six months previous to my first examination. It is probable that the acute attack involved the two nerves at the same time and that the right side was sufficiently severe to cause atrophy quickly, while the left side was more slowly undergoing atrophy. The examination disclosed no active sinus infection, but the left optic nerve showed signs of a progressive neuritis. In view of this, the operative procedure was considered the only possible chance of saving the left eye. That our judgment was justified was shown by the gradual subsidence of all activity in the left nerve. We were late in this case, but we saved what there was left to save. It is a fair assumption that we could have had as satisfactory a result in the third case as in Cases 1 and 2 if the patient had been seen sufficiently early.

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Clinical Notes, Suggestions, and New Instruments

A RAPID CULTURAL METHOD OF DIAGNOSING DIPHTHERIA *

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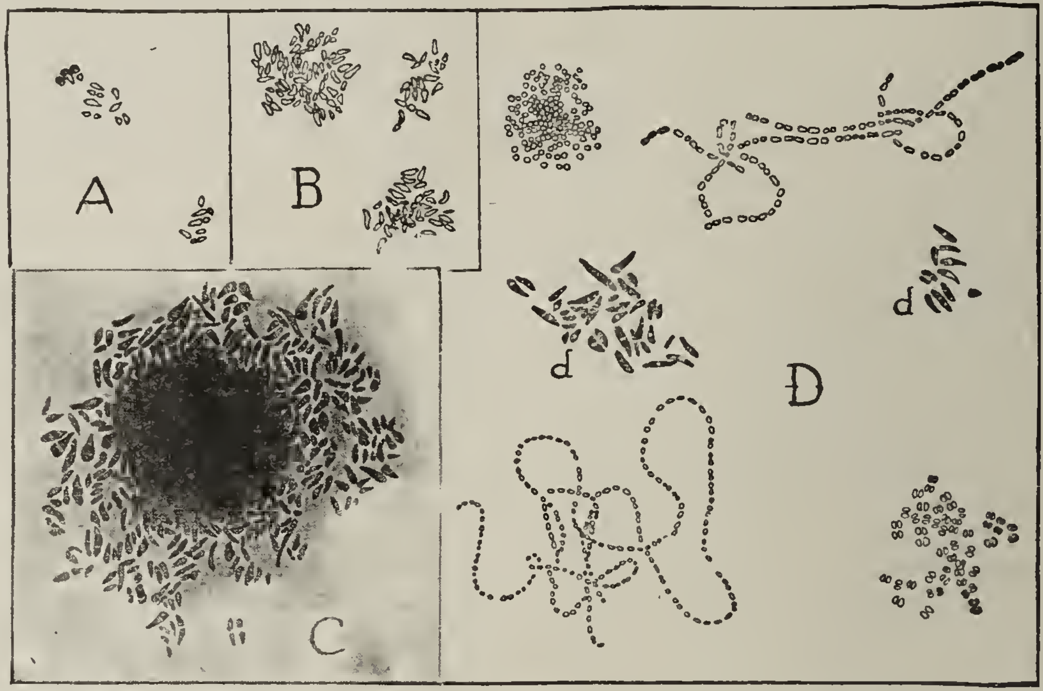
In cases of suspected diphtheria it is important to know at the earliest possible moment whether or not the Klebs-Loeffler bacillus is present. The usual cultural methods require from twelve to eighteen hours. A stain made directly from the swab gives presumptive evidence immediately, but has never been considered reliable by bacteriologists.

The senior author has been impressed with the possibilities of his "little plate" method, which was described first for counting bacteria in milk[1] and later for studying bacteria in general,[2] as a means of identifying bacteria. The present paper shows the possibilities of the method in diagnosing diphtheria. Briefly stated, it consists in rubbing the infected swab over a small area of a flamed glass slide, adding a drop of the medium, spreading it to form a "little plate culture" which is then incubated about five hours, dried, and stained to bring out the little colonies of *B. diphtheriae*. The details of the method were developed and the routine work reported here was performed by the junior authors as subjects for theses.



A, colonies of B. diphtheriae 4 hours old; *B*, colonies of B. diphtheriae 5 hours old; *C*, colony of B. diphtheriae 8 hours old; *D*, colonies from the throat showing colonies of various bacteria; *d*, *d*, diphtheria colonies.

MEDIUM

A simple medium that has proved satisfactory is an agar, milk and serum medium. Ordinary nutrient agar, from 1 to 1.5 per cent., with a reaction of + 1 is prepared, tubed (from 1 to 3 c.c.) and sterilized in the usual manner. The milk is sterilized in tubes containing from 1 to 3 c.c. in the autoclave or, better, by the intermittent process. It is necessary to have well separated milk, as the presence of fat globules is likely to deform the colonies. Serum water is prepared by mixing one part of serum (such as sheep, beef, horse or rabbit) with three parts of distilled water, tubing (from 1 to 3 c.c.), and sterilizing it in the autoclave.

METHOD

Making Swab.—The usual cotton probang is used to swab the throat or nose.

Making Plates.—A tube of nutrient agar is melted and placed in a water bath at from 45 to 50 C., which also contains tubes of sterile milk and sterile serum water. When the temperatures of all three tubes are about the same, the serum water and milk are poured into the tube of agar, and all are well mixed by shaking or rolling the tube. This tube is then kept at 45 C. or a little higher during the rest of the procedure to prevent the agar from solidifying.

A microscopic glass slide is sterilized in the flame and then placed on the working table. When cool, the swab is rubbed over an area about 1 square millimeter in diameter. Two drops (about $1/20$ c.c.) of the culture medium at from 45 to 50 C. are placed on the slide, one near or on the smear and the other a little distance away. With a sterile loop the first drop of medium is thoroughly mixed with the material of the smear and spread in a thin film. This makes a small or "little plate" culture. Without sterilization the loop is carried over into the second drop which is likewise spread about. The last plate culture has the micro-organisms from the throat much diluted. The slide, with its double plate culture, is immediately put into a moist chamber.

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* From the Agricultural Bacteriology Laboratories, University of Wisconsin, Madison.

[1] Frost, W. D.: A Rapid Method of Counting Living Bacteria in Milk and Other Richly Seeded Materials, J. A. M. A. **66**: 889 (March 18) 1916.

[2] Frost, W. D.: A New Method for the Study of Bacteria, J. A. M. A. **72**: 343 (Feb. 1) 1919.

When the swabs are dry it is desirable to moisten them by adding a few drops of a sterile physiologic sodium chlorid solution or by putting a drop of the same solution on the slide and rubbing the swab in it.

Only rarely is the first plate too heavily seeded, and in practice it is usual to rub the swab on the slide for a second time, making the second plate a duplicate rather than an attenuated one. In certain cases and when the little plates are made immediately after swabing the throat, the diluted plate is necessary.

Incubation.—Immediately after making, the little plates should be put in a moist chamber where they are to be kept until the colonies grow to sufficient size to be examined. For a few slides, and as a makeshift, they may be put in Petri dishes, the bottoms of which are covered with wet filter paper, and on glass rods, which will keep them from getting wet. It is much more convenient, however, to have a "moist chamber cabinet," and when a large number of slides are used, it is quite necessary. Such a cabinet is on the market.[3] Whatever the form of the moist chamber, it is put in the incubator at 37.5 C. for about five hours.

Treatment After Incubation.—When the slides are taken from the incubator they are rapidly dried. This is best done by placing them on a metal surface heated by steam (temperature from 90 to 100 C.). This takes about five minutes, as the "little plates" must be perfectly dry to prevent them from cracking or peeling off.

Staining.—These dried plates may then be further fixed by passing them three times through the gas flame in the usual way. While they are still hot they are immersed in a 10 per cent. solution of glacial acetic acid in 95 per cent. alcohol for one minute or more. From the acetic acid solution they are put directly into a staining jar containing Loeffler's methylene blue, diluted with distilled water to five times its volume. They are left in the stain from five to ten minutes and are then washed in water and dried either in the air or over the steam heated plate. The stain works best after it has been used several times, and may be used over and over again until its action becomes too slow.

Observation.—The slides are examined microscopically in the usual way. A mounting medium and a cover glass may be applied, but they are not necessary. The oil immersion objective is used by putting the oil directly on the dried agar. A strong artificial light is most satisfactory. A mechanical stage is also desirable so that the field can be observed systematically.

THE COLONY OF B. DIPHTHERIAE

The young colonies show the form of the individual cells, as well as their arrangement in relation to one another. The diphtheria colony about five hours old is quite distinctive. The cells exhibit the usual bizarre shapes characteristic of this organism. They are usually clubbed and take the stain unevenly, giving the well known pictures. In addition to this, the relation of the individuals to one another is also characteristic.

The parallel and angular arrangements of the bacilli occur so generally that they may be considered diagnostic. Hill has offered explanation of this arrangement in what he terms "postfission snapping." Our own observations would lead us to accept his conclusions.

PRACTICAL TESTS

Examination of Unknown Cultures.—Swabs have been impregnated with cultures of *B. diphtheriae*, staphylococci, *B. coli* and mixtures of the three, and so marked that their contents were unknown at the time of making the "little plate" cultures. In this way the possibilities of the method were tested out. As was expected, there was no difficulty in always identifying the cultures containing the Klebs-Loeffler bacillus.

Examination of Swabs from Supposedly Normal Throats.—In order to assure ourselves that there were not organisms in normal throats that would form colonies which would be confused with those from the diphtheria cultures, an examination was made of a considerable number of swabs from the throats of well persons. Colonies of many different kinds were found. Diplococci, streptococci and staphylococci were common. Rod-shaped organisms were frequently found, but in all cases their colonial structure was quite different from that of the diphtheria bacillus.

Examination of Swabs from Suspected Throats.—A considerable number of swabs have been examined parallel with routine examinations in the state hygienic laboratory. After the swabs had been rubbed over the serum slopes they were handed over to one of us. Cultures from them were made by the "little plate" method, as described above. After five hours' growth they were dried down and then stained, sometimes immediately and sometimes later.

We are all convinced that we can make a diagnosis with as much certainty by this method as by the regular method, and in from one third to one half of the time.

ABSENCE OF VAGINA; UNILATERAL DEVELOPMENT OF INTERNAL GENITAL ORGANS; HEMATOMETRA

Eugene H. Eising, A.M., M.D., New York
Visiting Surgeon, Sydenham Hospital and Hospital for Joint Diseases

History.—Mrs. A. B., aged 46, Hungarian, a woman of medium height, heavily built and weighing 162 pounds, was seized suddenly with abdominal cramps, such as she had never had before, two weeks before I saw her. She had been in this country the greater part of her life, and had always been obliged to work. While she maintained her home she had been employed outside as cook. She was unusually strong and was not fatigued by a day's work. She had been married sixteen years, and for all that time had lived happily with her husband. When seized with the cramps, she was unable to work, and after a few days was taken to a hospital in Portchester, N. Y. There she was told that she had an abdominal tumor and would require an operation. She then returned to New York. Aug. 4, 1920, I was asked to see her.

Examination.—At that time, the patient was not suffering much, but stated that her pains had been very severe and intermittent. The temperature and pulse were normal. Abdominal palpation evoked some pain. Certain areas were more tender than others. There was no distinct mass to be felt anywhere. Inquiry into her menstrual history revealed the fact that she had never menstruated in her life, nor could she remember ever having had periodic pains corresponding to a menstrual epoch. She first refused to submit to a vaginal examination, but after some argument I obtained her consent. "But," she said, "you cannot examine anyhow, because you cannot get your finger in." This statement I found correct, as there was a total absence of the vagina. A dense flush wall of tissue completely closed the ostium vaginae. The external genitals were otherwise normal. By rectum, neither uterus nor cervix could be felt. Next day the patient was admitted to the Sydenham Hospital for observation. Her pains became severe and intermittent, the abdominal wall was rigid, and she vomited twice. The urine and the blood count were normal. Although the indication for operative interference was at no time clearly defined, we felt reasonably sure that she was suffering from hematometra.

Findings at Operation.—The patient was operated on, August 7. A long median incision was made, exposing an enormous cystic tumor completely filling the abdominal cavity. The mass filled the pelvis and the lateral walls of the abdomen, and crowded the stomach and liver. The tumor was so tense that an examination of its attachments could not then be made. Being certain of its fluid content, I inserted a large trocar and cannula and emptied the tumor of large quantities of a pale, sanguineous, amber-colored fluid. There were innumerable shining particles floating in the fluid which proved to be cholesterin. After the fluid had been emptied, the collapsed bag was found to be slightly thicker at its pelvic portion, where it found attachment to the left broad ligament. There was no attachment anywhere else in the pelvis. The sac was ligated at the left broad ligament and removed. The patient made an uneventful recovery.

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[3] Made by the Central Scientific Company, Chicago.

Examination of the sac revealed at the point of attachment a considerably thickened wall. Along the outer side of the sac was a well developed but flattened out fallopian tube adherent to the sac. There was no distinct ovarian body, but below the site of the fallopian tube were small masses of ovarian tissue spread out on the sac wall. The cyst wall, which represented an attenuated uterine body, was one-sixteenth inch in thickness, except close to its attachment, where it was five times as thick, terminating in a somewhat conical mass of dense fibrous tissue, which was undeveloped cervix. Unstriped muscle fibers were found in the wall of the tumor. Examination of the pelvis revealed not the slightest evidence of vagina. The relation of the bladder and rectum was identical with that found in the male pelvis. There was no suggestion of a broad ligament tube or ovary on the right side.

COMMENT

This case is one of hematometra in which the right side of the embryonic structures failed to develop. Embryologically, the ovary is formed by an infolding process of a portion of the wolffian body. The fallopian tube is formed from the upper portion of the duct of Müller. The lower portions of these two bodies unite to form the genital cord. The genital cords from the right and left sides approach each other and eventually coalesce to form the uterus and vagina. Evidently, what occurred in this case was an arrest of development of the genital cord on the right side. Consequently, no coalescence was possible with its fellow of the opposite side, and no vagina was formed. The genital cord on the left side succeeded so far as to develop a closed body which perhaps could have performed its function as a uterus, a complete fallopian tube, and an incomplete ovary. Unfortunately, no search was made for evidence of male sex organs on the right side.

So far as I have been able to find, there has been no case recorded in the literature in which a unilateral development of the uterus tube and ovary has occurred with absence of vagina and the gradual development of hematometra.

35 West Eighty-First Street.

REPORT OF A CASE OF ROUND CELL SARCOMA OF THE EPIPHARYNX AND A CASE OF PRIMARY DIPHTHERIA OF THE MIDDLE EAR

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Associate Attending Surgeon, Eye, Ear and Throat Department, Muhlenberg Hospital

ROUND CELL SARCOMA OF EPIPHARYNX

R. A., a girl, aged 8 years, who came under my care, Oct. 25, 1919, had breathed through the mouth and had had frequent attacks of sore throat for three years. Tonsillectomy had been performed and the removal of so-called adenoids had been attempted in December, 1918, in a hospital in another state. No improvement followed this operation, so far as the breathing was concerned. The child was undernourished, with marked anemia, was very small for her age, and had a typical adenoid facies. The epipharynx was filled with a soft growth with two hard, round fibrous masses attached to its lower part. The hard mass on the left side projected into the posterior naris. The whole right nasal cavity was filled with a soft growth which projected from the right anterior naris. Free bleeding followed examination of this growth. October 27, at Muhlenberg Hospital, I removed first the hard fibrous mass on the left, and then the one on the right side. After the removal of these bodies the attachment of the main growth to the vault of the pharynx was severed and the growth removed through the nose. Figure 1 is a diagram of the growth in situ. Figure 2 is a drawing of the growth after its removal. Moderate bleeding followed the operation, but was controlled by pressure. The pathologist reported that the specimen was a round cell sarcoma. Immediate relief followed the operation, and the patient rapidly improved in general health. She had a good appetite, rested well at night, and acted as a normal child should. When I saw her, May 20, 1920, there had not been any return of the disease condition.

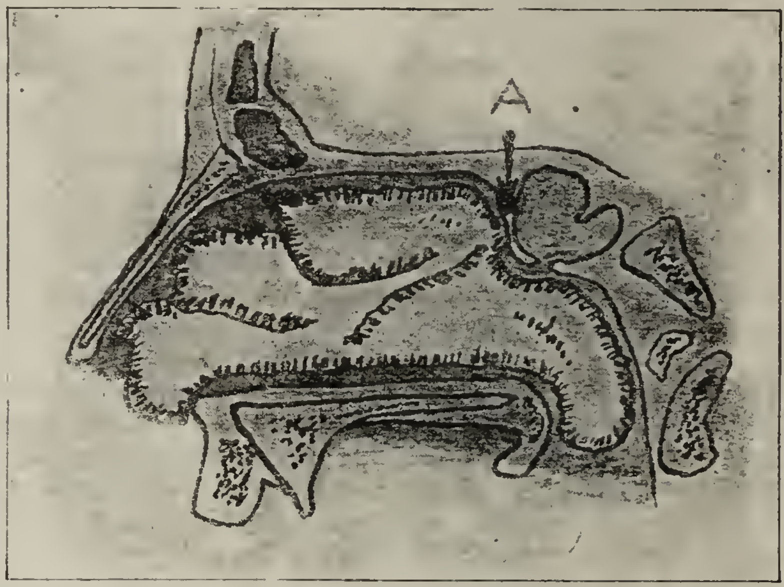

Fig. 1.—Round cell sarcoma of epipharynx: *A*, attachment.

PRIMARY DIPHTHERIA OF THE MIDDLE EAR

Feb. 8, 1920, I saw Baby Y. in the children's ward. She had just passed through a severe attack of bronchopneumonia, and for three days there had been a free, purulent discharge from a large perforation in the left tympanic membrane. A culture taken from this discharge disclosed a positive diphtheria infection. A culture from the throat at the same time was negative. Diphtheria antitoxin was administered at once. February 10, a slight film of false membrane appeared on the tonsils, and a culture from this membrane was positive for the diphtheria bacillus.

Cultures taken from the throat were negative in ten days, but it was about five weeks before cultures from the ear were free from the infecting organism, notwithstanding the fact that all efforts were used to cause the cessation of the discharge. These efforts included the removal of a medium amount of adenoid tissue that was present.

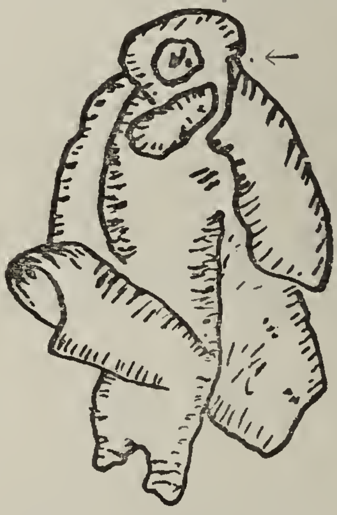

Fig. 2.—Growth after removal. Outlines indicate convolutions of mass. Arrow points to area of attachment. The mass measured 4 by 1.5 by 1.5 cm.

514 Central Avenue.

Metastasis of Cancer.—Cancer, so far as our present knowledge of it goes, is a unicentric disease; at first located in a particular tissue, it tends inevitably to break bounds and to metastasize in other tissues. Different varieties of breast cancer have varying metastasizing speeds—some, such as the atrophic scirrhus of the elderly woman, break bounds very slowly, while the medullary cancer of the lactating breast spreads so rapidly as to be practically hopeless at the start. In between these two relatively infrequent extremes we have several other types, of all of which it may, I think, with safety be said that metastasis is likely to have taken place within six months of the first appearance of the lump in the breast.—W. Doolin, *Med. Press,* April 28, 1920.

Special Article

This series of articles dealing with serums, vaccines and nonspecific therapy has been prepared under the auspices of the Council on Pharmacy and Chemistry of the American Medical Association. The Council is constantly passing on products of this kind, marketed by various pharmaceutic houses, and it accepts for New and Nonofficial Remedies only those which are (1) *licensed for interstate sale by the federal government, and* (2) *those which do not conflict with the Council's rules.*

The subject of immunity, besides being relatively new, is beset with complexities. The agents often employed in the therapy of acute infections are complex biologic products; the literature concerning the efficiency of many of these agents presents a mass of conflicting evidence. These facts render judgment and decision difficult. It was for these reasons that it was deemed wise to submit to the Council and to the profession at large concise, authoritative statements concerning indications and contraindications, methods of administration, dosage, the value and also the possible dangers of serums, vaccines and nonspecific proteins in the treatment of various infectious diseases. Accordingly, a committee was appointed by the chairman of the Council consisting of the three members of the Council whose names are signed to this preliminary note.

This committee enlisted the aid of authorities in the three fields of immunity represented and placed before them the desires of the Council with the request that they assume full responsibility, first, for the selection of men for the presentation of each subject, and secondly, for the revision and editing of the articles presented. Dr. Simon Flexner assumed responsibility for the series on serum therapy, Col. F. F. Russell for the series on vaccine therapy, and Dr. Joseph L. Miller for those on nonspecific protein therapy. Before publicaton was authorized, each series was made the subject of a conference between the committee and those who were responsible for its preparation.

These articles are presented to the profession to serve as a guide in the use of serums, vaccines and nonspecific proteins.

L. G. Rowntree, G. W. McCoy,
Warfield Longcope.

BIOLOGIC THERAPY

GENERAL CONSIDERATIONS REGARDING SERUM AND VACCINE THERAPY

SIMON FLEXNER, M.D.
NEW YORK

The serum treatment of disease dates from the discovery and application of diphtheria antitoxin by Behring and Roux, and the use of bacterial vaccines from the application of antityphoid vaccination to man by Wright. In recent years, numerous serums and vaccines have been tested as prophylactic or curative agents, usually first in animals and later in man. Present knowledge of the somewhat complex subject of immunity, to which the antiserums and vaccines are related, makes it possible to state the outstanding facts in the form of general principles which may be taken as guides to the practical use in man of these agents for preventing or treating disease.

At the outset it should be understood that there is nothing occult or mysterious in the manufacture of serums and vaccines, and that any properly equipped and organized laboratory intent on doing so can turn out satisfactory products. Indeed, it is the very simplicity of the processes of manufacture which has led to wider commercial exploitation of these valuable agents than sound knowledge warrants.

When diphtheria antitoxin was found to have a high therapeutic value in the treatment of diphtheria, the hope was entertained that as the bacterial incitants or causes of the various infectious diseases came to be known, each in turn could be made to yield a corresponding antiserum, and thus a high degree of therapeutic control of these diseases would quickly be secured. As a matter of fact, this millenial hope has been realized in only a few instances, and expanding knowledge of the nature of the processes of infection, as well as the properties of the different bacterial agents causing disease, is gradually supplying the reasons for success, on the one hand, and of failure, on the other.

Diphtheria antitoxin is still the outstanding example of a therapeutically active serum, while tetanus antitoxin has a high protective but a lower therapeutic value. These two antitoxic serums—by which term is meant serums made from the poisons or toxins given off by the growing diphtheria or tetanus bacilli, for the poisons are the direct sources of the injury to the tissues and organs—act not directly on the infecting bacilli, but on their liberated toxins which they neutralize, after which the body readily rids itself of the bacilli themselves.

Most of the infectious diseases, however, are induced not by these soluble and readily released toxins, but by poisons or toxins held by or closely bound to the bacterial bodies themselves. The latter form of toxin is called endotoxin, to distinguish it from the other, and it so happens that not only is it given off with difficulty by the bacteria, but also that it is less well adapted for the immunization of animals, as for example the horse, which is the most suitable animal in which to produce the antiserums.

Indeed, the endotoxin as contained in different bacteria acts in a very capricious manner. Thus, in the form in which it exists in the typhoid bacillus, it does not lend itself well to the making of an antiserum; as it exists in the dysentery bacillus it lends itself somewhat better to this purpose; as it exists in the meningococcus it lends itself better still; while as it exists in the various cocci—pneumococcus, streptococcus and staphylococcus—it hardly lends itself at all.

The point of capriciousness is of great importance for practical medicine, and it can perhaps be illustrated best by considering the special instance of the pneumococcus. But first we must bear sharply in mind the property called specificity in respect to the bacteria and their antiserums. This specificity is a very delicately balanced condition and one that is made evident chiefly through the immunity reactions of organism (bacterium) and antibody (antiserum).

Thus we have learned that what we call pneumococci are not a single kind or species of bacteria, but that there are actually several kinds in the United States, at least three defined and many less well defined varieties, which formerly were all classed together. At present what we call Types I, II and III pneumococci are easily distinguished by immunity reactions, and all pneumococci not falling into these three types are classed together as Group IV. The last group differs from the other or type classes in not being a single kind, but a heterogeneous mixture of pneumococci.

The immense gain to therapeutics of this classification arises from the fact that a therapeutically active serum has been produced only from Type I pneumococcus. Hence any one who treats pneumonia rationally with antipneumococcic serum must confine his efforts to cases of Type I pneumococcus pneumonia.

proved such by laboratory tests; only these may be treated with Type I antipneumococcic serum. To go beyond this simple demonstrable fact and attempt to treat pneumococcus infection by use of a so-called "polyvalent" antipneumococcic serum is not only futile, but in the present state of knowledge, unscientific.

The outstanding need at present is to restrict the therapeutic employment of antiserums to what has been proved and is experimentally demonstrable, and not to resort to their empiric use on insufficient grounds of activity.

A similar mental attitude toward "vaccines" is to be desired. Exact agreement or parallelism does not exist between the immunizing power of certain vaccines and their capacity to yield effective therapeutic antiserums. Thus, it was stated above that the typhoid bacillus does not yield such a therapeutic serum, and yet typhoid vaccination is an effective bar against typhoid bacillus infection (typhoid fever); similarly, although an active antistaphylococcic serum has not been produced, still staphylococcus vaccine is therapeutically valuable in furunculosis, etc.

The antiserums are employed in two different ways, and in order to accomplish two quite dissimilar purposes: 1. As therapeutic or curative agents. To this use all the active antiserums are devoted. 2. As protection after exposure to certain diseases (diphtheria), or after injury (tetanus antitoxin). The second use is a subordinate one except in the case of tetanus antitoxin, regarding which it is the principal one. But the protection afforded by this so-called passive immunization is in all instances relatively brief and endures only for a few weeks.

The facts regarding the use of vaccines are the reverse. Their main field of usefulness is protective; and as they induce active immunity, their effect is enduring. The length to which this protective vaccination may be succcessfully and properly carried has not yet been determined. The outstanding success is typhoid-paratyphoid vaccination, but other successes relate to cholera and possibly to the type pneumonias.

The curative value of "vaccines," on the other hand, is a subject far less easily dealt with. The idea that vaccines can be used to combat generalized infections, because when injected under the skin they utilize the local tissues to elaborate healing immunity substances (antibodies), is a mere hypothesis that has never been verified. The lymphatic internal organs are the only ones known to be active in producing them, and hence the inoculation of killed cultures or "vaccines" in acute infections may merely amount to the adding, as it were, of fuel to the flames. And what in this respect is true of the bacterial bodies as a whole, as they exist in the vaccines, is true also of extracts or other preparations made from them.

SUMMARY

Up to the present, certain general principles of immunity have been discovered which may be taken as guides to the practical use in man of serums and vaccines.

The manufacture of serums and vaccines has come to be a relatively simple matter under conditions of proper laboratory equipment and personnel.

The great practical success achieved with diphtheria antitoxin and a few other antiserums, and with antityphoid vaccination, has led at times to wider exploitation of this class of therapeutic agents than sound knowledge warrants.

As far as possible, the use of the antiserums and vaccines in man should be based on trustworthy tests proving their value in experimental infections in animals. Because a therapeutically or prophylactically active serum or vaccine can be produced for one infectious micro-organism, it does not follow that a similarly active substance can be produced for another. In each instance, special studies of a precise character should be carried out in animals when possible, in order to determine whether or not a successful result has been achieved.

The high expectations entertained, after the great value of antidiphtheria serum had been demonstrated, that all the infectious diseases of which the inciting bacteria were known would come under a similar form of control, has not been realized.

And yet very substantial progress has been made. A part of this progress has been the recognition of the important part played by specificity in serum and vaccine therapeutics. A therapeutically effective antimeningococcic serum must contain the immunity substances or antibodies for the two main strains and the important subsidiary strains of the meningococcus, and a similarly effective antidysenteric serum must likewise contain the antibodies for the Shiga and Flexner types of dysenteric bacilli. Thus far, a therapeutically effective antiserum has been produced only for Type I pneumococcus, and it is without value in any other form of pneumococcus pneumonia than that due to Type I pneumococcus. No scientific basis exists, therefore, for the manufacture or the administration of a so-called "polyvalent" antipneumococcic serum.

Bacterial vaccines thus far have demonstrated their usefulness in the prevention of typhoid fever, and in a less degree of cholera and bacillary dysentery, and they may have an application to the prevention of the type pneumonias when these affections become, as they rarely do, epidemic. Bacterial vaccines also have a limited therapeutic application in certain types of local infection, as furunculosis. Their wider employment, or the employment of similar products, in the treatment of acute generalized infections is to be resorted to, if at all, with great caution and under the realization that a local elaboration of healing antibodies at the site of inoculation has not been conclusively demonstrated, and that the added bacterial material must reach the internal organs and thus the seats of disease.

I. ANTISTREPTOCOCCUS SERUM AND STREPTOCOCCUS VACCINES *

GEORGE H. WEAVER, M.D.
CHICAGO

Antistreptococcus serums have not proved of great value, and the routine treatment of all cases of streptococcus infection with serum is not desirable. In any case its use should always be preceded by a bacteriologic diagnosis. The serum appears to owe its activity largely to the specific opsonins which it contains. The opsonins are not present in high concentration, and consequently only large doses of serum can be expected to possess therapeutic activity. In addition to the opsonins, active leukocytes are essential in the process of destruction of the streptococci, and so it is very important that treatment be instituted early in the infection before the phagocytic properties of the leukocytes have been reduced by the disease. Polyvalent

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* From the John McCormick Institute for Infectious Diseases.

antistreptococcus serums are prepared with the idea that they will be active in all sorts of streptococcus infections. It has been found in the case of antimeningococcus and antipneumococcus serum that, as polyvalence increases, the curative power over each individual strain is less. This probably also holds true in antistreptococcus serum. It might be desirable to have serums prepared from each type of streptococcus so that each case could receive the serum corresponding to the type of infecting organism.

Favorable conditions for the use of the serum exist in local infections in which the serum may be brought directly in contact with the bacteria, as in wounds, meningitis, pleuritis, etc. Wounds infected by streptococci may be freely bathed with the serum. In streptococcus meningitis the serum may be injected intraspinally in doses of from 20 to 30 c.c., and this may be combined with intravenous or intramuscular injections. Intrapleural injections of 30 to 50 c.c. may be given after aspiration. In general infections, intravenous or intramuscular injections may be used, the dose of serum in the former case being 20 to 50 c.c., in the latter, 50 to 100 c.c. The shock following very quickly on the injection of serum may itself be a danger. The usual serum reaction, developing its symptoms several days after the serum has been given, may add to the gravity of the patient's condition. The severe urticaria with intense itching, together with nausea and vomiting, which may be very persistent, interferes with the taking of food and rest, and helps to use up the patient's reserve. In all cases the harm from severe intoxication from large doses of foreign serum must be carefully balanced against the possible benefit secured. When this is done, very few patients with general streptococcus infection will receive the serum.

When it seems desirable to administer the serum, the patient's susceptibility to horse serum may be determined by the intradermal injection of a small amount of the serum. In the absence of local reaction, serum may be given without hesitation; but if a local reaction occurs, the patient should be desensitized by the administration of a very small primary dose, followed at intervals by gradually increasing quantities.

Streptococcus vaccines should always be autogenous. The importance of this is more apparent as the study of streptococci by more refined methods has shown that there are many strains of streptococci which differ among themselves in essential immunologic peculiarities. A vaccine prepared from one strain might be worthless against an infection by another one. There is nothing to say in favor of a polyvalent streptococcus vaccine, supposed to be active against all types of streptococci. In multiplying the strains, the quantity of each becomes so reduced that the essential one, if present, is in such small amount as to be without therapeutic effect.

Streptococcus vaccines are contraindicated in acute and general infections. In these circumstances the body is already exerting all its powers to produce antibodies to counteract the infection. The addition of still more bacterial toxin results only in harm. In streptococcus septicemias, vaccines are useless. In subacute and chronic local streptococcus infections, autogenous vaccines, given subcutaneously, sometimes act very favorably. This is especially true of infections of mucous surfaces unassociated with accumulations in poorly draining cavities. The initial quantity should be small, from 10 to 20 million, and in subsequent injections the amount should be gradually increased. Moderate local reaction is desirable, but general symptoms usually indicate that the dose given has been too large. The reaction from one injection should subside completely before another is given.

II. USE OF VACCINES AND SERUMS IN GONORRHEAL URETHRITIS AND ITS COMPLICATIONS

JOHN T. GERAGHTY, M.D.
BALTIMORE

Following the introduction by Wright of his views on vaccine therapy, this principle was applied extensively to the treatment of acute and chronic gonorrheal urethritis and its complications. For several years following the introduction of this form of therapy, the literature was filled with most conflicting statements regarding its value. Some observers were most enthusiastic, while others noted no benefit from its employment. It gradually became very evident in the minds of those best trained to judge that gonorrheal vaccines, as first suggested, were practically useless. Various modifications of gonorrheal vaccines were introduced by different workers to secure results, but all of these modifications, including polyvalent, autogenous and stock vaccines, have proved equally valueless. The question of dosage has also received considerable attention at the hands of many investigators, but no appreciable difference in results were obtained, whether the dosage was large or small.

While the results following the use of vaccines in the treatment of acute and chronic gonorrheal infections of the urethra have been unproductive of definite results, one sometimes sees in the acute complications, such as arthritis and epididymitis, most brilliant responses. It has been shown, however, very definitely that the response is in no way the result of a specific action of the vaccine, as identical results have been obtained by the employment of other vaccines and foreign proteins.

In most instances in which favorable results have been obtained in the gonorrheal complications, acute reactions have followed the use of the vaccine, such as temperature elevation and leukocytosis. These reactions are frequently quite alarming and are not entirely devoid of danger.

It can be stated definitely that gonorrheal vaccine or any of its modifications is utterly useless in the treatment of acute or chronic gonorrheal urethritis. The occasional symptomatic relief in epididymitis and arthritis is not the result of specific action, and the benefit derived is not proportional to the risk incurred.

In acute gonorrheal epididymitis, the intramuscular use of horse serum is followed in about 50 per cent. of the cases by a rapid subsidence of pain and tenderness. From 5 to 15 c.c. of serum is usually injected deep into the lumbar or gluteal muscles. In cases reacting favorably to this treatment there is marked symptomatic improvement in from three to five hours. It should be noted, however, that it exerts no influence whatsoever on the pathologic process in the epididymis, and resolution is not accelerated, nor does it alter the course of the urethral infection.

III. THE USE OF ANTIMENINGOCOCCUS SERUM IN THE TREATMENT OF EPIDEMIC MENINGITIS *

KENNETH D. BLACKFAN, M.D.
BALTIMORE

Epidemic meningitis, cerebrospinal fever or spotted fever has occurred in sporadic or epidemic form almost continuously since the pandemic of 1904.[1]

Before the world-wide epidemic there was no specific treatment for this disease. Jochmann, Kolle and Wassermann, and Flexner and Jobling first protected animals against the meningococcus and later prepared a therapeutic serum. The results with antimeningococcus serum when injected into the lumbar subarachnoid space of patients have been so satisfastory that it is almost universally employed. The treatment of meningococcus meningitis was revolutionized by the specific serum.

The mortality figures collected before serum treatment, compared with those following the use of the serum, leave no doubt as to the effectiveness of this form of therapy. During the preserum period the mortality recorded was about 80 per cent. in this country, 70 per cent. in England, 75 per cent. in France and 60 per cent. in Germany. Since the use of the specific serum, the gross mortality has been reduced to about 30.9 per cent.

The importance of early administration of the serum is well illustrated by statistics that have been collected by different observers, given in the accompanying table.

COMPARATIVE MORTALITY REPORTED BY VARIOUS OBSERVERS *

Treatment began	Flexner Per Cent.	Netter Per Cent.	Dopter Per Cent.	Christomanos Per Cent.	Levy Per Cent.	Flack Per Cent.
Before third day..........	18.1	7.1	8.2	13.0	13.2	9.09
From fourth to seventh day.	27.2	11.1	14.4	25.9	20.4	....
After seventh day........	36.5	23.5	24.1	47.0	28.6	50

* Flexner, Simon: Mode of Infection, Means of Prevention and Specific Treatment of Epidemic Meningitis, J. A. M. A. **69:** 639 (Aug. 25), 721 (Sept. 1) 1917.

Unsatisfactory results from the use of antimeningococcus serum are due in a large part to the absence in the serum of antibodies for the infecting organism, to the serum's not being highly potent, and to lack of sufficiently intimate contact with the diseased process. During the late war an epidemic of meningitis in one of the belligerent forces was attended by so high a mortality in spite of administration of antimeningococcus serum that this treatment was virtually discontinued. On investigation, however, it was found that the potency of the antimeningococcus serum that had been used was almost nil. With a properly standardized serum the mortality was reduced immediately. Similar instances have been reported.

Antimeningococcus serum is prepared by immunizing horses with different strains of meningococci. The immunization is continued for a period of months or until a high degree of immunity has been reached. The horses are then bled, and the serum is preserved by the use of tricresol and kept sterile until used. A polyvalent serum standardized against all of the representative strains of meningococci should always be employed in the treatment of meningococcic infections. If the response of the patient to the antiserum is not satisfactory, then agglutinating tests should be made to determine whether the serum used contains agglutinins for the organism isolated from the patient. Monovalent serum should be used only after the type of meningococcus has been determined. Its superiority over the polyvalent serum made in this country has not been demonstrated.

In the intraspinal treatment of epidemic meningitis there are several fundamental principles to keep in mind in order to secure the best results with the specific serum:

1. A serum potent for the causative meningococcus should be employed.
2. The serum should be injected as early as possible in the course of the disease.
3. The serum should be injected into the spinal canal or into the ventricles or both so that it comes directly in contact with the meningococcus.
4. The chief action of the serum is to destroy the organism. For this reason it must be constantly present in as great a concentration as possible. Therefore it should be injected at frequent intervals and in as large amounts as are safe.
5. Serum should be discontinued only after the disappearance of the organisms and with improvement in the general condition of the patient.

The frequency with which antimeningococcus serum is used depends on the severity of the infection and the duration of the infection before treatment is instituted. In a suspected case of meningitis, lumbar puncture should be performed; and if a cloudy fluid is obtained, antimeningococcus serum should be administered without waiting for the bacteriologic report. Should the case eventually be shown not to be due to the meningococcus, no harm will have been done. In the cases of average severity when seen within the first two or three days after the onset, the injection should be repeated every twenty-four hours for three or four doses. In cases of greater severity the injection should be repeated every twelve hours for three or four doses, and thereafter every twenty-four hours. Even with improvement in the general condition of the patient and after the disappearance of visible organisms from the spinal fluid, it is advisable to give two or three successive doses to guard against a relapse. The persistence of the meningococci in the cerebrospinal fluid necessitates the continuance of daily injections of serum until the organisms have been destroyed. After serum treatment has been discontinued, lumbar puncture should be performed, after an interval of several days, and cultures and cytologic studies of the cerebrospinal fluid made.

The reappearance of the signs of meningitis is an indication to repeat lumbar puncture. The demonstration of organisms by culture or in stained smears requires the further administration of serum. After the institution of treatment, if the symptoms of meningitis persist or if the symptoms reappear, even with failure to demonstrate organisms, or if it becomes impossible to obtain cerebrospinal fluid by lumbar puncture, the possibility of a hydrocephalus should be considered. Failure to obtain cerebrospinal fluid may be due to an exudate so thick that it will not flow through the lumbar puncture needle. If one is confident that the spinal subarachnoid space has been entered, any one of the foregoing contingencies indicates the administration of serum into the ventricle, through the open fontanel or a trephine opening. Then the serum should be introduced directly into the lateral ventricle at twenty-four hour intervals. When possible, the serum is injected intraspinally as well. Improvement frequently follows promptly the intraventricular injection of serum. Several patients whom I have treated recovered after four or five intraventricular injections of serum.

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* From the Harriet Lane Home, Johns Hopkins Hospital, and the Department of Pediatrics, Johns Hopkins University.

[1] The contributions of Dr. Simon Flexner have been used for reference in the preparation of this paper.

The amount of serum that is introduced into the spinal canal is determined by the amount of cerebrospinal fluid withdrawn by lumbar puncture. The amount of serum injected should never exceed the amount of cerebrospinal fluid withdrawn. The amount for adults is from 30 to 60 c.c. In infants and children the amount varies from 10 to 20 c.c., or from 5 to 10 c.c. less serum than the amount of cerebrospinal fluid withdrawn. When only small amounts of cerebrospinal fluid are obtained, not more than 5 c.c. in children or 10 c.c. in adults should be injected. Larger doses can be introduced into the ventricles than into the spinal subarachnoid space, but here also the amount injected should not exceed the amount of cerebrospinal fluid withdrawn.

The proper method of introducing serum into the lumbar subarachnoid space and into the ventricle is the gravity method. By this method the serum runs in slowly and at a regular rate, and the normal circulatory and respiratory variations of the cerebrospinal fluid in the subarachnoid space are not disturbed. The injection of serum with syringe is not recommended. Grave symptoms occasionally follow the introduction of serum into the spinal subarachnoid space. For this reason the lumbar puncture needle should be left in place for a few minutes after the serum has been given, so that the fluid may be removed quickly should they arise. The symptoms are due, as has been shown experimentally, either to increased cerebrospinal pressure or the too rapid introduction of serum. They are irregular and rapid pulse, cyanosis, rapid and feeble respirations, and cessation of respiration. If these occur, cerebrospinal fluid should be withdrawn, respirations maintained by artificial means, and respiratory stimulants given. Too rapid or too complete removal of the cerebrospinal fluid also may be followed by collapse.

Although the injection of antimeningococcus serum into the lumbar subarachnoid space has been attended by very considerable success, experience during the recent war has led a number of clinicians to revive a method advised several years ago, namely, the injection of serum into the blood as well as into the subarachnoid space. The intravenous administration is indicated theoretically by the occurrence of a primary blood infection before the onset of the meningeal infection. This has been established by blood cultures in a certain proportion of cases. As a rule, however, it occurs early and is a transitory invasion. The chief and dangerous mobilization of organisms is in the meninges. It cannot be denied that the intravenous injection of the serum is a logical procedure when the cases are recognized during the premeningitic stage of the disease. The diagnosis at this stage of the disease is difficult to make, and except in the midst of epidemics, the vast majority of the cases are not recognized before the development of the meningeal symptoms. After this time there is usually no bacteremia. A few observers contend that the course of the disease is shortened and the mortality is reduced by the combined intravenous and intraspinal method of treatment. Whether this is so only in cases of meningitis with an associated blood infection, or whether it applies as well to cases of meningitis without organisms in the blood, is not entirely proved by the available evidence. It would seem rational and advisable to give serum intravenously in all cases were it not for the fact that the intravenous injection of antimeningococcus serum is associated invariably with a severe systemic reaction. This reaction, in my experience, has been much more severe than the reaction attending the injection of serum into the subarachnoid space. Whether this is a true anaphylactic reaction or an endotoxic reaction is not clear. Almost all observers refer to the reaction that follows the intravenous injection of antiserum; there are but few records of its having been followed by serious consequences in adults. The reverse is true in children. I have seen two children whose death was apparently hastened by its use, and for that reason I am inclined to discourage intravenous administration of serum in children except in meningococcemia, alone, or in those cases of meningitis in which the organism persists or reappears in the blood. Extreme care should be exercised when the serum is administered intravenously either to children or adults. The procedure advised is as follows: The patient first should be desensitized by a subcutaneous injection of 1 c.c. of serum. One hour later, from 80 to 150 c.c. (the dose for children is modified accordingly) is injected into the vein. The first 15 c.c. is injected by syringe or gravity method at the rate of 1 c.c. per minute. After that the serum is injected more rapidly. The injection is repeated according to the severity of the symptoms every twelve to twenty-four hours until the process has subsided. If symptoms (cyanosis, rapid pulse and collapse) occur, the injection should be discontinued and the attempt repeated later. The alarming symptoms are combated by 1 c.c. of epinephrin chlorid, 1:1,000 solution, and $\frac{1}{100}$ grain of atropin by hypodermic injection. Treatment by the intraspinal method should be continued together with the intravenous method.

In the treatment of the complications of meningococcus infection, such as arthritis and pericarditis, the antimeningococcus serum should be brought into direct contact with the infecting organisms.

Serum disease occurs in from one third to one half of the patients treated with antimeningococcus serum. The severe reactions following the intravenous or intraspinal injection of serum are treated in the manner mentioned above. Whenever antimeningococcus serum is given, measures to combat these conditions should be at hand. True anaphylaxis, if it develops, requires the desensitization of the patient to horse serum if further injections are indicated.

(Series to be continued next week)

Tuberculosis Death Rates in Various Occupations.—The *Lavoro* gives a long table showing the deaths in Italy from tuberculosis in proportion to the deaths from other causes in different professions and trades. The highest figure is "Students, 46.9 per cent." Printers come next, with 30.9 per cent.; barbers, 23.4; male nurses, 22.6; mechanics and electricians, 21.4; postal and telegraph employees, 20.7; tailors and railroad employees, about 19; coachmen, etc., 10.5, and servants, 9.6; teachers, 8.4; sailors, 7.9; clergy, 7.4; engineers and architects, 6.2; physicians and dentists, 5.9; lawyers, 5.4; capitalists, 4.8, and lowest of all, mendicants and *ricoverati*, 2.8 per cent.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, JANUARY 1, 1921

ARMAND GAUTIER AND PTOMAINS

The death of Armand Gautier, ex-president of the Académie de médecine, and professor of chemistry of the Faculté de médécine de Paris, to which position he succeeded his teacher, Wurtz, serves to recall the part that he played in certain developments of medical interest. Gautier published several treatises on varied aspects of biochemistry and on the science of nutrition. At one time he was particularly interested in the apparently widespread distribution of arsenic in traces in living structures, and its possible rôle in biologic processes. His name, however, is probably best known to medical readers through its association with the word "ptomain." This term was first applied by the Italian toxicologist François Selmi of Bologna. In 1870, in the course of a medicolegal investigation, the latter isolated from organs of a person supposed to have been poisoned an alkaloid-like substance not identical with any of the comparable compounds known at that time. This experience was repeated in the following years, and presently Selmi came to the conclusion that during putrefaction in the cadaver there may be formed basic poisonous products analogous to the familiar alkaloids of plant origin.

Meanwhile, Gautier had discovered independently, in the course of investigations on the proteins which were demanding his attention, that albuminous materials and notably fibrin, left to putrefy, gave rise, in addition to numerous already known compounds, to small quantities of "alcaloïdes complexes, altérables, fixes ou volatils."[1] The basic properties of these newly discovered substances, their more or less pronounced toxicity and other physiologic effects were described by Selmi in 1878 in a monograph, "Sulle ptomaine od alcaloidi cadaverici," etc. But the further exploitation of the expressive word ptomain thus introduced into medical literature was largely the outcome of Gautier's early studies. In contrast with the bacterially produced ptomains, Gautier pointed out the existence of "physiologic alkaloids" which he accordingly designated as leukomains. For years, medical students were trained to juggle with these words, the one representing products of cellular activity during life, the other the results of the putrefaction of dead protein.

A recent writer,[2] reminding us how it was thought at one time that disease is caused by bacteria through the production of these ptomains, has remarked that these special compounds are not always toxic and therefore cannot be held responsible in every case for the untoward effects of bacterial cultures. In other words, ptomains, in Gautier's sense, and bacterial poisons are not synonymous terms. The enthusiasm displayed a generation ago for the study of ptomains has given way to other investigations of the harmful effects of microorganisms. The leukomains of Gautier are now recognized as products of normal or pathologic metabolism arising independently of bacteria. The indefinite "ptomain poisoning" of a decade or two ago no longer serves so commonly as a cloak for our ignorance. Nevertheless, this must not allow us to forget the deserts of the French chemist who called attention to a new and interesting phase of bacterial chemistry.

LIMING A NATION

In a recent issue,[3] the calcium requirement of man formed the subject for editorial discussion. The topic appeared timely in view of the period of food retrenchment which many peoples are now living through and the possibility that the concentration of attention on the greater needs of nutrition may result in overlooking equally essential but less prominent components of human diet. It is interesting to learn, therefore, that the ministry for public welfare in Berlin is being confronted with the necessity of considering, from a national standpoint, some of the problems related to calcium. Indeed, it appears that the public has taken cognizance of the situation to the extent of organizing propaganda in various forms, one of which is the "Union of Friends of Calcium" (Bund der Kalkfreunde), clamoring for the more liberal use of lime in the German dietary. It is almost unnecessary to add that the commercial interests have not been behindhand in appreciating the situation to the extent of "aiding and abetting" the movement by clever advertising of mineral waters, proprietary salt mixtures, etc., as specially desirable sources of the heralded element which every chalk cliff contains in such abundance.

In a report to the ministry on the situation thus created, the Berlin physiologist Rubner[4] has properly called attention to the scanty evidence on which this program of "liming" the people of the "Central Empires" is based. Among the dangers attributed by the popular preachments to a lack of mineral salts is that of inadequate digestibility of the rest of the ration. This probably dates from an older idea of Liebig found in the statement that the nutrients are digestible only when they contain all of the inorganic components that are naturally associated with them. The untenability of such an assertion has long since been demonstrated by actual experiment. The ingredients of patent flour, for example, do not experience a poorer utilization because the mineral matter present in the bran has been discarded.

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[1] The first mention of this is made by Gautier in his Traité de chimie appliquée à la physiologie **1**: 253, written in 1872 and published in 1874.

[2] Underhill, F. P.: Reference Handbook of the Medical Sciences, New York, William Wood & Co. **7**: 381.

[3] The Calcium Requirement of Man, editorial, J. A. M. A. **75**: 1649 (Dec. 11) 1920.

[4] Rubner: Ueber die Frage des Kalkmangels in der Kost, Gutachten der wissenschaftlichen Deputation für das Medizinalwesen in Berlin, Erstattet am 10 März, 1920, Vrtljschr. f. gerichtl. Med. **60**: 1 (July) 1920.

Another untenable assertion that has crept into the semipopular clamor for the "neglected mineral salts" assumes that in some way they are conveyers of energy. Just what subtle processes are supposed to be executed by them is not clear. Energy transformation, osmotic changes, ionic dissociation are terms that impress the untutored, who often forget that the law of the conservation of energy applies to the living body as well as to the world about us. Ex nihilo nihil fit. Equally fallacious is the doctrine that an adequate supply of inorganic elements enables the body to conserve protein.

Rubner has come to the conclusion that a lack of calcium is likely to arise only when there is a deficit of food in general. Presenting the matter somewhat differently, he believes that additional supplies of calcium will be of little avail to an underfed populace unless the total food allowance can be increased; for calcium cannot promote growth, to quote his illustration, in the absence of organic nutrients. The observations of Sherman [5] tend to indicate that more diets may be deficient in calcium than in protein. Both investigators agree, however, that in general it is a wiser policy to attempt to secure additions of natural foods to the diet of man than to attempt to supply specific salts in isolated form. The question has even been raised whether the enthusiasm for an increment in the lime intake, such as is proposed in the more or less indiscriminate inclusion of its salts to bread and other foods, may not even become detrimental. The alleged dangers of drinking hard water, with the possibility of resulting calcium concretions, are brought to mind. At present such fears seem entirely unfounded, in view of the remarkable regulatory powers of the organism.

Aside from its possible commercial perversions, there is another aspect of this popular propaganda for lime that merits serious consideration in a nation threatened with food shortage. The transfer of problems of the public health out of the hands of experts into those of the layman is frequently liable to unfortunate consequences. Failure to accomplish the desired end sometimes follows misguided projects resting on false or unproved assumptions. The error lies with the protagonists, but it is usually attributed by the public to science itself. Thus, scientific endeavor is thwarted or suffers in reputation because it has been misrepresented by either the professional quack or the misguided, though well meaning, pseudoscientist. This has happened in medicine. The profession must guard against its recurrence by vigorous critique and a fearless stand wherever the truth has become distorted.

ECHINACEA

Intelligent members of the medical profession must be well aware that both the Pharmacopeia of the United States and the National Formulary, now recognized by federal and state laws as standards for drugs and their preparations, include many products that can scarcely be justified as medicinal on the basis of scientific considerations. When once a preparation has found its way into these "official" lists, it thereby gains the presumption of some therapeutic virtue. All too frequently, what it lacks in this respect is replaced by the potent promises of specious advertising; and when the admitted product thus becomes recognized, its place often is long assured by some indefinable force of tradition and reverence for supposed pharmacopeial wisdom.

Among the products included in the National Formulary is the fluidextract of echinacea. The claims for this drug as an "alterative" and antisyphilitic are denoted by one of the publications of the American Medical Association as "extravagant and unwarranted," with the added statement that there are no established indications for its use.[1] In 1909 a report of the Council on Pharmacy and Chemistry of the American Medical Association denied echinacea a place in New and Nonofficial Remedies with the statement that, in view of the lack of any scientific scrutiny of the claims made for it, echinacea is deemed unworthy of further consideration until more reliable evidence is presented in its favor.[2] Despite this, it is stated by experts of the U. S. Department of Agriculture that the use of echinacea has become extensive. The fluidextract and the tincture are made in enormous quantities, and the root enters into the composition of a large number of patent, proprietary and nonsecret mixtures. Couch and Giltner [3] of the Bureau of Animal Industry, who are responsible for this information, have collected details of the claims variously made for the drug. Echinacea is stated to be a corrective of "depravation" of body fluids, and of septic, fermentative or zymotic conditions. It is said to antagonize infectious processes and "blood poison," and to be useful in puerperal sepsis, uremia, pernicious malarial or septic fevers, typhoid fever, and all fevers caused by absorption of septic material. It has been advertised as a specific against the venoms of rattlesnakes, other serpents, and insects. "Pyemia," "goiter," "smallpox," "anthrax" and "hydrophobia" are reported to have been cured by echinacea. It is alleged to be an antidote for tetanus. It has been used locally in erysipelas, bedsores, fever sores, chronic ulcers, glandular indurations, syphilitic nodules, burns and gangrene, and is said to be an active sialogogue, diuretic and diaphoretic.

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[5] Sherman, H. C.: Calcium Requirement of Maintenance in Man, J. Biol. Chem. **44**: 21 (Oct.) 1920.

[1] Epitome of the Pharmacopeia of the United States and the National Formulary, with Comments, Chicago, American Medical Association, 1916, p. 80.

[2] Echinacea Considered Valueless, J. A. M. A. **53**: 1836 (Nov. 27) 1909.

[3] Couch, J. F., and Giltner, L. T.: An Experimental Study of Echinacea Therapy, J. Agric. Res. **20**: 63 (Oct. 1) 1920.

This is a rather formidable aggregation of potencies for even the most respectable of drugs. The government pathologists[3] have accordingly undertaken to determine the possible usefulness of echinacea as a remedy in several pathologic conditions induced by bacteria, their products, or allied toxins. The results of the experimental investigations on guinea-pigs are devoid of evidence of functional effects, as were the earlier studies of competent workers. In both tetanus and botulism produced by the administration of bacterial toxin, the course of the disease was not modified by the echinacea. In septicemia produced by injection of a culture of *Bacillus bovisepticus,* and in anthrax produced by infection with *B. anthracis,* the result indicated that echinacea had no influence. In rattlesnake poisoning produced by injection of a solution of the dry venom, the echinacea preparations were without curative effect. In the chronic diseases, tuberculosis produced by injection of a human strain of the bacillus, and trypanosomiasis produced by injection of *Trypanosoma equiperdum,* the remedy was administered over an extended period of time without apparently influencing the course of these diseases. Of course, it will be retorted that the negative results on laboratory animals need not necessarily apply to sick human beings, and that subtle potent effects are not always discovered by research workers. An appeal may be made to the "generations" of patients, particularly American Indians, who have experienced the beneficent influences of echinacea. Scientific medicine of today, however, asks for evidence that can be demonstrated by the pharmacologist, or can be appreciated and accepted by the critical clinician as well as the quack. Echinacea has not yet established its claims for such recognition, although it may remain a name to conjure with.

VITAMIN, APPETITE AND DIGESTION

Although the physiologic importance of the food factors popularly designated as vitamins has come to be widely recognized, the mode in which the latter affect the well-being of the individual remains to be elucidated. Experiments involving the significance of one of the vitamins in nutrition has just been reported by Karr[1] from Mendel's laboratory at Yale University. They show in a striking manner that the food intake, so far as it relates to appetite, may be decidedly modified by the presence or absence, respectively, of sources of water-soluble vitamin—vitamin B—in the diet. Dogs were placed on a liberal ration of isolated protein, fat and sugar, together with a commonly used mixture of those inorganic salts supposed to suffice for the body's needs. Such a mixture would have been expected only a few years ago to embody an adequate ration, since it contained representatives of all the customary nutrients—the proteins, fats, carbohydrates and inorganic salts—and was rich in energy as expressed in its calory value. The animals took the diet for a few days, but sooner or later refused to eat. As soon as a source of the water-soluble vitamin was administered, however, the food previously refused was again freely consumed. The vitamin preparations, including tomatoes, milk, yeasts and products from these, were administered like a drug apart from the food after the meal had been offered; hence they could not have directly affected the palatability of the ration. So long as the therapeutic dose of vitamin continued to be supplied in addition to the vitamin-free ration, the latter was readily eaten.

From the results recorded it is evident that in the dog—and doubtless this applies to other species—some relation exists between the desire to partake of food and the amount of the so-called water-soluble B vitamin ingested. A rather definite minimum amount of this food factor seems to be necessary to sustain the desire to partake of food that is otherwise adequate for the nutrition of the animal. The quantity varies with the animal. When dogs chance to continue to eat the described vitamin-free rations for a longer time without the addition of any accessory substance, as occasionally happens, characteristic symptoms, polyneuritic in character, may develop.[2] Karr found that these could be alleviated in a surprising manner within a few hours by the ingestion of brewery yeast or tomatoes, substances rich in water-soluble vitamin. The results recall the classic experiments on the production and relief of beriberi.

It has been assumed by several writers that the water-soluble vitamin promotes the secretory activities of the alimentary apparatus. If this is true, one might expect the lack of the food factor to give rise sooner or later to digestive disturbances, owing to the lack of adequate alimentary secretions. Karr's[3] observations on dogs kept on diets deficient in water-soluble (B) vitamin failed to show any impairment in the digestibility and utilization of protein in the gastro-intestinal tract. He asserts the probability, furthermore, that the lack of the vitamin does not primarily affect the intermediary metabolism of the protein nitrogen. The unique influence of the vitamin factors thus remains among the secrets which the physiology of nutrition has still to reveal.

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[1] Karr, W. G.: Some Effects of Water-Soluble Vitamin upon Nutrition, J. Biol. Chem. **44**: 255 (Nov.) 1920.

[2] Voegtlin, Carl, and Lake, G. C.: Am. J. Physiol. **47**: 558 (Jan.) 1919.

[3] Karr, W. G.: Metabolism Studies with Diets Deficient in Water-Soluble (B) Vitamine, J. Biol. Chem. **44**: 277 (Nov.) 1920.

DEATHS OF PHYSICIANS IN 1920

During 1920, the deaths of 2,321 physicians in the United States and Canada were recorded in The Journal. Adding 2.5 per cent. to this number on account of delayed reports and possible omissions, we may estimate the total number of deaths as 2,379. On an estimate of 160,000 physicians, in the United States and Canada, this is equivalent to an annual death rate of 14.81 per thousand. For the eighteen previous years the mortality rates were: 1919, 13.55; 1918, 16.88; 1917, 14.37; 1916, 14.08; 1915, 15.71; 1914, 14.41; 1913, 14.64; 1912, 14.13; 1911, 15.32; 1910, 16.96; 1909, 16.26; 1908, 17.39; 1907, 16.01; 1906, 17.20; 1905, 16.36; 1904, 17.14; 1903, 13.73, and 1902, 14.74. The average annual mortality rate for the period from 1902 to 1920, inclusive, was, therefore, 15.46 per thousand.

Ages.—Of the 2,272 decedents whose age was stated, 37 were under 30; 174 between 31 and 40; 351 between 41 and 50; 463 between 51 and 60; 541 between 61 and 70; 436 between 71 and 80; 208 between 81 and 90, and 19 between 91 and 100. The greatest number of deaths for a given age occurred at 63 and 64 years, at each of which ages sixty-five deaths were noted.

Causes of Death.—General diseases accounted for 257 deaths; diseases of the nervous system, 271; diseases of the circulatory system, 404; diseases of the respiratory system, 266; diseases of the digestive system, 70; diseases of the genito-urinary system, 154; senility, 77; suicide, 32; accidents, 102; homicide, 14, and sequels of surgical operations, 74. The principal assigned causes of death from disease and their frequency were: organic heart disease, 236; cerebral hemorrhage, 211; pneumonia, 186; nephritis and uremia, 142; malignant tumors, 91; tuberculosis, 59; angina pectoris, 50; pneumonia-influenza, 37; arteriosclerosis, 33; myocarditis, 34; septicemia, 31; influenza, 29; diabetes, 28; meningitis, 17; cirrhosis of the liver and acute dilatation of the heart, each 16; endocarditis and anemia, each 15; peritonitis, 12, and appendicitis and gastritis, each 11.

Accident.—The causes and distribution of the 102 deaths from accident were: automobile, 27; automobile-railway (grade crossing), 22; poisons, 9; falls, 8; firearms, 7; drowning, 6; railway and street car, each, 5; asphyxia, 3; exposure and burns, each, 2; crushing, 1, and other accidents, 5. The thirty-two physicians who ended their lives by suicide selected these methods: firearms, 18; poisons, 7; cutting instruments, 3; strangulation, 2; jumping from high places and drowning, each 1. Of the fourteen homicides, nine were due to firearms.

Civil Positions.—Of those who died, 1 had been a member of Congress; 1, consul; 1, a state governor; 13, members of state senates; 19, members of the lower houses of legislatures, and 25 had been mayors; 17, members of state boards of health; 24, members of state boards of medical examiners; 4, members of other state boards, and 1, a member of the National Board of Medical Examiners.

Association Fellowship.—Of the 520 Fellows of the American Medical Association who died during 1920, one had been President; four, Vice President; seven, members of the House of Delegates; one, a member of the Council on Medical Education, and four, section officers.

Current Comment

DIPHTHERIA ANTITOXIN AND DIPHTHERIA BACILLI

The well established curative properties of diphtheria antitoxin must not be confused with its possible value as a prophylactic against the disease. Antitoxin is commonly employed by injection to detoxicate or "neutralize" the circulating toxin elaborated by the infective bacillus. Attempts have been made to apply the same remedial agent locally in the pharynx and nares with the hope of eradicating the objectionable micro-organisms that may have found lodgment there. A recent writer admits that negative cultures may sometimes be obtained after such local treatment with antitoxin, but he adds that this does not constitute conclusive proof of a bactericidal potency. The disappearance of Klebs-Loeffler bacilli from a membrane bathed with antitoxin may be due to mechanical effects that might equally well be brought about by cleansing with suitable saline solutions. The fact that diphtheria organisms grow luxuriantly in antitoxin speaks against any direct germicidal virtue. Investigators[1] at the Johns Hopkins Hospital have attempted to determine more adequately whether subcutaneous administration of diphtheria antitoxin exerts any influence more indirectly in preventing lodgment and growth of diphtheria bacilli in the nasopharynx of individuals thus treated. The results were entirely negative.

GYNECOMASTIA

Like various other conspicuous external anomalies of the human body, the occurrence in the male of a mammary development resembling that of the female in its anatomic appearances and milk-secreting function has often aroused interest, if not amazement. Instances of such gynecomastia, as the unique condition has been termed, abound in medical literature from olden times to the present. In addition to the conspicuous feminine-like hypertrophy of the male breast, an actual occurrence of lactation has been described in a few cases, the analogy going to the extent of reported chemical analysis of the "buck milk." There has unquestionably been much exaggeration and misinformation, as might be expected, concerning circumstances that often depend on mouth-to-mouth methods of repetition and publication. The occurrence of the essential phenomenon, however, remains undisputed. According to a recent critical study by Hammett,[1] the endocrine origin of gynecomastia is now reasonably well established. Animal experimentation in which the extirpation and transplantation of the sex organs—the gonads—have played the decisive part has demonstrated conclusively that it is possible to produce in males an enlargement at puberty resembling that taking place in the female and that, furthermore, this development may continue to the point of milk production. Precisely what the stimulus is in the case of the gynecomasts is not yet so clear. It seems as if testicular and ovarian hormones, respectively, determine the development of characteristic masculine and feminine functional changes. It has been alleged that the tendency toward feminine development is a universal endowment of both sexes. In the male the exhibition of the female type is inhibited, on this hypothesis, by the presence of the testicular hormone; and when this is lacking, the deprived male tends to develop the inherent feminine features. For the moment, however, this theory of inhibition has been abandoned in favor of a more positive stimulus for development of the secondary sexual characters. According to Hammett, the phenomenon of gynecomastia is not attributable merely to a diminution of testicular function, as Novak[2] has believed, but further to the coincident existence of some potent hormone-producing tissue resembling in its effect that of the female ovary and giving rise to the mammary enlargement characteristic of the sex. Whether the male gonadal tissues have in some way become perverted in function in these cases, or whether some special ovarian-like tissue sometimes develops in the male body, remains for the present merely an interesting speculation.

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[1] Gelien, J.; Moss, W. L., and Guthrie, C. G.: The Effect of Diphtheria Antitoxin in Preventing Lodgment and Growth of the Diphtheria Bacillus in the Nasal Passages of Animals, Bull. Johns Hopkins Hosp. **31**: 381 (Nov.) 1920.

PHARMACEUTICAL BARNUMS

Does the public love to be humbugged? We doubt it. That we, whether sage or fool, *are* humbugged is undeniable. We are humbugged just to the extent that we are ignorant. There lies one of the most powerful factors operating to the advantage of the "patent medicine" maker and the quack. The layman's ignorance of the possibilities and limitations of drugs is wide and deep. Hence the ease with which he is fooled on this subject. A seeming frankness in advertising being the order of the day, the nostrum maker makes a pretense of telling what is in his stuff without disclosing any facts that will tend to lift the veil of mystery and thus destroy his greatest asset. So the exploiter of nostrums to the medical profession, realizing that at least a pretense must be made of giving the composition of medicaments offered to the physician, declares that his clay poultice has for its base "anhydrous and levigated argillaceous mineral." This sounds much more imposing than dry and finely powdered clay, and satisfies by its very sonorousness. Now comes a product exploited chiefly to members of the dental profession but also, it seems, to physicians. Tablets, "activated tablets," if you please! They are "an anodyne, analgesic febrifuge sedative, exorcising [*sic!*] antineuralgic and antirheumatic action." And their composition? Simply "an activated, balanced combination of the mono-acetyl-derivative of para-amidophenetol together with a feebly basic substance in the alkaloidal state from the Thea-Sinensis." As clear as the Missouri River! Some day some dentist or physician is going to investigate and find that this awe-inspiring, polysyllabic example of exuberant verbosity means nothing more mysterious than our old friends acetphenetidin (phenacetin) and caffein. In the meantime, the exploiters may smile softly and murmur: "Barnum was right!"

THE DAILY BATH

Among the New Year resolutions which might commend themselves to some of our careless citizenry would be the high and noble resolve to indulge in more frequent ablutions. The *Domestic Engineering* magazine feels the need of urging seriously and repeatedly this highly moral resolution; in fact, for more than two months it has been carrying on a "take a bath every day" campaign. The health officials of our states and large cities have been circularized and show a remarkable unanimity of opinion as to the advisability of this procedure. We say "remarkable" since there are few health questions on which some authority may not disagree with the majority. But where is the man so bold as to stand forth and say that soap and water are not essential? *Domestic Engineering* is not campaigning for any other kind of a bath than the cleansing bath. It rides no hobbies for cold or hot baths, for oil or mud baths, for light or electric baths but merely plain baths—dirt removing, germ removing baths—not Saturday night but every night baths. It is of course unnecessary to tell the scientific reader that *Domestic Engineering* is an elite and elegant name for "plumbing." Well—we wish it success in this campaign. Prospects begin to look bright for a clean year in 1921. As the shoemaker says: "There's nothing like leather."

METHYL ALCOHOL VERSUS "WOOD" ALCOHOL

The untoward consequences to human life which have followed the intake of fluids containing methyl alcohol in the last few years, and particularly since the prohibition laws went into effect, ought to leave an indelible impression of the danger of methyl alcohol to man. The more remote effects of this substance, notably the peculiar danger of ensuing blindness which differentiates methyl alcohol from the closely related ethyl alcohol or grain spirits, represent a subtle menace which is rarely suspected until the damage produced is beyond repair. The relative toxicity of the two alcohols is not adequately expressed by their immediate or acute effects; they differ in their behavior in metabolism, in the comparative readiness with which they can be disposed of in the organism, as well as in the permanent damages which they may initiate when the dosage is adequate. The comparison is not favorable to methyl alcohol. Nevertheless, in the repeated attempts made to justify the introduction of methyl alcohol for the less readily obtainable and now specifically prohibited ethyl alcohol, the dangers of the substitution are sometimes minimized by those to whom the change represents a trade advantage. It is claimed, for example, that the unfortunate properties of "wood alcohol" are attributable to "impurities" of some kind or another, and that pure or refined methyl alcohol is devoid of the larger dangers. In view of this insidious propaganda it is important to note the latest evidence which Sollmann[1] of Western Reserve University has contributed. He substantiates the contention that both purified methyl alcohol and "wood" alcohol are markedly more toxic than ethyl alcohol. In bringing out the deleterious effects of chronic alcoholism, Sollmann's new experiments on growing animals emphasize the greater dangers of methyl than of ethyl alcohol; but above all they demonstrate that the alleged "impurities" of ordinary wood alcohol play only a minor part in chronic intoxication. The methyl alcohol, which is the essential ingredient, is likewise the dominant toxic agent. Those who attempt surreptitiously or otherwise to foist the highly dangerous methylated spirits in any guise or under any pretext on the public can no longer hide behind the shield of the asserted "purity" of the alcohol used. We should warn the public to beware of the dangers of methyl alcohol, whether it is labeled pure or impure —or perchance whether or not it is labeled at all.

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[1] Hammett, F. S.: Gynecomastia, Endocrinology **4**: 205 (April-June) 1920.

[2] Novak, J.: Zur Kenntniss der Gynäkomastie und zur innersekretorischen Theorie der Brustdrüse, Zentralbl. f. Gynäk. **43**: 253, 1919.

THE BILE AND THE BEHAVIOR OF FATS IN THE ALIMENTARY TRACT

In recent years, physiologists have modified in several respects their conception of the rôle of the bile in the alimentary processes. Antiseptic properties are no longer attributed to this secretion of the liver, nor is it believed to be endowed with any pronounced digestive activities. Nevertheless, there are experimentally founded indications that, in the test tube at least, the bile may facilitate the digestion of fats by the pancreatic and intestinal secretions. Thus, it is said that if bile is present in the mixtures, the power of the pancreatic juice to digest fats is increased several fold.[2] Opportunities for testing the possible interrelations of the two secretions in the human subject are not frequently obtained, though they are by no means unknown. Diseases, as well as the anomalies of nature, sometimes devise an unintentional experiment for the ready clinical investigator. This has happened in a recently reported case of congenital atresia of the bile ducts observed by Hutchison and Fleming.[3] A similar case was observed not long ago by Holmes.[4] No bile entered the intestine, but the pancreas was found to be normal and its duct patent. A study of the feces in comparison with the food intake showed, as may be anticipated, that the absorption of fat was greatly decreased or minimal in contrast with what happens in the normal child under the same conditions of diet. Yet, despite this defective absorption, the digestion of the fat to the extent of a lipolytic production of fatty acids was only slightly inhibited, even in the complete absence of bile. This finding emphasizes anew, on the basis of data secured from human beings, that the presence of bile is not essential to alimentary lipolysis, despite the dominant rôle of this secretion in facilitating the subsequent absorption of the products of the digestion of fats.

Association News

THE BOSTON SESSION

Additional Hotel Headquarters

In addition to the hotel headquarters for the annual session of the American Medical Association to be held in Boston, June 6-10, 1921, reported by the Local Committee on Arrangements and published in The Journal, Dec. 18, 1920, p. 1722, still other headquarters have been assigned. The following are the designated hotel headquarters:

Sections	Headquarters
Practice of Medicine	Hotel Somerset
Surgery, General and Abdominal	Hotel Lenox
Obstetrics, Gynecology and Abdominal Surgery	Hotel Touraine
Ophthalmology	Hotel Vendome
Laryngology, Otology and Rhinology	Hotel Brunswick
Diseases of Children	Parker House
Pharmacology and Therapeutics	Copley Square Hotel
Pathology and Physiology	Hotel Bellevue
Stomatology	Parker House
Nervous and Mental Diseases	Young's Hotel
Dermatology and Syphilology	Copley Square Hotel
Preventive Medicine and Public Health	Hotel Bellevue
Urology	Hotel Westminister
Orthopedic Surgery	Adams House
Gastro-Enterology and Proctology	Hotel Essex

The Committee on Hotels, of which Dr. John T. Bottomley is chairman and Dr. Stephen Rushmore is secretary, requests that those who desire to secure hotel reservations shall write to the committee. The section in which the applicant is especially interested, the number in the party and when it is planned to arrive in Boston should be stated. Address communications to one of the officers at the Boston Medical Library, 8 The Fenway.

MIDWINTER CONFERENCE

The regular midwinter conference of the American Medical Association will be held at the Congress Hotel, Chicago, Monday, Tuesday, Wednesday and Thursday, March 7-10, 1921. The annual Congress on Medical Education and Licensure will occupy the first three days. A joint program on medical education will be presented by the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges and the Federation of State Examining Boards. The fifteen committees on graduate training in specialties will present reports on suggestive courses of instruction. The clinical subjects of the medical course will be discussed by several committees. Other papers will discuss problems of interest to state licensing boards. On Thursday, March 10, the Council on Health and Public Instruction will hold a conference with representatives of the state medical associations, state departments of health, voluntary public health associations and others interested in the social problems of the medical profession, public health and the organization of the profession and public for constructive public health work. Detailed programs will appear later

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[1] Sollmann, Torald: Studies of Chronic Alcohol Intoxication on Albino Rats, II, Alcohols (Ethyl, Methyl and "Wood") and Acetone, J. Pharmacol. & Exper. Therap. **16**: 291 (Nov.) 1920.

[2] Rachford: Jour. Physiol. **12**: 72, 1891; **25**: 165, 1899. Martin and Williams: Proc. Roy. Soc. **48**: 160. Tschermak: Centralbl. f. Physiol. **16**: 329, 1902. Bruno: Arch. d. sc. biol. **7**, 1899. Von Fürth and Schütz: Beitr. z. chem. Physiol. u. Path. **9**: 28. 1907 (earlier literature cited). Hewlett: Effect of Bile on Ester Splitting Action of Pancreatic Juice, Bull. Johns Hopkins Hosp. **16**: 166, 1906.

[3] Hutchison, H. S., and Fleming, G. B.: The Digestion and Absorption of Fats in a Case of Congenital Atresia of the Bile Duct, Glasgow M. J. **94**: 65 (Aug.) 1920.

[4] Holmes, J. B.: Congenital Obliteration of the Bile Ducts, Am. J. Dis. Child. **11**: 405 (June) 1916.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Typhoid Fever Epidemic.—In an outbreak of typhoid fever at Cass, a town near Ozark, thirty cases were reported up to December 11.

Physicians' Homes Destroyed. — The home of Dr. F. E. Harrison, Fordyce, was practically destroyed by fire, December 11.——Fire recently destroyed the home of Dr. Hubert Shull, Texarkana, with all its contents.

County Society Elections.—At a meeting of the Lawrence County Medical Society the officers for the ensuing year were elected as follows: president, Dr. Joel C. Land; vice president, Dr. John C. Hughes, and secretary-treasurer, Dr. Horace R. McCarroll, all of Walnut Ridge.——The new officers of the Pulaski County Medical Society, elected at the regular meeting, December 14, are as follows: president, Dr. Robert Caldwell; vice president, Dr. John B. Dooley; secretary, Dr. Darmon A. Rhinehart, and treasurer, Dr. William R. Bathurst, all of Little Rock.

CALIFORNIA

New Tuberculosis Sanatorium Opened. — The Olive View Sanatorium for Tuberculosis, four miles north of San Fernando, is open for the reception of patients. The sanatorium is operated as a ward of the Los Angeles County Hospital and has accommodations for 100 patients. Dr. Audley O. Sanders is superintendent.

Society Semicentennial. — Los Angeles County Medical Association will celebrate its fiftieth anniversary, January 31, by a reception and banquet to Drs. Walter Lindley, Joseph Kurtz and J. P. Widney, three of the original founders. The arrangement committee consists of Drs. Harlan Shoemaker, Stanley Black and George Piness.

Chiropractors Convicted.—It is reported that several chiropractors have recently been convicted of illegal practice, as follows: Robert Birch, Los Angeles, pleaded guilty, Nov. 17, 1920, and was fined $100; H. A. Brown, Richmond, was found guilty and fined $100; Ben Bolt, Los Angeles, was found guilty and fined $300. (On refusal to pay the fine he was committed to jail.)

Illegal Practitioners Prosecuted.—The California Board of Medical Examiners reports the following prosecutions of illegal practitioners: "Dr." Henry Ching, Chinese herbalist, Los Angeles, was convicted in the federal court and sentenced to five years in the penitentiary; he disappeared and his bail of $10,000 was declared forfeited. S. Gordon Henderson, Los Angeles, pleaded guilty, November 26, to a charge of violating the medical practice act and was sentenced to pay a fine of $100 or serve sixty days in the county jail. Two Chinese herbalists pleaded guilty to a charge violating the medical practice act and were sentenced to ninety days in the county jail; the sentences were suspended for two years. B. C. Eilers, a chiropractor, was arrested in San Bernardino for violating the medical practice act. Under the name of B. C. Eilersficken he formerly conducted a school of chiropractic in San Diego.

CONNECTICUT

Pediatrics Professor.—Dr. Edwards A. Park, associate professor of pediatrics in Johns Hopkins University, has been appointed professor of pediatrics in Yale Medical School. It is planned to place the department on a full time basis.

Medical Fraternity Chapter.—The twenty-sixth chapter of the Alpha Omega Alpha society has been established at Yale Medical School, with Drs. Milton C. Winternitz, Joseph M. Flint, Harry B. Ferris, Arthus H. Morse and Samuel C. Harvey among the chapter members.

DISTRICT OF COLUMBIA

Society Meeting.—At the October meeting of the section on ophthalmology and otolaryngology of the Medical Society of the District of Columbia, Dr. Luther C. Peter, Philadelphia, read an address on "The Value of Perimetric Studies in the Diagnosis of Accessory Sinus Disease."

New Buildings for Army School.—Bids for the erection of the new Army Medical School buildings on the Walter Reed General Hospital grounds will be opened, January 15, by officers of the construction division in the Quartermaster's Department. The new buildings will cost about $1,000,000.

FLORIDA

Public Health Service Hospital.—The United States Public Health Hospital at Lake City was formally opened for the reception of patients, December 6. Surgeon Almon P. Goff is medical officer in charge.

Hookworm Clinic.—A free clinic for the cure of hookworm disease will be opened in the McCaskill Building, Milton, according to an announcement of the State Department of Health, following an extended tour of the state by Dr. Fletcher L. Tatom.

ILLINOIS

Provisions for Mental Defectives.—The city of Elgin is making provision for a special class for feebleminded children in one of the public schools and another class for backward children is under consideration.——Dr. Milton Jacobs, medical director of Rest Haven Sanatorium, Elgin, is conducting mental hygiene clinics in conjunction with the Elgin Free Dispensary.

Chicago

Luncheon to Dr. Flexner.—Dr. Simon Flexner, retiring president of the American Association for the Advancement of Science, was tendered a luncheon at the University Club, December 28, by about forty physicians of Chicago.

Special Bequests by Dr. N. S. Davis.—In the will of Dr. N. S. Davis are the following bequests for Chicago medical organizations: To the Society of Medical History of Chicago, the microscope and stethoscope of his father; the microscope is said to be the first one brought to Chicago. To Rush Medical College, a microscope presented to Dr. Davis by the students of Rush Medical College. To the Northwestern University, after the death of Mrs. Davis, the sum of $5,000 to be used in establishing a library of zoology, to be known as the N. S. Davis Memorial Library of Zoology. To the John Crerar Library, after the death of Mrs. Davis, the sum of $5,000, to be used in purchasing books on the heart and lungs for a special collection, to be known as the N. S. Davis Library of Medicine.

IOWA

Personal.—Dr. Edward L. Reinicke has resigned as city physician of Dubuque.

Dinner of County Society.—The Scott County Medical Society will give a duck dinner in the Terrace Garden Dining Room of the Kahl Building, Davenport, January 4, preceding the regular meeting.

Society Elections.—Wapello County Medical Society at its annual meeting at Ottumwa elected the following officers: president, Dr. Walter E. Anthony; vice president, Dr. Dell E. Graham, and secretary, Dr. Harry W. Vinson (reelected).——At the annual meeting of the Pottawattamie County Medical Society, held at Council Bluffs, the following officers were elected: president, Dr. Louis L. Heninger; vice president, Dr. John T. McAtee, and secretary-treasurer, Dr. Andrew A. Robertson.

KANSAS

New Campus for Medical School.—A new campus, containing about twelve and one-half acres, has been secured for the clinical branches of the University of Kansas School of Medicine in Rosedale, about a mile south of the present campus. Plans are being developed for the erection of new buildings in the early future.

Tuberculosis Clinic.—A free clinic for the examination of those suspected of tuberculosis was held under the auspices of the Kansas Tuberculosis Association, at the Red Cross Clinic rooms, Wellington, December 20. Drs. Forrell Loveland and Seth Cox were guests of the county medical association and conducted the clinic.

MASSACHUSETTS

Social Service Fund Sought.—A campaign is being conducted for a fund of $30,000 to extend the scope of the sociologic department of the Boston City Hospital. The city makes an appropriation for the medical social work, but the amount is insufficient to cover all the needs, as practically three fourths of the 70,000 cases annually treated at the hospital require the attention of the social workers.

Tuberculosis Society Organized.—A branch of the Massachusetts Tuberculosis League has been organized in North Essex County to include the towns of Haverhill, Merrimac, West Newbury, Groveland, Georgetown, Boxford, Amesbury, Salisbury, Newbury, Newburyport, Rowley, Ipswich, Andover, North Andover and Methuen. The following officers have been elected: president, Dr. Israel J. Clarke, Haverhill; vice president, Dr. Edward Ganley, Methuen; secretary, Miss Harriet A. Baxter, Merrimac, and treasurer, Mrs. Frederick E. Sweetser, Merrimac.

MICHIGAN

Ludington Health Board Appointed.—A board of health has been appointed at Ludington under the provisions of a charter revision passed five years ago. Dr. Harvey E. Hoffman, health officer, Mayor Peter Madison, H. E. Waits, superintendent of public schools, Mrs. O. J. Wangen, R. N., and Mrs. H. K. Hansen constitute the board of health.

Clinical Society Meets.—At the meeting of the Northwestern Michigan Clinical Society held at Cadillac, December 3, Dr. Elmer L. Eggleston of the Battle Creek Sanitarium delivered the principal address. The following officers were elected: president, Dr. George W. Fraleck, Maple City; vice president, Dr. Arthur S. Rowley, Traverse City, and secretary-treasurer, Dr. Frank Holdsworth, Traverse City.

Meeting of Michigan Hospital Association.—At the recent meeting of the Michigan Hospital Association in Ann Arbor it was unanimously decided to affiliate with the American Hospital Association on the plan provided for the affiliation of state associations. A report of the campaign to recruit pupil nurses for the hospitals of Michigan showed that 6,564 persons had been reached through lectures in high schools and rural schools and through literature distributed at county fairs and elsewhere. Of the forty-one hospital training schools in the state thirty-nine reported that they have derived benefit from the campaign.

MINNESOTA

Venereal Disease Law Enforced.—The Minnesota State Board of Health announces that during October two druggists were successfully prosecuted in St. Paul for selling venereal disease remedies without prescription; each was fined $10 and costs. One complaint was filed against a Minneapolis druggist at approximately the same time but on account of a technical error in the manner of drawing up the complaint the case was dismissed. It is planned to secure further evidence and file a new complaint. A large chain drug store has repeatedly violated the regulation. In November a physician was prosecuted in Minneapolis for failure to report cases of venereal disease treated by him, and was fined $20 and costs. In December another physician was prosecuted in Minneapolis on the same charge and was fined $50 and costs.

MISSISSIPPI

Personal.—Dr. Evan M. Gavin, Ovette, has been appointed a member of the state board of health for the sixth district to succeed Dr. David Walley, Richton, resigned.——Drs. Paul D. Hardin and Lawrence B. Hudson, Hattiesburg, have been appointed resident managers of the Kings Daughters Hospital, Hattiesburg, recently acquired by the Mississippi Methodist conference.

MISSOURI

Visiting Physician Addresses Society.—Dr. B. B. Vincent Lyon, Philadelphia, delivered an address on the treatment of gallbladder infection at the meeting of the St. Louis Medical Society, December 14. A dinner was given at the University Club in honor of Dr. Lyon prior to the meeting.

New Chair Established.—Dr. John Auer, Flushing, N. Y., who has been connected with the Rockefeller Institute since its foundation, has been appointed head of the newly established department of pharmacology in the School of Medicine of St. Louis University. Pharmacology was heretofore included in the department of physiology.

NEVADA

Elko Hospital Nearing Completion.—It has been announced that the new general hospital of Elko County, under construction at Elko at an approximate cost of $130,000, will be ready for occupancy by March 1. The new hospital will be one of the largest in the state

NEW JERSEY

Clinic for Stutterers.—The clinic for stutterers has been opened at the school for crippled children adjoining the City Hospital, Jersey City, every Monday and Thursday evenings at 7:30 under the direction of Dr. Hannah M. Creasey. This initiates the fifth year of activity of the clinic.

NEW YORK

New Regulations Governing Narcotic Drugs. — Two new rulings regulating the prescribing of narcotic drugs have been announced by Walter R. Herrick, Commissioner of State Narcotic Drug Control. One ruling eliminates the use by physicians of the unofficial prescription blanks for administering any narcotic drugs. No such drug can be prescribed by a physician, whether for drug addiction or otherwise, except on official blanks issued by the department. The second regulation compels physicians called to administer to an addict to ascertain who last treated him. This gives the department a complete history of an addict and makes easy his arrest and conviction in case of false representation.

New York City

Personal.—Dr. Ephraim M. Bluestone has been appointed assistant director of the Mount Sinai Hospital.——Dr. Morris H. Frantz has been appointed assistant attending neurologist for the Central and Neurological Hospital.

Smallpox Among Immigrants.—The *Duca d'Abruzzi* of the Royal Italian Mail Liner, arriving in port with 1,400 steerage passengers, December 23, had aboard a case of smallpox. All of the steerage passengers have been detained at Quarantine for two weeks.

Physicians and Nurses Give Benefit. — The medical, surgical and nursing staffs of the Post-Graduate Hospital gave a play entitled "There's a Reason," with the subtitle "An Effervescence in Three Syphons," written by Dr. Marvin Jones, followed by a dinner and dance at Delmonico's on the evening of December 23, in aid of the endowment fund for that institution.

Conviction of Physician Upheld.—It is reported that the United States Circuit Court of Appeals, November 16, affirmed the conviction of Dr. Solomon Rothman for violation of the Harrison Narcotic Law. The physician had been sentenced to two years in the Atlanta penitentiary, but was out on bail pending the appeal. This decision is the first to be rendered in the cases of four physicians convicted of similar offenses in 1919 and 1920, all of whom have appealed.

Health Department Crusades Against Poor Food.—The adulteration and sale of food unfit for human consumption has grown to such proportions that Health Commissioner Copeland has sent out thirty women of the sanitary reserves to inspect restaurants and food stores of the city. Owing to the high prices, the restaurants and food stores hesitate to throw away spoiled food, and attempt to sell it to the unwary public. The health department has 300 of these cases before the courts at the present time, and since the beginning of the year $35,000 has been collected in fines, and 17,256.004 pounds of foodstuffs have been condemned. Since July 1, eighty-eight creameries have been excluded from shipping milk to the city.

Propose War on Rats.—A proposed amendment to the building code, now pending before the Board of Standards and Appeals, would make compulsory the ratproofing of all buildings within 600 feet of the waterfront. According to the estimate of Dr. Victor C. Heiser of the Rockefeller Institute there are 6,000,000 rats in the city, and they cause a property loss of about $35,000,000 annually and are a menace as carriers of bubonic plague. The new measure provides that no certificate for occupancy of any structure within 600 feet of the waterfront shall be issued unless its foundation walls are constructed of concrete or similar material and covered with wire mesh. All windows and other openings must be protected with wire screens, and windows and doors must be arranged to permit fumigation with hydrocyanic gas.

OHIO

Personal.—Dr. James G. Clyne, Cleveland, was severely beaten by robbers, December 8, following his refusal to open a safe. The bandits obtained a medicine case containing narcotics and $50 in cash.

Health Officers Appointed.—Dr. Chester M. Peters, Canton, has been reappointed health officer of Stark County for a term of two years.——Dr. James J. Martin, Bucyrus, has been appointed full-time district health commissioner.

Portrait Donated to Hospital.—A portrait of Dr. Eichenberg was presented to the Cincinnati General Hospital, under impressive ceremonies on the afternoon of December 10, by the brothers of the deceased physician. Dr. John C. Oliver, acting dean of the Cincinnati Medical School made the principal address, Dr. Louis Stricker delivered the presentation address and Drs. Gustav Zinke and E. O. Fennell also spoke. Dr. Eichhenerg was medical director of the institution in 1906, and was a member of the staff of the contagious disease group.

OKLAHOMA

New Officers.—At the December meeting of the Garfield County Medical Society the following officers were elected for 1921: president, Dr. James H. Hays, vice president, Dr. Percy A. Smithe, and secretary-treasurer, Dr. Frank Glenn Francisco, all of Enid.

Health Instruction Fostered. — Arrangements have been made between the Oklahoma Public Health Association and the University of Oklahoma for the distribution of slides, moving picture films and standard lectures on public health topics. The distribution will be made by the visual instruction department of the state university.

Sanatorium Contract Awarded.—The contract for the construction of the buildings at Talihina for the state tuberculosis sanatorium, for which an appropriation of $100,000 was made by the legislature, has been awarded. Two other tuberculosis sanatoriums are located in the state, one at Clinton, and the other for negro patients at Boley.

Open Air School Established.—The first open air school of Oklahoma City was opened early in November at Willard School, with sixteen pupils in attendance. Dr. Harry H. Cloudman, city school physician, will have direct supervision of the school. The project was made possible through the cooperation of the Oklahoma City Tuberculosis Society which furnished the cots, blankets, open air garments, food for lunches and a nurse attendant.

OREGON

New Officers. — At the meeting of the Central Willmette Medical Society, December 3, the following were elected officers for the ensuing year: president, Dr. Ralph L. Bosworth, Corvallis; vice president, Dr. William H. Davis, Albany, and secretary-treasurer, Dr. Emile C. Joseph, Corvallis.

County Denies Responsibility for Leper.—The city of Portland was recently notified by Dr. Harry Cliff, county physician, that it must resume the responsibility for the care of Louie Poy, a Chinaman affected with leprosy, who has been under care at the county hospital for the last year. It is probable that a special building will be erected for the leper on the grounds of the city's new contagious disease hospital on the Gresham highway.

PENNSYLVANIA

Memorial Hospital Opened.—The Wayne Soldiers' and Sailors' Memorial Hospital at Honesdale was opened, October 1, with a capacity of twenty-five beds.

Personal.—Dr. J. E. Wurster has been appointed chief of the state venereal clinic at the Williamsport Hospital.——Dr. M. L. Raemore has been elected to the surgical staff of the Williamsport Hospital to fill the vacancy caused by the death of Dr. G. Franklin Bell.

Milk Under Health Department Control. — Legislation to insure the purity of the milk supply will be drafted and submitted to the next legislature as the result of a conference held, December 22, by Fred Rasmussen, secretary of agriculture and Dr. John B. McLean, deputy state health commissioner, and representatives of large producers of milk, the milk dealers' association and the state grange. The bill will place under the control of the department of health the state's supply of milk from the time it leaves the cow until it reaches the consumer. At present, control of milk is vested in the agricultural department, and dealers and producers have been at odds for some time as to what department should regulate the milk supply.

Philadelphia

Clubmen Aid Hospital. — The Poor Richard Club raised $300 for the Children's Hospital, Ninth and Pine Streets, at its annual Christmas dinner in the Camac Street clubhouse.

Personal.—Edgar Fahs Smith, Ph.D., former provost of the University of Pennsylvania, has been elected president of the American Chemical Society, and will assume office January 1.

Impure Gelatins Found.—An order was sent, December 7, by James Foust, state food commissioner, to the American Agricultural Chemical Co., Detroit, to remove immediately from the markets of this commonwealth all gelatin of the Silver Label Brand which is adulterated with sulphur dioxid.

Public Health Lecture.—The second public health lecture of the course given by the School of Hygiene and Public Health of the University of Pennsylvania was delivered, December 18, in the Laboratory of Hygiene, by Dr. Dorothy Child, formerly chief of division of child hygiene, State Department of Health, on the subject of "Child Hygiene; the Correct Management of the Infant Population."

Additions to University Medical Faculty.—Three important additions to the staff of the medical schools were announced by the board of trustees of the University of Pennsylvania, at its regular meeting, December 20. Dr. J. Harold Austin, formerly with the Rockefeller Institute, has been appointed research professor of medicine to succeed Dr. Richard M. Pearce, resigned; Dr. H. Cuthbert Bazett has been engaged as professor of pathology, and Dr. Paul A. Lewis a member of the faculty of the Phipps Institute, has been appointed to the new chair of experimental pathology.

RHODE ISLAND

Fines for Narcotic Violation Paid.—It is reported that the case of Dr. Charles E. Chagnon, Arctic, who was convicted a year ago of illicit traffic in narcotics, has been finally settled in the United States district court by the payment of a fine of $1,700. Dr. Chagnon was sentenced to pay a fine of $100 on each of seventeen counts, and later withdrew his appeal from that verdict.

TENNESSEE

Health Officer Appointed.—Dr. John J. Lentz was elected health officer of Davidson County at a special session of the county board, to succeed Dr. John R. Thompson, deceased.

County Supports Hospital Bed.—Through the efforts of the Brownsville Chapter, D. A. R., funds have been raised to support a bed in the Crippled Children's Hospital, to be known as the Haywood County bed.

TEXAS

College Not Recognized.—A letter from the secretary of the Texas State Board of Medical Examiners states that at a recent meeting of that board recognition was withdrawn from the Kansas City College of Medicine and Surgery, Kansas City, Mo.

Typhus Fever at Temple.—Several cases of a mild form of typhus fever have been reported recently from Temple. None of the patients have had serious symptoms of the disease, which, it is presumed, was imported from Mexico by laborers employed as cotton pickers.

WASHINGTON

Chest Clinic at Kelso.—A tuberculosis clinic was held at Kelso, early in December, under the auspices of the Washington Tuberculosis Association. Dr. Raymond J. Cary, Elma, delivered the principal lectures and supervised the work of examination.

Physicians Support Health League.—Members of the Spokane County Medical Society pledged more than $4,000 to aid the campaign of the Washington League for the Conservation of Public Health against quacks and cranks who are a menace to community health. The society is patterned after a society with a similar name in California. Dr. Herman P. Marshall is president of the league.

GENERAL

Gastro-Enterologists Elect.—At the meeting of the Southern Gastro-Enterological Association held recently at Louisville, Ky., the following officers were elected: president, Dr. George McCallum Niles, Atlanta, Ga.; vice president, Dr. Marvin Henry Smith, Jacksonville, Fla., and secretary-treasurer, Dr. John W. Fitts, Atlanta, Ga. (reelected).

Meeting of Surgical Association.—At the thirteenth annual meeting of the Western Surgical Association, held recently at Pasadena, Calif., Dr. Charles Daniel Lockwood, Pasadena, was elected president, Dr. Harry Ritchie, St. Paul, vice president, and Dr. Warren A. Dennis, St. Paul, secretary (reelected). The next annual meeting will be held at St. Louis.

Tri-State Society Elections.—The Tri-State Medical Society of Arkansas, Louisiana and Texas, at its sixteenth annual session at Texarkana, Texas, elected the following officers: president, Dr. Frank Walke, Shreveport, La.; vice presidents, Drs. Leonce J. Kosminsky, Texarkana, Ark., Spencer A. Collom, Texarkana, Texas, and John A. Hendrick, Shreveport, La., and secretary, Dr. Nettie Klein, Texarkana, Texas. Shreveport, La., was chosen as the place for the 1921 meeting.

Railway Surgeons Meet.—The thirteenth annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association was held in Minneapolis, December 17-18, under the presidency of Dr. Eric P. Quain, Bismarck, N. D. The following officers were elected for the ensuing year: president, Dr. George F. Thompson, Chicago; vice president, Dr. Pierre C. Pilon, Paynesville, Minn., and secretary-treasurer, Dr. John H. Rishmiller, Minneapolis. The next meeting will be held in Chicago in October, 1921.

Report of Survey of Cripples Available.—The New York Committee on "After-Care of Infantile Paralysis Cases" has published and distributed a report entitled "The Survey of Cripples in New York City." It is desired to send this report to those in a position of responsibility in agencies for cripples and to all those who might have a general interest in cripples and have plans for their aid. Any one desiring copy of the report should address Robert Stuart, Director, 69 Schermerhorn Street, Brooklyn.

Remittance Slips.—Two weeks ago, a pink remittance slip for 1921 subscription and fellowship dues was inserted in each copy of THE JOURNAL, and an editorial explanation appeared in the same issue. Thousands have already returned their slips with remittance. This cooperation means a large saving to the Association for postage, clerical expense, etc. For the convenience of those who have not yet remitted, another slip is inserted in this issue of THE JOURNAL. This may be used not only in remitting JOURNAL A. M. A. subscriptions but also for ordering any of the special journals described on advertising page 8 of this issue. Those who have already remitted will of course ignore the slip in this issue.

Rockefeller Foundation Aid to Public Health.—A program for public health work in Czecho-Slovakia has been announced by the International Health Board of the Rockefeller Foundation, following an agreement reached with the Czecho-Slovakian Government. The agreement provides for the assignment of an American expert in public health administration to the Czecho-Slovak Government, fellowships for a select group of young Czechs in public health field work, development of a national public health laboratory service, and for a Czech commission to study public health administration in the United States and England. The agreement is based on recommendations made by Dr. Frederick F. Russell, following studies made by him in Czecho-Slovakia last July. Nine representatives from Czecho-Slovakia have been awarded fellowships to pursue courses in public health, hygiene and preventive medicine in the United States during 1920-1921.

Bequests and Donations.—The following bequests and donations have recently been announced:

A. Barton Hepburn Hospital, Ogdensburg, N. Y., a gift of $330,000, by Mr. A. Barton Hepburn.

First National Bank of Columbia City, Ind., $6.000, to be used for the erection of a hospital, by the will of Mrs. Elgin Dunlap, Pottstown, Pa.

Kentucky State Medical Society, several acres of land adjoining the Eastern Kentucky State Normal School and her residence in Richmond. Ky., to be converted into a hospital in memory of her father and grandfather, by the will of Mrs. William Irvine.

Anna Jacques and Homeopathic hospitals, Newburyport, Mass., each $10,000, to establish a Daniel Dole Adams fund, the income from which is to be used for the maintenance of a free bed, by the will of Daniel Dole Adams.

City Hospital, Indianapolis, $10,000, on condition that a similar sum be raised by the city, by the will of James A. Lane, Indianapolis.

Society of the Lying-in Hospital of the City of New York and St. Luke's Hospital, New York, each $25,000, for the maintenance of a free room to be known as the Stetson Room, and Champlain Valley Hospital, Plattsburg, N. Y., $10,000, for a free bed in perpetuity to bear the name of the donor, by the will of Francis Lynde Stetson, New York.

Arkansas Children's Home Society, $50,000, for building a children's hospital, by the will of E. S. Hilliard, Eudora, Ark.

LATIN AMERICA

Surgical Pavilion Donated by Jockey Club.—The new surgical pavilion at the Hospital Alvear, Buenos Aires, the gift of the Jockey Club, was recently inaugurated and Dr. Celesia placed in charge.

Election of Officers.—The Santiago Medical Society has elected for the year 1920-1921 the following officers: Dr. E. González Cortés, president; Dr. L. Vargas Salcedo, vice president; Dr. L. Prunés and Dr. E. Malbrán, secretaries, and, as editors of the *Revista Médica de Chile,* Dr. C. Charlín C. and Dr. E. Prado Tagle.

Personal—The *Archivos Brasileiros de Medicina* mentions that the medical faculty of São Paulo has suspended Prof. W. Haberfeld for six months for his derogatory remarks about the men and institutions of Brazil.——Prof. G. Aráoz Alfaro of Buenos Aires has been delivering a course of lectures at Assunción, Paraguay, at the request of the medical faculty.

The Guatemala Medical Society.—The inaugural meeting of the Sociedad de Medicina y Cirugía de Guatemala was held Sept. 16, 1920, on the ninety-ninth anniversary of the independence of Guatemala. The following officers were elected: president, Dr. M. J. Wunderlich; vice president, Dr. Salvador Ortega; secretaries, Dr. J. Fernández de León and Dr. M. Santa Cruz. Other members of the board are Dr. R. Mauricio, Dr. Lizardo Estrada and Dr. N. Gálvez. The *Escuela de Medicina,* now in its twenty-second year, is to be the organ of the society.

Insanity in Colombia.—In a paper entitled "Degeneración Colombiana," Dr. Alfonso Castro of Medellín declares as exaggerated recent assertions regarding racial degeneration in Colombia. He admits that the number of committed insane patients in the province of Antioquia increased from 231 in 1915, to 276 in 1919, but calls attention to the fact that a similar increase was observed in other countries. While the number of suicides has also increased, being now about 14.5 per million of inhabitants in one province, and 21 in another, this rate is very low as compared with European figures.

Rabies at El Salvador.—The *Archivos del Hospital Rosales,* edited by Dr. R. V. Castro, publishes a résumé of the work of the Antirabic Institute from 1914 to April, 1920. During that time 227 treatments were given; two deaths occurred, a mortality of 0.88 per cent. Most of the wounds were caused by dogs (94.66 per cent.), cats coming next (2.91 per cent.). The frequency of the localization of the wounds was in the hands (29.14 per cent.), legs (20.1 per cent.), forearms (10.5 per cent.), feet (9.5 per cent.), arms (7.03 per cent.), thighs (5.02 per cent.) and face (3.01 per cent.). The author of the paper, Dr. E. Mendéndez, advocates the use of prophylactic measures against dogs.

Prizes Awarded by Brazil Academy of Medicine.—At a recent meeting of the Academia Nacional de Medicina at Rio de Janeiro, the prize founded by Dr. F. dos Santos for the best work on some Brazilian plant was awarded to Sr. Dias de Silva, already noted for his works on the natural history of Brazil. The Alvarenga prize was presented to Dr. Leonidio Ribeiro, Jr., for a work on "Pain from the Medicolegal Standpoint." The Durocher prize was not awarded as none of the competing articles complied with the requirements. Among the twenty subjects offered as topics for competing articles next year are vagotonia in the tropics; radium treatment in ophthalmology, and dystrophia of the bones in children.

FOREIGN

The Revilliod Memorial.—A bronze profile portrait of Prof. Leon Revilliod, mounted on marble, was recently unveiled in the amphitheater of the public hospital at Geneva, Switzerland, two years after his death. The balance of the fund collected for the memorial was given to the Revilliod Fund endowed by the family, the income from which is to be used for teaching, for research, or for the publications of the medical clinic.

Child Welfare Congress.—The Second International Child Welfare Congress has been officially announced to convene at Brussels, July 18 to 21, 1921. The first meeting of the kind was held in 1913, and is believed to have contributed materially to the progress of child welfare movements in different countries in the last few years. The address of the secretary general is M. Henri Velge, 27 rue de Turin, Brussels, and the subscription fee is 25 francs.

Memorial Erected to Discoverer of Morphin.—A large memorial has been erected recently at the burial place of F. Sertürner at Einbeck, Germany, who in 1816 first established the identity of morphin and proved its basic nature as well as its poisonous effects. Morphin had been separated by Derosne in 1803, but was then mistaken for narcotin. Sertürner was a pharmacist's assistant at Einbeck at the time of his discovery, and later had his own pharmacy at Hameln.

Medical Aspect of Strikes in Public Utilities.—The *Deutsche medizinische Wochenschrift* states that during the strike of the electricians in Berlin, November 6 to 11, the street cars, telephones and delivery service being suspended, the superintendent of one of the large public hospitals finally publicly announced that he would have to send the sick inmates home, as the shutting off of the electricity made it impossible to heat the rooms and care for the sick, and that the gravely sick would be placed in the most serious danger. On this ultimatum the electricians consented to supply the hospitals with electricity. This reduced the evil somewhat for physicians, but many could not get to their patients, and the sick in private homes suffered still. This was rendered still worse by the strike of the gas workers. November 9, the railroad workers and others throughout the country stopped work to celebrate the anniversary of the revolution. At Chemnitz and Bremen the physicians announced at once to the public that if the strike of utilities continued the physicians would be compelled to stop their work too, and with this they succeeded in getting the leaders of the strike to supply the water works, the hospitals and the telephones with power. The editorial states further: "So long as present conditions continue, it is the duty of physicians in their sphere to combat this strike fever without letting themselves be deterred by too ideal considerations."

Government Services

New Type of Hospital Tent

Work has begun on the development of a new ward hospital tent for field service. During the World War it was found that the tent now in use had many disadvantages. The canvas roof attracted enemy aerial bombardment and the center poles made it difficult to carry patients on stretchers into the tents. Hospital organizations caring for patients under canvas experienced certain other difficulties, which, it is hoped the new hospital tent will eliminate.

Army Medical Department Schools

Centralization of special schools of instruction for the personnel of the Medical Department of the Army will shortly be effected by an order of the Adjutant General. The Army Medical School, Washington, D. C., and the Medical Field Service School, Carlisle, Pa., will be maintained. The Army Field Service and Correspondence School of the Medical Department, operating in connection with the General Service Schools at Fort Leavenworth, Kan., will be transferred to the Medical Field Service School at Carlisle, thus effecting a union of all the branches of instruction of the Army Medical Department.

Reserve Officers Training Corps Unit

Major John T. Aydelott has been detailed as professor of military science and tactics at the Jefferson Medical College, Philadelphia, in consequence of the approval of that school's application for the establishment of a Reserve Officers Training Corps Unit. The course will be inaugurated at once under the authority of the Surgeon-General. Circulars will soon be sent to every Class A medical school in the United States appealing to these institutions to establish courses for reserve medical officers. Certain changes will be made in the requirements in order to encourage students to take the military instruction. Another revision of the regulations is the establishment of the summer encampments after the sophomore year, instead of the junior year, as was originally contemplated.

Measles in the Army

Comparative statistics of the incidence of measles in the World War and previous wars have just been issued by Surgeon-General Ireland. The report discloses that the admission rate for the Civil War was almost twice as high, and that for the Spanish-American War one-third higher than during the World War. The death rate was two and one-half times as high during the Spanish-American War, but this low rate was effected by the fact that the troops were operating in the summer and in a tropical climate, where the death rate for American troops was always low. Measles was highly prevalent among the Southern troops during the Civil War, especially among those from rural districts. The experience during these wars indicates that measles is practically certain to become epidemic whenever a large number of men from isolated communities are gathered together.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 6, 1920.

Penalizing the Communication of Venereal Disease

The report has been issued of a select committee of the House of Lords and House of Commons appointed to consider the three criminal law amendment bills presented to the upper chamber by the government, the bishop of London and Lord Beauchamp. The committee took the government bill as a basis and amended its provisions so as to evolve a single measure. They were impressed with the evidence of several witnesses who urged that the communication and prevention of venereal disease should be dealt with by a measure for the protection of the public health and not under the criminal law. It was stated by a representative of the Ministry of Health that the question whether it was advisable to invoke the aid of the criminal law in the campaign against venereal disease was really one for the home secretary, and that the provisions of the government bill might have a certain moral or deterrent effect. Accordingly, the committee determined to retain the following clause in the government bill: "A person who is suffering from a venereal disease in a communicable form shall not have sexual intercourse with any other person, or solicit or invite any other person to have sexual intercourse with him or her. 2. If any person acts in contravention of this section, that person shall be liable on conviction to imprisonment with or without hard labor for a term not exceeding two years. Provided that: (*a*) A person shall not be convicted if that person proves that he or she had reasonable grounds to believe that he or she was free from venereal disease in a communicable form at the time of the alleged offense; and (*b*) no person shall be convicted upon the evidence of one witness unless such witness be corroborated in some material particular. 3. A person charged with an offense shall, if he so requires, be remanded for a period not less than a week for the purpose of such medical examination as may be requisite for ascertaining that such person is suffering from venereal disease in a communicable form. The defendant shall be informed of his right to be remanded as aforesaid and that he may be examined by his own physician or by the medical officer of the prison."

Dr. Mercier's Bequest for a "Chair of Rational Logic"

The late Dr. Charles Mercier, the alienist, was a logician and published a book in which he attacked with great vigor the logic of the schoolmen. In his will he has made provision for the establishment of a chair in these terms: "Scheme for the establishment of a professorial chair of rational logic and scientific method. The purpose of this foundation is that students may be taught, not what Aristotle or any one else thought about reasoning, but how to think clearly and reason correctly, and to form opinions on rational grounds. The better to provide that the teaching shall be of this character, and shall not degenerate into the teaching of rigid formulas and worn-out superstitions, I make the following conditions: 'The professor is to be chosen for his ability to think and reason and to teach, and not for his acquaintance with books on logic or with the opinions of logicians or philosophers. Acquaintance with the Greek and German tongues is not to be an actual disqualification for the professorship, but in case the merits of the candidates appear in other respects approximately equal, preference is to be given first to him who knows neither Greek nor German; next, to him who knows Greek but not German; next, to him who knows German but not Greek, and last of all, to a candidate who knows both

Greek and German. The professor is not to devote more than one twelfth of his course of instruction to the logic of Aristotle and the schools, nor more than one twenty-fourth to the logic of Hegel and other Germans. He is to proceed on the principle that the only way to acquire an art is by practicing under a competent instructor. Didactic inculcation is useless by itself. He is therefore to exercise his pupils in thinking, reasoning and scientific method as applied to other studies that they are pursuing concurrently, and to other topics of living interest. Epistemology and the rational grounds of opinions are to be taught. The students are to be practiced in the arts of defining, classifying and the detection of fallacies and inconsistencies. The principle of causation is to be taught as a process occurring in nature and applicable to material things, and not as a notion in the minds of philosophers. Subject to these requirements, a wide discretion is to be allowed to the lecturer.' "

The Fellowship of Medicine and Postgraduate Association

At the annual meeting of the Fellowship of Medicine and Postgraduate Medical Association, the honorary secretaries reported that the work had been carried on without intermission during the current year and that the facilities for graduate education provided were supplying a real need. Since the beginning of the year, 365 graduate students have availed themselves of the various courses, etc., the majority taking tickets for two and three months, and some for even five and six. The cosmopolitan work of the fellowship is shown by the various nationalities in the list: Australia, 40; Canada, 33; South Africa, 4; Colonial Service, 11; Indian Medical Service, 10; India, 29; United States, 38; South America, 4; Malta, 2; Egypt, 3; Switzerland, 5; Norway, 4; Italy, 2; Spain, 3; Japan, 2; Holland, 4; Denmark, 3; Serbia, 2; Roumania, 1; Royal Navy, 12; British Isles, 153. Of the foregoing, forty-eight are at present in London. At first sight these figures may seem disappointing when compared with the number enrolled last year; but it must be borne in mind that the year 1919 was exceptional owing to the large number of medical officers passing through London on their way home from service abroad. No fewer than 421 of the 663 physicians who availed themselves of the fellowship last year were from the United States and the British dominions across the sea. It is anticipated with confidence that as the opportunity for utilizing the wealth of clinical material in the first city in the Empire is developed and more fully known, the number of graduate students will increase. Situated as it is, the meeting place of East and West, London is the ideal center for graduate medical work. Already it may be said that the area served by the fellowship literally reaches from pole to pole, as inquiries have been received from such distant regions as Iceland and the southernmost states of South America. The bulletin which is published weekly and forwarded at short intervals to the various universities, medical societies and journals abroad has given wide publicity to the work of the fellowship. During the year the fellowship has cooperated with Cambridge University in connection with courses for the new diploma in radiology and electrology and in regard to the diploma in psychologic medicine. Facilities for graduate instruction have been given by five additional hospitals. Several short courses of lectures have been given and were much appreciated. These included infant welfare at St. Marylebone Dispensary, by Dr. Pritchard; demonstrations in ophthalmology at Moorfields Hospital, by Mr. Hepburn; gynecologic talks at the Middlesex Hospital, by Mr. Bonney, and special lectures at the Cancer Hospital. It is proposed to arrange similar short courses lasting two or three weeks in various branches of medicine and surgery, so that at least one course will be in progress at any given time.

PARIS

(From Our Regular Correspondent)

Nov. 26, 1920.

The New Treatise of Medicine

When, in 1891, the "Treatise of Medicine" by Charcot, Bouchard and Brissaud appeared, it was hailed as a great event. Up to that time there had been no complete medical treatise in the French language, and the physicians who could not content themselves with the perusal of the manuals were obliged to resort to original articles and to special monographs. The three masters in the French medical world who took on themselves the editing of the foregoing treatise being no longer living, the "New Treatise of Medicine," Part 1 of which has just appeared, is published under the direction of G.-H. Roger, dean of the Paris Faculty of Medicine, and F. Widal and Pierre Teissier, professors in the same institution. They are assisted by a large corps of collaborators, among whom are a number of professors of foreign universities. For example, the article "Trench Fever," which is to appear in Part 3, has been put in the hands of Dr. Richard P. Strong, professor of tropical medicine in the School of Medicine of Harvard University.

Modern Treatment for Scoliosis

At the second congress of the Société française d'orthopédie, recently held in Paris, Dr. Estor, professor of pediatric clinical surgery in the Montpellier Faculty of Medicine, gave an interesting report on the subject of scoliosis. He commenced by saying that, since the time of the appearance of Abbott's works, there had been considerable change in the treatment of scoliosis, and with the changed therapeutic procedure has come a new classification of the various types of scoliosis according to the nature of the fixation. Scoliosis that is completely reducible, that is partly reducible and that is irreducible must all be studied separately. Scoliosis of the third type, while irreducible in extension, may possibly be partially reduced in flexion, and often they may pass from the third to the second type. Estor called special attention to the necessity of taking exact measurements, as only in such manner can a judgment of the results be formed. He discards appliances if they are too complicated and unnecessarily precise in their adjustments. The measure of the curvatures of the two lateral halves of the trunk, of the thickness of the chest, photography and roentgenography constitute the essential means of forming a judgment. Plaster jackets are especially useful. Treatment must be begun as early as possible. A preparatory treatment, which suffices for benign cases, precedes the use of plaster jackets. Gymnastic exercises without the use of apparatus are better than exercises with the complicated and expensive apparatus in use in foreign countries. Respiratory exercises are of exceedingly great value. Medical treatment must not be forgotten, as it combats general weakness and anemia, and builds up the system that has become exhausted by too rapid growth. Under this head iodids, arsenic, phosphorus preparations and organotherapy may possibly be indicated.

While discussing the procedures associated with the Abbott method, Estor described, at the same time, his own method, which is characterized by the flexure of the spine, accompanied by the elevation of the arm as high as possible on the concave side and the lowering of the other arm as much as possible, the two upper limbs thus being on the same vertical line. Of fourteen cases treated by Estor, only in one was overcorrection secured; the other cases were only ameliorated.

Whatever procedure may be used, recurrences are extremely frequent. This is mainly due to the lack of overcorrection, which is but rarely obtained, and to the insufficient duration of the treatment. Postoperative treatment (dorsal decubitus, celluloid jacket, respiratory gymnastics) must also play an important part.

The surgical method, with the use of the bone graft, following the Albee procedure, is not much in vogue in France. In spite of the interest that has been awakened in the Albee method by reason of its perfectly regulated technic, aside from paralytic scoliosis, the indications for the bone graft are few in number.

Legal Aspects of Attacks by a Pharmacist on the Professional Reputation of a Physician

In the Annales d'hygiène publique et de médecine légale, E.-H. Perreau, professor of the Faculty of Law at Toulouse, discusses the delicate question as to what extent a pharmacist has the right to criticize medical prescriptions. In filling a prescription exactly as it reads, a pharmacist can be called to account only on two grounds; namely, in case it does not meet with the regular requirements, and in case the prescription is dangerous for the patient. Under either of these circumstances he has the right to refuse to fill a prescription, in which case he should state his reasons in moderate language. If, in his charges, he goes beyond these limitations, he renders himself liable if he injures the reputation of the physician.

Whenever a pharmacist, on the occasion of filling a medical prescription, makes an allegation, either directly or impliedly, prejudicial to the reputation of the physician who signed the prescription, and not indispensable in connection with his own personal responsibility in the matter, he commits a misdemeanor rendering him liable to make pecuniary amends to the physician so damaged. If, in his opinion, a given prescription is inapt, he can, before filling it, refer it back to the physician who signed it, in order to assure himself that no error obtains; but he must refrain from declaring to the client that, in his opinion, the prescription is inapt. He does not possess in the matter the scientific competence that would permit him to pass judgment on the conduct of the physician. Even the mere refusal to fill a prescription, though no reason for the refusal is assigned, is sufficient to awaken doubts prejudicial to the skill of the physician who gave it, and therefore constitutes likewise a misdemeanor on the part of the pharmacist for which he becomes pecuniarily liable.

Furthermore, assuming that the pharmacist's professional responsibility is involved; that is, supposing the matter comes under the head of the two cases cited above, he must nevertheless refrain from all comment of a disagreeable nature and from all critical remarks reflecting on the reputation of the writer of the prescription, such remarks being absolutely useless as regards his own responsibility.

Aside from being subject to the assessment of damages based on the pecuniary interests involved, the delinquent is usually liable, in addition, to penalties imposed by the tribunaux de répression, which have jurisdiction in cases involving defamation and public injury, and also in injury not public.

BUCHAREST

(From Our Regular Correspondent)

Nov. 10, 1920.

The Law of Anticipation in the Insane

According to Dr. Kener, director of a large lunatic asylum, insanity, when transmitted, occurs at an earlier age in each successive generation. Of 250 pairs of parents and offspring, 39 per cent. of the offspring were found to have had their first attack of insanity before the age of 25, a considerable portion being congenital imbeciles. Mothers transmitted much more frequently than fathers, and daughters are affected more often than sons; also the offspring are affected at about half the age of the parent, being in most instances either congenital imbeciles or cases of adolescent insanity. Similar inheritance was very striking in recurrent periodic insanity and in paranoia. The study of pedigrees reveals the differences of manifestation of a neuropathic taint. In some members of the tainted stock it may appear as chorea, epilepsy, migraine, neurasthenia, exophthalmic goiter or diabetes; in others, it may be a matter of temperament, eccentricity, exaltation, melancholy or feeble will power. He said that a neurotic inheritance is liable to bring about the establishment of certain morbid mental habits; and when such an inheritance is strong, there is great risk of the development of organized delusions. Proper care may keep the latter tendencies in check, but an improper environment in which there is temptation to drink, evil companions, and the like, may result in insanity, crime or suicide. In a third generation these inborn tendencies may appear in a more intensive form, resulting in congenital imbecility and feeblemindedness. Dr. Kener has found this to be the case when two first cousins, not insane but coming of a tainted stock, have married and borne children.

The Diagnostic Value of the Wassermann Reaction

Dr. Adolf Erdös of Oradea-Mare, Transylvania, Roumania, who during the war had under his care a military venereal hospital with a turnover of between 18,000 and 20,000 syphilitic cases a year, had ample means to investigate the diagnostic value of the Wassermann reaction, and at a recent meeting of the Transylvanian Medical Club pointed out that while a positive reaction may indicate that the individual is syphilitic, it does not prove that the lesion in question is syphilitic. This caution is necessary, for instance, with lesions of the tongue, in which epithelioma often supervenes on syphilitic leukoplakia.

With regard to the effect of treatment on the reaction, energetic mercurialization begun early and long continued restores the serum to its normal condition. Early commencement and longer duration of treatment are important factors in converting a positive into a negative reaction. A positive reaction in a latent case is an indication for further treatment. A positive reaction in a mother who has borne an apparently healthy child is an indication for treatment of the child also. The question remains as to the value of the reaction in determining the duration of treatment. The reaction may be positive when symptoms are absent. This may be due to lesions of the internal organs, but not always, as the virus is known to remain alive (in monkeys) for a long time without producing obvious changes in the tissues. At the same time, the spirochetes may pervert tissue metabolism so as to lead to premature senescence without obvious lesions. It is best to regard a positive reaction as a sign that gross effects are liable to occur at any time, and hence as an indication for further treatment.

A Case of Cantharides Poisoning

A man, aged 54, previously healthy, who was to be married the next day to a girl of 23, took some pills prepared by a friend, a chemist, to promote success with his bride. The pills contained a large dose of cantharides. The man was taken suddenly ill with priapism, sickness and faintness, hematuria, pain in the stomach, back and intestine, and intense thirst, and died two days afterward. The symptoms, as narrated at the inquest, were: a distinct discoloration of the whole surface of the body, amounting to a kind of reddish brown, with a dark almost black patch extending across the bridge of the nose on to both cheeks, the color becoming deeper in hue later; blueness of the tips of the fingers and the mucous surfaces of the mouth; suppression or retention of urine; pulse, 120; conjunctivae, yellow; pupils, contracted. At the postmortem examination the spleen and kidneys were found to be acutely inflamed, the intestine, slightly; there was deep staining of the inner surface of the heart and the arteries; there was no peritonitis; the bladder was full of urine, blood stained and albuminous; a small amount of cantharidin was obtained from the urine.

The Infectivity of Tuberculosis

The Bucharest Commission on Tuberculosis issued its report in November, giving definite answers to certain definite questions submitted to the commission. These answers are derived from a mass of experiments carried out on behalf of the commission at a huge government farm, and may be thus summarized:

1. In many cases, human tuberculosis is identical with the bovine disease.
2. Mammals and man can be reciprocally infected with the disease.
3. Tuberculosis can be communicated to man from infected cow's milk or tuberculous meat (pork or beef); but the danger from fowls, geese, turkeys is negligible.
4. There are three distinct types of tubercle bacilli: avian, bovine and human.
5. The bacillus of lupus is of the bovine order, but is of a modified type and differs in certain respects from the usual bovine bacillus found in cattle.

Rat Extermination

The recent scare of plague in Turkey and also in some parts of Bulgaria and Greece has emphasized the need that exists for some safe and sure method of exterminating rats, which are, as is generally known, a common medium by which plague is introduced or spread. The ordinary methods of shooting, hunting by dogs, cats or ferrets, and catching in traps are not wholesale enough, while poisoning with arsenic, phosphorus, strychnin and barium is dangerous to other animals, and may cause a nuisance or danger to the health of human beings by reason of the poisoned rats dying and remaining under floor-boards and afterward putrefying. Consequently, bacteriologists have suggested some form of disease, which is slowly fatal to rats and other rodents but harmless to other animals, being spread among the rats, which in their turn would continue to spread the disease by infection from one to another. There are diseases which affect only animals of certain species, as hog colera and swine fever, and bacteriology has succeeded in furnishing germs that cause disease (affecting the intestine) in rats and other rodents, but apparently, so far as we can judge at present, not in other animals. These bacillary poisons or toxins vary somewhat, at least in name. Those that have already been introduced and are spoken of more or less as effecting the purpose mentioned are: ratin, rathite, Liverpool virus (English make), rattintod (German) and ratomurin (Hungarian). The bacilli are cultivated on various mediums, and mixed with food that rats eat. The effect of the bacillus or its toxin on the rat is to produce intestinal (infectious) disease, spread through the feces to other rats through the medium of food. Reports as to success in practice of these bacillary or microbial poisons are at present contradictory, and the results vary—probably owing to the varying potency of the toxins used, and the varying susceptibility of the rats. Some rats may be immune, or may become so when fed with small quantities of a diluted culture or a culture of low toxicity.

The Law Against Illegal Use of a Medical Title

A limited company was considered as a "Dental Sanatorium Limited" in Bucharest and was under the direction of a non-registered dental surgeon, who described himself as "M.D., U. S. A., Specialist, Managing Director." An injunction was applied for by the Society of Dental Surgeons and was granted, it being held that, although the limited company (société anonyme) was not a "person" within the meaning of the medical act, the title used, viz., "M.D., U. S. A., Specialist, Managing Director of the Dental Sanatorium," inferred that the director was a practitioner of dental surgery, contrary to the provisions of the act, which says that the head of a dental surgery can be only a dental surgeon, who may employ as assistant any general practitioner as to his liking, and that consequently, an injunction must be granted restraining both the company and the managing director from using any description of such director indicating that he was a dental surgeon or a practitioner of dental surgery or any brand thereof.

Marriages

Joseph Alton Hoegen, Lieut., M. C., U. S. Navy, to Dr. Edna Thomas McHugh of Monticello, Iowa, at Savannah, Ga., Jan. 24, 1920.

Henry Martyn Field to Miss Florence Marion Cassidy, both of Princess Anne, Md., December 15.

A. Aldridge Matthews, Spokane, Wash., to Miss Carrie Hopkins of Seattle, at Spokane, November 17.

Charles Thompson Fisher to Miss Ellen Dale McMaster, both of Norwood, Mass., December 15.

Walter William Horst, Globe, Ariz., to Miss Edna L. Bundy of Lima, Ohio, November 25.

Samuel Philipson, Brooklyn, to Miss Edith Alderman of New Haven, Conn., December 5.

Joe Mullineaux Neal to Miss Ann Dahl, both of Minneapolis, December 8.

Deaths

Henry J. B. Wright ⊕ San Jose, Calif.; Cincinnati College of Medicine and Surgery, 1875; Jefferson Medical College, Philadelphia, 1881; aged 69; a member of the board of health and health officer of San Jose; one of the founders of the Santa Clara County Medical Society, and for many years president of the California Historical Society; died, December 15, from myocarditis.

Squire LaRue Helm, Lexington, Ky.; Louisville, Medical College, 1874; aged 66; a member of the Kentucky State Medical Association; at one time city and county physician of Lexington; formerly superintendent of the Kentucky Institution for Feeble-Minded, Frankfort; died at a hospital in Baltimore, December 9, following an operation.

Alexander Franklin Jones, Cameron, N. C.; North Carolina Medical College, Charlotte, 1915; aged 29; lieutenant, M. C., U. S. Army, with service overseas; was instantly killed, December 10, when the automobile in which he was riding was struck by a passenger train at a grade crossing.

John Oliver Marble, Worcester, Mass.; Georgetown University School of Medicine, Washington, D. C., 1868; aged 81; a member of the Massachusetts Medical Society; an employee of the War Department from 1864 to 1866, and of the Treasury Department from 1866 to 1869; died, December 9.

Frank Bond Rosson, San Francisco; Vanderbilt University Medical School, Nashville, Tenn., 1915; aged 28; assistant pathologist at the University of California, San Francisco; died in a hospital at Los Angeles, December 2, following an operation for mastoiditis.

William H. McIlvain, Kenton, Ohio; Western Reserve University, Cleveland, 1870; aged 78; who served with the Eleventh Indiana Volunteer Infantry during the Civil War; a practitioner of Kenton for thirty-eight years; died, October 12.

William Herman Buechner ⊕ Youngstown, Ohio; Western Reserve University, Cleveland, 1885; aged 56; a specialist in surgery; a member of the American College of Surgeons; died at a hospital in Youngstown, December 14, from pneumonia.

⊕ Indicates "Fellow" of the American Medical Association.

James C. Meredith, Manassas, Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 72; died in the Eye, Ear, Nose and Throat Hospital, Washington, D. C., September 22, following an operation for mastoiditis.

Albert E. Woehnert ⊕ Buffalo; University of Buffalo, 1893; aged 52; assistant professor of medicine in his alma mater; attending and consulting physician at the Erie County and Buffalo City hospitals; died, December 10.

Thomas Jasper Lamont, Treherne, Man.; Manitoba Medical College, Winnipeg, 1889; aged 62; was thrown from a vehicle drawn by a runaway team, October 5, and sustained injuries from which he died a short time later.

Charles Ernest Holgate ⊕ Los Angeles; College of Physicians and Surgeons, Los Angeles, 1908; aged 44; captain, M. C., U. S. Army, and discharged, Jan. 7, 1919; was found dead in his office, December 15.

Charles Edward Hershman ⊕ Alliance, Neb.; Chicago College of Medicine and Surgery, 1908; aged 35; was electrocuted, December 22, while treating a patient with roentgen rays.

Joseph Porter Merrill, Dozier, Ala.; Memphis Hospital Medical College, 1903; aged 46; a member of the Medical Association of the State of Alabama; died, November 28.

William Harris, New Castle, Wyo.; University of Pennsylvania, Philadelphia, 1870; aged 75; a member of the Wyoming State Medical Society; died about October 15.

Zenas Blish Sawyer, Cleveland; University of Wooster, Cleveland, 1875; aged 67; died, October 14, from injuries received when he was struck by a train at Willoughby.

John M. Radebaugh, Pasadena, Calif.; University of Pennsylvania, Philadelphia, 1873; aged 69; a member of the first board of health of Pasadena; died, December 15.

Joseph W. Hough, Jackson, Miss.; Eclectic Medical College, Cincinnati, 1850; aged 92; said to be the oldest practicing physician in Mississippi; died, December 11.

Honora Robbins Grimes, Bloomsburg, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1886; aged 61; died, December 13, from cerebral hemorrhage.

Alphonse F. Milot, Taunton, Mass.; Baltimore Medical College, 1893; aged 58; a member of the Massachusetts Medical Society; died, November 6, from pneumonia.

Edward Allen Heath, Winooski, Vt.; University of Vermont, Burlington, 1902; aged 46; a member of the Vermont State Medical Society; died, December 9.

William Henry Happel, Albany, N. Y.; Albany Medical College, 1890; a member of the Medical Society of the State of New York; died, December 10.

Emanuel Dreifus, New Orleans; Tulane University, New Orleans, 1876; aged 70; at one time coroner of New Orleans; died about December 13.

Charles Goodwin Merrell, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1886; aged 65; died, December 12.

John L. Farmer, Savannah, Ga.; Louisville Medical College, 1888; aged 56; at one time mayor of Millen, Ga.; died about December 5.

William Charles Hall ⊕ Pittsburgh and Bellevue, Pa.; University of Pennsylvania, Philadelphia, 1901; aged 51; died, December 2.

Henry Harrison Chamberlin, Canton, Ohio; Eclectic Medical College, Cincinnati, 1884; aged 61; died, December 4.

Ira L. Wyant, Norwalk, Ohio; Cleveland University of Medicine and Surgery, 1894; aged 50; died, October 26.

Rudolf Sicotte, Conklin, Mich.; University of Bishop College, Montreal, 1872; aged 67; died, December 7.

John Christian Hvoslef, Lanesboro, Minn.; Rush Medical College, 1876; aged 81; died, October 11.

Charles L. Plaine, Gadsden, Ala.; Meharry Medical College, Nashville, 1900; died, October 20.

Frank A. Dutton, Gainesville, N. Y.; University of Buffalo, N. Y., 1875; died, December 11.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

GLOVER'S CANCER SERUM

Scores of letters have reached—and are reaching—THE JOURNAL office similar in effect to the following:

> "I am enclosing 'literature' received from the 'T. J. Glover Research Laboratory.' Though purporting to come from Toronto, where the $25.00 are to be sent, if you please, the envelope bears the New York postmark."

The above is from New Jersey while the two following are from Michigan and Illinois, respectively:

> "Have you any information in regard to this party and his treatment for cancer? This is the first I have heard of any such work having been done. One wonders if it is presented in good faith or if the money god has overcome the gentleman's scientific spirit."

> "Is this just one more of them? Why a roan horse? Some people might want serum from a nice bay or calico cow pony."

The literature referred to comes in an envelop bearing the name "T. J. Glover, Research Laboratory, Toronto, Canada," but mailed, apparently, from New York City. The enclosures are a single sheet circular signed Thomas Joseph Glover and entitled "Etiology of Cancer," a "Directions" slip and a card quoting prices. In the circular Dr. Glover states that he has prepared a serum from immunized horses, "between the ages of seven and nine years, of the roan type," and has injected this intramuscularly "into patients in the advanced stages of cancer and noticed that it has a specific action on every known type of cancer." Further:

> "Up to the present time I have apparently cured cancer of the face, eye, nose, lip, mouth, tongue, stomach, bowel, bladder, breast and uterus."

In addition to the circular, was a small leaflet giving directions for the injection of the serum and also a card bearing Dr. Glover's name and Toronto address and reading:

> This is to advise you that DR. T. J. GLOVER'S Serum for the treatment of cancer can now be had by application to office at above address.
>
> PRICE FIVE DOLLARS PER TREATMENT. FIVE TREATMENTS MINIMUM NUMBER SENT AT ONE TIME.
>
> Send money by Post Office Money Order or Certified Cheque.
>
> DIRECTIONS FOR TREATMENT WITH EACH ORDER.

This advertising material, which is evidently being widely circulated in the United States, would indicate that the Glover Research Laboratory had received a permit from the United States Public Health Service licensing the interstate sale of this serum in the United States. No such license has been issued.

THE JOURNAL briefly reported in the department of Medical News, Oct. 30, 1920, that the Academy of Medicine of Toronto had appointed a committee to investigate the claims made for the Glover "cancer serum." In the meantime, the most charitable thing that can be said is that the "treatment" is in the experimental stage and the reported results have not been corroborated by independent investigators.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Dermacilia Eye Remedy and Ointment.—The Dermacilia Mfg. Co., Hammond, Ind., shipped in October, 1917, a quantity of its "Eye Remedy" and "Ointment" which were misbranded. When analyzed by the Bureau of Chemistry the "Eye Remedy" was found to be a yellow watery solution perfumed with oil of rose and with indications of hydrastis containing chiefly boric acid with traces of the sulphates of aluminum and zinc. False and fraudulent claims were made in the trade package to the effect that this remedy was an effective treatment and cure for sore eyes of all forms, ulcers on eyes, inflamed eyes, discharging eyes, that it would make weak eyes strong, restore eyelashes, remove floating spots, destroy all disease germs which come in contact with the eyes, etc.

"Dermacilia Ointment" was found by the Bureau of Chemistry to consist essentially of a petrolatum base with sulphur, boric acid and tannic acid. This was falsely and fraudulently represented to be effective as a cure for all skin and scalp affections, for all kinds of eczema, burns, scalds, itchings, dog bites, rusty nail punctures, dandruff, falling hair, sore nipples and to prevent lockjaw and blood poisoning. In May, 1920, the Dermacilia Mfg. Co. entered a plea of guilty and was fined $100 and costs.—[*Notice of Judgment No. 7762; issued Nov. 26, 1920.*]

Rogers' Liverwort, Tar and Canchalagua.—The Williams Mfg. Co., Cleveland, Ohio, shipped in March, 1919, a quantity of this product which was misbranded. The Bureau of Chemistry reported that analysis showed it to consist of a sweetened watery solution containing small amounts of plant extractives, tar extractives, salicylates, alcohol and glycerin. The stuff was falsely and fraudulently recommended as a treatment for consumption, asthma, whooping cough, influenza, etc. In January, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7771; issued Nov. 26, 1920.*]

Valesco.—In November, 1919, the Alhosan Chemical Co., St. Louis, Mo., shipped a quantity of "Valesco" which was misbranded. When analyzed by the Bureau of Chemistry this was found to be a solution of sodium hypophosphite, creosote and sugar in water. It was falsely and fraudulently recommended as a remedy for tuberculosis, asthma, pneumonia, etc. In March, 1920, no claimant having appeared for the property, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7768; issued Nov. 26, 1920.*]

Correspondence

"TREATMENT OF PYELITIS IN INFANCY AND CHILDHOOD"

To the Editor:—In the discussion on the article by Kretschmer and Helmholz (THE JOURNAL, Nov. 13, 1920, p. 1303), Dr. W. F. Braasch expressed his belief in the self-limited character of pyelitis as it manifests itself in early life. I have come to the same conclusion, and for these reasons: Pyelitis as a distinct disease of infants and children was not recognized, even by pediatricians, prior to twenty-five or thirty years ago, and not by physicians in general until a much later date; indeed, it is still frequently overlooked by many. Yet the disease must always, to a certain extent, have existed; it could not have originated de novo about thirty years ago. Hence, what became of the cases in the prerecognition period? The obvious answer seems to be that many of them, the mild, at least, must have spontaneously recovered.

The absence of the lesions of pyelitis in infants and children dying of various ailments is a proof of this assumption, as is also the extreme rarity of the affection, in either its acute or its chronic form, during the period of adolescence. Routine examination of the urines of early life has convinced me that acute, uncomplicated pyelitis, terminating spontaneously, is not uncommon. Many of the febrile conditions of children, variously diagnosed in the past as gastric fever, indigestion, etc., must, without doubt, have been pyelitis.

It is not unusual to find pus (from 6 to 10 cells per high power field) in the uncentrifuged urine of children, whose only symptom is fever, and in whom disappearance of the pus and cessation of the fever occur without treatment especially directed to the urinary condition.

It is true that pyelitis is frequently a prolonged affection peculiarly resistant to treatment. Yet that many of these rebellious and long standing cases finally completely recover, apparently often in spite of treatment, and sometimes without it, I think is borne out by the arguments presented in this communication.

D. J. MILTON MILLER, M.D., Atlantic City, N. J.

"PROMOTIONS IN THE MEDICAL RESERVE CORPS"

To the Editor:—The communication of Dr. Mazyck P. Ravenel (THE JOURNAL, Dec. 4, 1920, p. 1584), on promotions in the Medical Reserve Corps, makes interesting reading and is apparently quite to the point. In connection with the same subject, I should like to suggest two reasons not mentioned in that communication why many medical officers refused to sign up with the Reserve Corps at the end of the "emergency." One reason was the failure to promote men, even after those men had received official notification from the Surgeon-General's Office that their recommendation for promotion had been sent to the Adjutant-General. The other reason was the retention of men in service long after there was any need or reason for so doing.

As regards promotions, men of efficiency served one and two years, conscientiously and in a most creditable manner, only to be discharged with the same rank, often undeservedly low, with which they entered the service. Recommendations for promotion were made and forwarded to the Washington office only to meet protracted delay, thus preventing other men, in turn, from receiving the recognition due them along the same line. But when a man received a letter from the Surgeon-General's Office officially stating that his recommendation for promotion had been forwarded to the Adjutant-General, and no promotion was forthcoming, the officer in the Medical Corps had sufficient reason to consider the omission as a breach of faith, or whatever the proper term may be, on the part of that office or the power that lay behind it. Better had the notification never been sent from the Surgeon-General's Office.

In regard to the second reason, that of retaining men in service long after they were needed, medical men and nurses outnumbered the patients in some of the Southern base hospitals before the desired discharge papers could be obtained. Medical men for the most part volunteered their services and made heavy sacrifices in order to do their duty, and their requests for discharge should have received prompt and favorable attention.

Some mistakes may have been unavoidable, owing to the new and sudden large amount of work to be performed at the Washington office. The mistakes in neglecting to deliver promotions and granting discharges were absolutely inexcusable. Promotions might have been granted as late as discharge time, and still have been gratefully welcomed. Promotions meant to the medical officers that their services had been creditably performed and were appreciated by the government. It was the only way in most cases that such appreciation could be expressed. It is always a satisfaction when one does his work well to have his efforts appreciated, no matter what the work is. Promotions granted at the termination of service would not have increased the pecuniary burden of the government.

The failure of the Surgeon-General's Office to "come across" with promotions, well-deserved, and especially when official notification of the forthcoming of the same had been received, and retaining officers in service long after they were needed, were two important factors in influencing these men against signing up in the Medical Reserve Corps. It was the only method the men could use to register their disapproval of their treatment, and the errors of omission in these cases were believed to be easily avoidable.

Charles E. Hawkes, M.D., Providence, R. I.

MEMBERSHIP IN THE AMERICAN INSTITUTE OF HOMEOPATHY

To the Editor:—The enclosed letter was recently received from the American Institute of Homeopathy. I wish to ask whether the statements which I have marked "A", "B" and "C" represent the actual facts; in other words, does a fellow of the A. M. A. require the endorsement of any outside body in order to apply for reciprocity or examination by any state board or the Army and Navy?

Kindly do not use my name. ——, California.

[Comment.—The communication to which our California correspondent refers is reproduced below, and the statements to which he calls specific attention are the second, third and fourth paragraphs. Note that these are questions rather than statements. To the best of our knowledge and belief, however, the privileges referred to in these questions do not depend on membership in the A. I. H. any more than they do on Fellowship in the American Medical Association.—Ed.]

AMERICAN INSTITUTE OF HOMEOPATHY
administrative department
829 Marshall Field Building
22 East Washington Street
Chicago, Ill.
Telephone Randolph 677

November 15, 1920.

My dear Doctor:—Once more we offer you the opportunity of being a member of the American Institute of Homeopathy. You have failed so far in accepting the opportunity of being of service to yourself and the profession of which you are a member.

Do you realize you cannot get into the Army, Navy, or Public Health Service unless you are a member of the A. I. H.?

Do you realize that many of our state boards will not allow you reciprocity unless you are a member in good standing and have the endorsement of the A. I. H.?

Do you realize that many of our state boards will not allow you even to take an examination without the endorsement of the A. I. H.?

Do you realize that you would not be getting alcohol for your dilutions were it not for the effort of the A. I. H.?

Do you know that our School has official recognition at Washington through the efforts of the A. I. H.?

Do you know that legislation is being entered in several states and ultimately all of them by the Federation of Labor for state health insurance, which will make you accept the fees offered by the insurance companies?

Wake up, Doctor, and get into the band-wagon. You should be willing to help.

Yours very truly,
T. A. McCann,
President.

SUGGESTION FOR TREATMENT IN RAYNAUD'S DISEASE

To the Editor:—A simple procedure to relieve the severe, paroxysmal, excruciating pain which occurs in many cases of Raynaud's disease has been of much service to me in the following case:

A woman, aged 39, in charge of the kitchen in a large hospital, whose duties necessitated her frequently entering an ice house, developed her first symptoms of Raynaud's disease three and a half years ago. According to her history, it was of moderate severity and lasted for a year with periods of acute exacerbations of pain. Then she was comparatively free from symptoms for one year, but had to be very careful of changes in temperature. When I saw her recently she had been suffering for six months, with constant dull ache in all the toes of both feet and the fingers of both hands, with the exception of the right ring and middle fingers.

The fingers and toes were very cyanotic, and the tips shriveled and black. Areas of necrosis had developed on several of the affected fingers, with bleb formation and slough. An attack of severe pain in the left index and middle fingers was the occasion of my seeing her.

I applied the broad elastic cuff attached to a mercurial manometer used in estimating blood pressure to her arm, inflated it until the radial pulse was obliterated, and then allowed the escape of the air in the cuff until the radial pulse could just be felt coming through the constriction. This procedure I repeated four or five times in four or five minutes. In this case it afforded instant relief from the severe pain, and the same method has been used a number of times since with the same result.

The fingers from a livid cyanosis became reddened and slightly swollen. I am aware that induced hyperemia has long been of service in this condition; but the foregoing procedure is simple and easily controlled, so that I have felt warranted in calling the attention of physicians to a ready means at their command.

Henry T. von Deesten, M.D., Hoboken, N. J.

THE FUNCTION OF THE PATHOLOGIST AS A CONSULTANT

To the Editor:—In the present age, despite the ever growing appreciation of the necessity for intelligent laboratory examinations in the scientific investigation and treatment of disease, there still remains, in the minds of some, the concept of the pathologist as purely the man in the laboratory more or less divorced from the clinical side; as one who, while perhaps well versed in the technic and minutiae of multifarious methods of investigation, has little or nothing to do with their interpretation or application to the case in hand. As a result of this it is the exception rather than the rule for the pathologist to be furnished with anything but the specimen; should he ask for more than this, there is at times a feeling that he is not "sticking to his last." He is too often felt to be concerned merely with tests and nothing else. All too often has this been the case in the hospital laboratory; too often has its director been chosen because of his mechanical efficiency in the performance of a multitude of various reactions.

The growth of this attitude has been gradual and of long standing; it has arisen partly, perhaps, as a result of the original attitude of pathology as concerned only with the effects of disease after they have been produced, with the study of the disease in the test tube and the cadaver, and with the atmosphere of the postmortem room rather than that of the bedside. It has been fostered, too, by the elaboration of "specific tests" and their exploitation by commercial laboratories where, for five dollars, one may obtain directions for collecting specimens, containers, "literature" concerning their applicability to diagnosis, and voluminous reports too often the work of technicians working like automatons for so much a month.

The present dearth of competent pathologists, the lack of sufficient material from which to develop them, and the demand for them in hospitals and schools have focused attention on the question in the endeavor to ascertain the reasons for this lack and to find the remedy. It is generally recognized that young men fail to center their endeavors on pathology as a field of activity largely because of the disproportion in the financial return as compared with the clinical side. The reason for this would seem to be closely concerned with the thoughts advanced in the early part of this communication. The first step toward the removal of this handicap would seem to be that pathologists must cease to be looked on as high grade technicians and regarded, rather, as specialists and remunerated as such. It is beginning to be realized that the remuneration in this field must be adequate, and various remedies have been proposed, most of which have to do with increases in salary and, particularly, with the acquisition of private work. The financial value of a well organized laboratory to a hospital in attracting a paying clientele in search of an adequate and scientific investigation of their condition is a phase of the question concerning which little has been said—and yet it exists.

A good deal has been said concerning the obtaining of private examinations by the hospital pathologist for which a fee is charged—but undue emphasis has been laid on paying for the test alone. What has been lost sight of would seem to be the fact that the value of a completed examination lies, not in its performance, but in its meaning with regard to the individual patient—in a word, in its interpretation. It is not alone for writing the prescription that the physician is paid, not alone for knowing how to do his work, but for knowing what to do and what it signifies when it is done.

It should be recognized that the pathologist is—or should be—a well trained clinician and diagnostician equally well trained, in addition, in the performance and interpretation of laboratory investigations. He should be a consultant from the standpoint of what to do as well as how to do it. If, in a private case, he is called on to decide as to what laboratory investigations may be of diagnostic value; as to the advisability of using vaccines, for example; as to the indications for various methods of immunologic treatment, he should occupy the same position relative to the patient as the internist, the surgeon, the ophthalmologist or any other consultant, and he should be paid, not merely for what he does, but for his opinion. The pathologist who, after a study of the case, decides against the use of vaccines as useless or, perhaps, contraindicated, is more worthy of a fee and more honestly earns it than the one who prepares a vaccine anyhow. Yet, most often, it is the latter who is paid for the vaccine.

Only when the pathologist is looked on as an especially trained clinician in close relation with the clinical side of medicine; as a consultant whose opinion is sought as the interpreter of laboratory reactions, as is the diagnostician of signs and symptoms; and only when he is paid accordingly will the best ultimate results be obtained and the field again crowded with eager aspirants.

The profession frowns on contract practice as unworthy of its ideals in that it leads to slipshod work for the sake of a regular pittance, but regards with complacence the spectacle of the pathologist laboring to the best of his ability for an inadequate recompense set once and for all with but little or remote chance of advancing as the years go by. What group of specialists would rest content with a fixed income of so much—or so little—a year, or to be paid, for example, for the mere looking into the eye, or down the throat, or listening to the chest, rather than for evaluating the findings so obtained? What field of medical endeavor would flourish or prosper so constrained? And wherein is pathology a strange and different science?

Robert A. Kilduffe, M.D., Pittsburgh.

"CASE OF PURPURA FULMINANS"

To the Editor:—The case of purpura fulminans reported by Dr. P. A. Lommen (The Journal, Dec. 2, 1920, p. 1569) conforms in its details to many of the cases of meningococcic infection studied in the cantonments during the recent mobilization of troops. In the vast amount of acute infectious disease studied among the recruits, cases showing tonsillitis, pains in the bones and joints, arthritis, vomiting, rapid pulse, low blood pressure, marked leukocytosis and a rapidly developing purpura were uniformly, in the experience of military surgeons, examples of meningococcus sepsis.

Purpura in measles, scarlet fever, pneumonia, influenza and other infectious diseases among the troops was extremely rare, and when it occurred was never the widespread, rapidly developing form described by Dr. Lommen and which to the practiced army surgeon meant just one type of infection. It is important to recognize the fact that many of these cases of meningococcus sepsis do not develop meningitis. It is also important to emphasize the brilliant results following massive intravenous serum therapy in just this type of case. The intravenous injection of 100 c.c. of antimeningococcus serum at intervals of six, eight or twelve hours is at times life saving, and in my opinion should be carried out in every case with the picture described by Dr. Lommen, even if positive bacteriologic evidence is not obtained.

W. W. Herrick, M.D., New York.

"THE SPIRITUAL ADVANCEMENT OF THE PHYSICIAN"

To the Editor:—After reading the editorial comment on this subject in The Journal, December 11, one wonders what is really implied by such terms as "cultural advancement," "higher education in the humanities," "by-paths of artistic activity" and other manifestations and incidents of the "more civilized state." Perhaps it will be inspiring to some of your readers to recall, in this connection, Huxley's picture of a liberally educated man:

> That man, I think, has had a liberal education, who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold logic engine, with all its parts of equal strength, and in smooth working order; ready, like a steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to respect others as himself.

Lafayette B. Mendel, New Haven, Conn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TREATMENT FOR HYMENOLEPIS NANA INFESTATION

To the Editor:—Please give me the approved treatment for infestation with *Hymenolepis nana.* I have a case in a young boy who has received two treatments with male fern, one treatment with pumpkin seed and one treatment with oil of chenopodium without results.

W. W. Olive, M.D., Durham, N. C.

Answer.—Male fern is recommended for this form of intestinal infestation. However, in view of the fact that *Hymenolepis nana* may be present in enormous numbers and that it may invade the villi of the intestine and bore deeply into the intestinal mucosa, repeated administration of aspidium is usually required to rid the patient of his unwelcome guests.

As our correspondent has not given the dose and method of administration, which are items important for success of this as well as of other tapeworm therapy, these might be briefly reviewed here:

1. The intestinal canal should be emptied as thoroughly as possible without weakening the patient. Restricted, chiefly liquid diet, for a day or two previously; and calomel, castor oil, and colonic flushing, the day before, constitute good preparatory treatment.

2. On the morning of the treatment, the patient should stay in bed. It lessens the tendency to emesis and is otherwise advisable, as the "cure" is necessarily a rather severe ordeal. He should receive no breakfast.

3. The fullest safe dose should be given. For the adult, this may be placed at 10 gm. of the oleoresin. Usually 6 or 8 gm. suffices. For children, the dose has not been as definitely determined: The dosage usually quoted—1 gm. for a child of 3 years, 2 gm. for one of 5 years—probably errs on the side

of conservatism. Even children of 1 to 1½ years have been given 1.5 gm. of the oleoresin without harm. If we apply Young's rule to the problem, to divide the age by the age plus 12, we should get:

For a child of 3 years, 3/15 of adult dose equals 2 gm.

For a child of 5 years, 5/17 of adult dose equals 3 gm.

These doses would probably be perfectly safe. The entire amount should be given at one dose, or in two or three portions at five to ten minute intervals. It has been suggested to mix the dose with honey or fruit preserve, to make it less disagreeable. If the patient is in bad physical condition or has considerable irritation in the digestive tract, repeated use of smaller and gradually increasing doses, accompanied by the building up of bodily resistance with nutritious foods, would be good policy. However, doses must not be repeated daily, or even after several days. It is best to wait a few weeks, when the continued passage of eggs would indicate the necessity for another attack.

4. While the simultaneous administration of anthelmintic and cathartic is unwise, as it would hasten the passage of the worm remedy through the alimentary tract and shorten the period of contact between the worm and the poison, the evacuant should be given as soon as it may reasonably be concluded that the worm has been sufficiently acted upon. Hence the administration of cathartic should be started one to two hours after the last dose of aspidium, and continued hourly until profuse evacuation has been secured. A saline, such as magnesium citrate solution, is probably the best agent for this purpose.

BASAL METABOLISM

To the Editor:—Please give references to the subject of basal metabolism, especially with regard to its clinical significance. Please omit my name.

A. J., Iowa.

Answer.—A list of references on the determination of basal metabolism appeared in The Journal, May 1, 1920, p. 1273. The following references also may be consulted:

Tompkins, E. H.: Sturgis, C. C., and Wearn, J. T.: The Effects of Epinephrin on the Basal Metabolism in Soldiers with "Irritable Heart," in Hyperthyroidism and in Normal Men, *Arch. Int. Med.* **24:** 269 (Sept.) 1919.

Means, J. H., and Aub. J. C.: The Basal Metabolism in Hypothyroidism, *Arch. Int. Med.* **24:** 404 (Oct.) 1919; The Basal Metabolism in Exophthalmic Goiter, ibid. **24:** 645 (Dec.) 1919.

Moulton, C. R.: Units of Reference for Basal Metabolism and Interrelations, *J. Biol. Chem.* **24:** 299 (March) 1916.

Gephart, F. C., and Du Bois, E. F.: Basal Metabolism of Normal Adults with Reference to Surface Area, *Arch. Int. Med.* **17:** 902 (June) 1916.

Aub, J. C.; Du Bois, E. F., and Soderstrom, G. F.: Basal Metabolism of Old Men, *Arch. Int. Med.* **19:** 823 (May) 1917; Basal Metabolism of Dwarfs and Legless Men, ibid. **19:** 840 (May) 1917.

Peabody, F. W.; Wentworth, J. A., and Barker, B. S.: Basal Metabolism and Minute Volume of Respiration of Patients with Cardiac Disease, *Arch. Int. Med.* **20:** 468 (Sept.) 1917.

Gardner, E. L., and Peppard, T. A.: Clinical Value of Estimation of Basal Metabolism, *Journal-Lancet* **39:** 495 (Sept. 15) 1919.

Reimann, S. P., and Hartman, F. L.: Effect of Anesthesia and Operation on Certain Metabolites, *Am. J. Physiol.* **50:** 82 (Oct.) 1919.

McCaskey, G. W.: Basal Metabolism Determination in General Internal Diagnosis: Clinical Application, with Illustrative Cases, The Journal, April 3, 1920, p. 927.

Snell, A. M.; Ford, Frances, and Rowntree, L. G.: Studies in Basal Metabolism, The Journal, Aug. 21, 1920, p. 515.

Jones, H. M.: Simple Device for Measuring Basal Metabolism: Preliminary Report, The Journal, Aug. 21, 1920, p. 538.

Boothby, W. M., and Sandiford, I.: Laboratory Manual of the Technic of Basal Metabolic Rate Determinations, Philadelphia, W. B. Saunders Company, $5.

STERILE MILK IN NONSPECIFIC THERAPY

To the Editor:—Please give references to articles on the use of sterile milk as a foreign protein in arthritis and allied conditions.

Herman Spitz, M.D., Nashville, Tenn.

Answer.—Following is a list of articles on this subject:

Protein Poisoning—Anaphylaxis—Urticaria, The Journal, Jan. 31, 1914, p. 377; Feb. 7, 1914 p. 456.

Miller, J. L., and Lusk, F. B.: Treatment of Arthritis by the Intravenous Injection of Foreign Protein, The Journal, June 3, 1916, p. 1756.

Jobling, J. W., and Petersen, William: Nonspecific Factors in the Treatment of Disease, The Journal, June 3, 1916, p. 1753.

Scully, F. J.: Reaction after Intravenous Injections of Foreign Proteins, The Journal, July 7, 1917, p. 20.

Snyder, R. G.: Clinical Report of Nonspecific Protein Therapy in Treatment of Arthritis, *Arch. Int. Med.* **22:** 224 (Aug.) 1918.

Stracker, O.: Parenteral Injections of Milk in Latent Infections, *Med. Klin.* **16:** 388 (April 11) 1920.

Schulman, M.: Parenteral Protein Treatment of Arthritis; Milk Injections; Relation to Anaphylaxis, *Med. Rec.* **98:** 47 (July 10) 1920.

Darier, A.: Parenteral Injections of Cow's Milk, *New Orleans M. & S. J.* **73:** 16 (July) 1920.

Nolf, P.: Proteosotherapy by the Intravenous Method, The Journal, Nov. 22, 1919, p. 1579.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. Samuel W. Welch, Montgomery.

Arizona: Phoenix, Jan. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

Colorado: Denver, Jan. 4. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Jan. 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. J. E. Strade, 1041 Alakea St., Honolulu.

Indiana: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, Crawfordsville.

Iowa: Des Moines, Jan. 5-7. Dr. Guilford H. Sumner, Des Moines.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Minnesota: Minneapolis, Jan. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

Minnesota: National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

Missouri: St. Louis, Jan. 18-20. Sec., Dr. George H. Jones, Jefferson City.

New Mexico: Santa Fe, Jan. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

New York: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 4. Sec., Dr. George M. Williamson, Grand Forks.

Oklahoma: Oklahoma City, Jan. 11-12. Sec., J. M. Byrum, Shawnee.

Oregon: Portland, Jan. 4-6. Sec., Dr. Urling C. Coe, 1208 Stevens Bldg., Portland.

Pennsylvania: Philadelphia, Jan. 11-15. Sec., Dr. Thomas E. Finnegan, Harrisburg.

Rhode Island: Providence, Jan. 6-7. Sec., Byron U. Richards, Providence.

South Dakota: Pierre, Jan. 18. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

Utah: Salt Lake City, Jan. 3-4. Acting Sec., Dr. C. L. Olsen, Salt Lake City.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

Washington: Spokane, Jan. 4-6. Sec., Dr. William M. O'Shea, Spokane.

West Virginia: Charleston, Jan. 13. Sec., R. T. Davis, Charleston.

Wisconsin: Madison, Jan. 11-13. Sec., Dr. John M. Dodd, Ashland.

CLINICAL CLERKSHIPS IN SURGERY

ROSCOE C. WEBB, A.B., M.D.
Instructor in Surgery, University of Minnesota Medical School
Minneapolis

The plan of instruction which has been developed at the University of Minnesota Medical School on the surgical service of Dr. A. C. Strachauer and associates, at the University Hospital, has proved satisfactory to the teaching staff and has been enthusiastically approved by the students in surgery. A brief outline of the plan may be of value to others.

Under the four quarter system, the first two thirds of the junior year are given over to didactic, laboratory and dispensary courses, giving an excellent preparation for the work in the hospital wards. The ward work, in the form of clinical clerkships, is provided during the last third of the junior year and the first third of the senior year, comprising in all two quarters. Of this time, six weeks is given over to the surgical clerkships. The class is divided into sections; from twelve to eighteen students at a time devote their forenoons to the surgical wards and operating rooms, and are also subject to call for emergency operations at all hours.

At the beginning of the surgical clerkship the students are given an informal talk by the instructor in which the work of the course is briefly outlined. Attention is called to the necessity of respecting the sensibilities of the patients, and also the use of tact in discussing before them malignant and other serious conditions. The student is made to feel at the outset that each case assigned to him is his case, and that he is responsible for any and all knowledge concerning the patient's condition at all times. "Rounds" are held in the wards on the nonoperating days from 11 a. m. till noon, at which times opportunity is given all members of the section to examine patients to be operated on the next day, and other interesting cases are taken up. The case is presented to the group by the student in charge, and questions of diagnosis and differential diagnosis are discussed by the instructors. Attention is also given to the importance of anteoperative and postoperative treatment and of careful study of each case, in order to obtain the best results. In the operating room the history of the case is presented by the student to whom the case is assigned, following which there is a discussion by the surgeon. The student is responsible for any diagnostic or other data called for by the surgeon. Two students are on duty in the operating room on each operating day, one serving in the capacity of anesthetist and the other as an observer. This gives each surgical clerk two days' experience in anesthesia under the direction of the hospital anesthetist.

A surgical pathologic conference is held on Saturday of each week, conducted by the hospital pathologist and attended by the students and entire surgical staff. At this time there is a review of all pathologic tissue removed during the week. This feature has proved of particular interest and value to both students and staff.

One of the hospital wards is used as headquarters for information. There is a bulletin board in this ward on which are placed assignments of new cases, assignments for anesthesia, telephone numbers of students for call to emergency operations, and the subjoined general instructions:

GENERAL INSTRUCTIONS TO CLINICAL CLERKS IN SURGERY

1. *New Cases.*—New Cases, on admission, will be assigned to the clerks in order. Assignments will be made by the nurses in charge and will be posted on the bulletin board on the first floor. (Clerks will work in groups of two.) Consult the bulletin daily for new cases and proceed as soon as possible with any *new cases* assigned to you, as follows:

(*a*) Histories: These are to be taken according to the method given in the course in history taking, and recorded in notebooks. When completed, histories will be reviewed with the clerks and initialed by the instructors in charge if satisfactory. Unsatisfactory histories will have to be rewritten.

(*b*) Physical Examination: Each clerk is required to make a physical examination of each patient to whom he is assigned. Discretion must be used in the case of seriously ill or injured patients, and dressings or splints must not be disturbed. While examining any patient in the female ward, request the presence of a nurse during such examination. No pelvic examinations will be made except by direction of and in the presence of a member of the attending staff. Records of physical examination made by the clerks will be placed in the notebooks. Under separate heading at the end of the physical examination give a description of the *surgical condition.*

(*c*) Familiarize yourselves with the laboratory records and other diagnostic data.

(*d*) Follow the anteoperative, operative and postoperative treatment of each case assigned to you.

2. *Old Cases.*—(*a*) Visit each old case to which you are assigned, making such examinations as seem necessary, and note any progress in the case.

(*b*) Attend the surgical dressings on your patient whenever possible.

3. *Collateral Reading.*—It will be necessary for the students to supplement their work throughout the course with collateral reading on conditions occurring in patients to whom they are assigned.

4. *Case Summaries.*—Each clerk will keep a record of each case to which he is assigned, and at the end of the clerkship, notebooks will be handed in to the instructor. The case records are to include: (*a*) history; (*b*) physical examination; (*c*) laboratory and diagnostic findings; (*d*) anteoperative treatment; (*e*) operative treatment; (*f*) postoperative treatment; (*g*) result.

Note.—The student's grade for the course will be based on the character of the histories taken, physical examinations, recitations, summaries and attendance. Clerks are required to attend the operative clinics on Monday, Wednesday and Friday from 10:30 to 12, and to attend ward work on Tuesday, Thursday and Saturday from 9 to 12, on Monday and Wednesday from 9 to 10:30, and on Friday from 10 to 10:30.

The clinical material at the university hospital is drawn from all sections of the state, and presents the greatest variety of interesting problems, making ideal teaching material. At the end of the surgical clerkship the student has a complete record of from fourteen to twenty cases which are of obvious value in his later work as an intern, as the university seeks the most modern methods and the best attainable results in the treatment of patients. The majority of the students quickly adapt themselves to the ward work and gain the confidence of the patients. Their enthusiasm for surgical knowledge makes the clerkship course a source of pleasure and profit to instructors as well as students.

300 La Salle Building.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

The complete list, revised to Aug. 1, 1920, was published in the Educational Number of The Journal, Aug. 7, 1920. Supplementary lists appeared in the issues of Sept. 25 and Oct. 30, 1920. The following have been approved since Oct. 30, 1920:

St. Vincent's Infirmary, Little Rock, Ark.
St. Alphonsus Hospital, Boise, Idaho.
Grant Hospital, 551 Grant Place, Chicago, Ill.
Charles T. Miller Hospital, St. Paul, Minn.
St. Luke's Hospital, 5535 Delmar Blvd., St. Louis, Mo.
Holy Family Hospital, 151 Dean St., Brooklyn, N. Y.
Deaconess Hospital, 583 Riley St., Buffalo, N. Y.
City Hospital, Blackwell's Island, New York City, N. Y.
Rochester Homeopathic Hospital, 224 Alexander St., Rochester, N. Y.

New York Infirmary for Women and Children, 321 E. 15th St., New York City, has been transferred from Section III, "Special Hospitals," to Section I of the list, "General Hospitals."

Trinity Hospital, 200 Ninth St., Milwaukee, Wis., has been admitted to Section III of the list.

CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The next annual congress on medical education and licensure is to be held at the Congress Hotel, Chicago, March 7, 8 and 9, 1921. A joint program will be participated in by the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges and the Federation of State Medical Boards of the United States. Reports will be presented from fifteen committees on suggestive courses of graduate training in the various specialties; reports on the medical curriculum will be presented by several committees dealing with the clinical subjects of the medical course, and other papers will deal with the National Board of Medical Examiners and with problems of special interest to state licensing boards.

Pennsylvania July Examination

Dr. Thomas E. Finnigan, secretary, Pennsylvania State Board of Education and Licensure, reports the written and practical examination held at Philadelphia and Pittsburgh, July 6-8, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 233 candidates examined, 206 passed and 27 failed. Thirteen candidates were licensed by reciprocity. Fifteen candidates were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Denver Homeopathic College		(1903)	1
George Washington University Medical School		(1918)	1
Atlanta Medical College		(1915)	1
University of Georgia Medical Department		(1911)	1
Johns Hopkins Univ. Med. Dept.		(1917) 2, (1918) 3, (1919) 2	7
Univ. of Maryland School of Medicine		(1916) 3, (1919) 1	4
Harvard University		(1918) 1, (1919) 1	2
Tufts College Medical School		(1919)	1
University of Michigan Med. School		(1899) 1, (1919) 2	3
Long Island College Hospital		(1919)	1
Med. Dept. of the Univ. of the City of New York		(1889)	1
Univ. and Bellevue Hospital Med. College		(1915)	2
University of Buffalo Department of Medicine		(1917)	1
University of Cincinnati College of Medicine		(1919)	1
Hahnemann Medical College and Hospital of Philadelphia		(1916) 1, (1917) 1, (1919) 18	20
Jefferson Medical College of Pennsylvania		(1916) 6, (1917) 6, (1918) 1, (1919) 46	59
Medico-Chirurgical College of Philadelphia		(1916)	1
Temple Univ. Dept. of Med		(1917) 2, (1918) 3, (1919) 9	154
Univ. of Pa		(1916) 1, (1917) 7, (1918) 6, (1919) 39	53
Univ. of Pittsburgh School of Med		(1918) 3, (1919) 24	27
Woman's Med. College of Pa		(1917) 1, (1918) 2, (1919) 2	5

College	FAILED	Year Grad.	Number Failed
University of Louisville Medical College		(1915) 1, (1911) 1	2
Tulane University of Louisiana		(1895)	1
College of Physicians and Surgeons, Baltimore		(1904)	1

University of Michigan Medical School	(1881)	1
University of Buffalo Department of Medicine	(1898)	1
Miami Medical College, Cincinnati	(1903)	1
Jefferson Medical College of Pennsylvania	(1919)	1
Temple University Department of Medicine	(1919)	10
Univ. of Pa. School of Medicine	(1917) 1, (1919) 1	2
Meharry Medical College	(1906)	1
University of West Tennessee	(1908)	1
National University, Athens	(1917)	2*
University of Kharkov	(1905)	1*
University of Central Spain, Madrid	(1916)	2*

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Illinois College of Medicine	(1905) 2	Illinois
Baltimore Medical College	(1911)	Maryland
Johns Hopkins Univ. Dept	(1910), (1916) 2	Maryland
St. Louis University School of Medicine	(1912)	Missouri
Hahnemann Medical College of Pennsylvania	(1897)	Maryland
Jefferson Med. College of Pennsylvania	(1906) (1916) 2	New Jersey
University of Pennsylvania School of Medicine	(1895)	Delaware
Woman's Medical College	(1908)	Colorado
University of Vermont College of Medicine	(1912)	Maine

College ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Georgetown University	(1918)	Nat'l Bd.
Johns Hopkins University Med. Dept	(1917)	Nat'l Bd.
Harvard University	(1916)	Nat'l Bd.
Jefferson Medical College of Pennsylvania	(1919)	Nat'l Bd.
Univ. of Pa. School of Medicine	(1918) 4, (1919) 6	Nat'l Bd.
Woman's Medical College	(1918)	Nat'l Bd.

* Graduation not verified.

Washington July Examination

Dr. William M. O'Shea, secretary, Washington State Board of Medical Examiners, reports the written examination held at Seattle, July 6-8, 1920. The examination covered 13 subjects and included 130 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 13 passed and 4 failed. Fifty-four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1917)	85.5
University of Colorado	(1917)	84.4
Northwestern University Medical School	(1919)	85.4, 89.4
Rush Medical College	(1917)	89.7
University of Louisville	(1913)	86.3
Kansas City University of Physicians and Surgeons	(1919)	85.7
Columbia University	(1919)	75.4, 90.7
University of Virginia	(1914)	90.3
McGill University	(1916) 82.5, (1918)	85.3
Kumamota Special Medical School	(1917)*	79.3

FAILED		
Hahnemann Medical College, Chicago	(1903)**	75.6
Loyola University	(1918)	61.6
Willamette University	(1912)** 80.7, (1913)**	79.6

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Leland Stanford Junior University School of Med.	(1914)	California
Georgetown University School of Medicine	(1904)	Idaho
Coll. of Phys. and Surg., Chicago	(1898) Indiana, (1905)	Illinois
Hahnemann Medical College, Chicago	(1894)	Idaho
Hering Medical College	(1904)	Iowa
Northwestern Univ. Med. School	(1909), (1915, 2), (1917)	Illinois
Rush Medical College	(1894)	California
(1902) Minnesota, (1917) Illinois.		
University of Illinois	(1915) Missouri, (1919)	Illinois
College of Physicians and Surgeons, Keokuk	(1882)	Michigan
State University of Iowa College of Homeo. Med.	(1910)	Iowa
State University of Iowa College of Medicine	(1907)	Idaho
(1880), (1889), (1908), (1914), (1917), (1919) Iowa.		
Louisville and Hospital Medical College	(1908) Kentucky,	Montana
University of Louisville Medical Department	(1919)	Kentucky
Johns Hopkins University	(1914)	Penna.
Washington University School of Med., Baltimore	(1874)	Minnesota
University of Michigan Medical School	(1907)	Indiana
Hamline University	(1904)	N. Dakota
University of Minnesota Medical School	(1903), (1907)	Minnesota
Barnes Medical College	(1908)	Nebraska
Marion-Sims-Beaumont Medical College	(1902)	Idaho
Missouri Medical College	(1891) Missouri, (1894)	Montana
National Univ. of Arts and Sciences Medical Dept.	(1917)	Missouri
St. Louis College of Physicians and Surgeons	(1906)	Idaho
St. Louis University School of Medicine	(1904)	S. Dakota
(1907) Illinois.		
Omaha Medical College	(1891)	Nebraska.
Cincinnati College of Medicine and Surgery	(1875)	Michigan
Columbus Medical College	(1892)	Kansas
Eclectic Medical Institute	(1891)	Penna.
University of Wooster	(1881)	Montana
Western Reserve University School of Medicine	(1917)	Ohio
Jefferson Medical College of Philadelphia	(1902)	Idaho
(1904) North Dakota.		
University of Pennsylvania School of Medicine	(1913)	Indiana
Meharry Medical College	(1917)	Tennessee
Manitoba Medical College	(1915)	N. Dakota
McGill University	(1907)	Alaska
University of Christiania	(1893)	N. Dakota

* Graduation not verified.
** Fell below 60 per cent. in one or more subjects.

Social Medicine and Medical Economics

A NIGHT CLINIC DEVOTED TO SKIN DISEASES AND SYPHILIS

Some Observations, with Particular Reference to Syphilis *

EDWARD A. OLIVER, M.D.
Assistant Professor of Dermatology, Rush Medical College
Chicago

In October, 1916, an evening industrial medical and surgical clinic was opened at Rush Medical College, in the Central Free Dispensary. The object of this clinic was to care for those men and women in need of medical attention, but unable to absent themselves from work, and financially unable to consult private physicians. A department of syphilis was included in this clinic, in addition to departments of medicine, surgery, genito-urinary diseases, gynecology, and eye, ear, nose and throat. The department of syphilis has been actively engaged in the treatment of this disease for the last four years. It is my purpose to report in a general way our aims and accomplishments during the last year—Oct. 1, 1919, to Oct. 1, 1920.

The clinic is open two evenings each week, Tuesday and Friday, from 7 to 9 o'clock. All the work has been done under the supervision of Dr. Oliver S. Ormsby, and in charge of myself and two associates, Dr. N. C. Stam and Dr. Elbert Clark, assisted by two or four senior medical students. These students register for a quarter, or three months' work, and credit is given them by the department of dermatology. In this three months' period an attempt is made to teach the students some of the fundamentals of the diagnosis of syphilis, the preparation of arsphenamin solutions, the technic of intravenous and intramuscular injections of arsphenamin and mercury, respectively, and in a general way, the symptoms and treatment of syphilis. Close cooperation is maintained with our medical department. A careful medical examination, including urine analysis, is made of all cases before treatment is inaugurated, and all old cases are examined periodically. A competent dentist examines every patient's mouth, and corrects any defects found. During the last year there have been 5,412 visits to the clinic; a total of 154 patients have been treated; 1,218 injections of arsphenamin and 3,509 injections of mercury have been given. There have been 685 visits for purposes of consultation and having Wassermann tests taken. The average number of patients present each evening has been fifty. Twenty-two cases of primary syphilis have been treated, forty-two in the acute secondary stage, and ninety in the later stages. Of the latter, nine were cases of nervous syphilis, the others being old cases varying in duration from two to twenty-five years.

The majority of these patients have come direct to us, lacking funds to consult private physicians; others have been referred from the other departments. No case is treated until, by careful clinical and laboratory tests, a diagnosis of syphilis has been made. A competent serologist does the laboratory work for the day and night clinic. Through our social service department, careful inquiry is made concerning each patient's financial condition, and if it is found that a patient is able to pay for medical treatment, he is denied admission. This rule is rigidly enforced. An earnest effort is always made to have the families of married patients brought to the day clinic for examination and, where necessary, treatment. All cases are reported to the board of health, and a careful follow-up system is kept. Despite our best efforts, some patients tire of treatment and drop out; the majority, however, have been conscientious and obedient.

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* From the Department of Dermatology, Rush Medical College.

PLAN OF TREATMENT

The plan of treatment, followed as closely as practicable in all cases, is that suggested by Dr. Ormsby.[1] Unless there is some definite contraindication, the treatment of all cases consists of giving three intravenous injections of arsphenamin on three successive clinic nights, an interval of three days elapsing between injections. In order to guard against any idiosyncrasy the patient may have to arsenic, the first injection is always given in a dosage of 0.2 gm.; the second and subsequent injections are either 0.4, 0.5 or 0.6 gm., depending on the body weight. These injections are followed by six intramuscular injections of mercury, administered twice weekly. After this three weeks' interval of mercurial medication, three more injections of arsphenamin are given, with a dosage from 0.4 to 0.6 gm. Then follows a six weeks' period of mercurial injections. This program constitutes one course of treatment, after which the patient is allowed to rest from four to six weeks. He reports at the end of that time, he is carefully looked over, and a Wassermann examination is made.

We have used the arsenobenzol (Dermatological Research Laboratories) brand of arsphenamin exclusively the last year, and for mercury have employed soluble mercuric chlorid, 1 per cent. in physiologic sodium chlorid solution, in a dosage of from 30 to 35 minims, twice weekly. Arsphenamin has been administered by the gravity method, using a small glass funnel, with a capacity of 100 c.c., with rubber tubing attachment, that can be held in one hand while the needle is being inserted. The needle gage has been 20. Freshly distilled, reboiled water is used in dissolving the arsphenamin, 20 c.c. of water to 0.1 gm. of drug. We have aimed to consume at least five minutes in administering the dose.

Out of 1,218 injections of arsphenamin, we have had only one slight vascular reaction on the table, and this occurred in a patient who had eaten a heavy meal shortly before taking the injection. One case of jaundice developed in a patient after five injections, and one case of nephritis after twelve injections. Both of these patients recovered quickly. We have had no cases of exfoliating dermatitis, or complaints of diarrhea, nausea or vomiting. This seems in a way remarkable because, although definite instructions are given to each patient to refrain from eating for at least three hours before and after arsphenamin injections, in a dispensary class of patients such instructions are difficult to enforce.

RESULTS

While it is decidedly unpractical to draw any definite conclusions from one year's treatment of syphilis in dispensary practice—in the present state of our knowledge of the disease there is no absolute criterion of a cure—certain features come to light that may help us in our future endeavors:

Primary Syphilis.—It has been our experience that in cases in which we have begun the course early, when the inital lesion was only of a few days' duration, the Wassermann reaction has been negative six weeks after the completion of one course. It remained negative in some cases for from hree to four months, when no further treatment was given, ut invariably became positive at that time, thus emphasizing he fact that even in early cases intensive therapy is indicated. n other words, even when treatment is instituted early, two, or better three, such courses should be given the first year. The chancre with its attendant symptoms, except the regional denopathy, disappears after two injections of arsphenamin.

Secondary Syphilis.—With this system the most dangerously nfectious cases have been rendered noncontagious in ten ays' time; mucous patches, condylomas, roseola and all conomitant symptoms disappear after the first three injections f arsphenamin.

While in a few of our acute secondary cases the patients have given negative blood Wassermann reactions after one full course of treatment, and have improved markedly in general health, if no further treatment is instituted they generally relapse. Therefore we have felt that these patients ought to have at least three or four such courses before being discharged.

Tertiary Cases.—In this type of case it is always hard to know how much the patient is improving. The longer the duration of the disease, the harder it is to make an impression on the Wassermann reaction. Symptoms clear up and an improvement is noted in the general condition of the patient, but whether or not we are curing the disease, only time will tell.

We are handicapped in a night clinic, handling patients who must do a day's work and who are unable to take the time off for spinal fluid examination and intraspinal treatment. We have treated our nervous cases by intravenous and intramuscular injections only, and have noted marked improvement in every instance.

Four years ago this work was instituted in an experimental way. Our hopes for its success have been more than realized. The clinic has attracted a large number of patients, and we have had no difficulty in holding most of them. It has been of undoubted benefit to this class of patients, as well as to the general public, in rendering noninfectious a number of dangerous cases.

The course has been a popular one with students, in that they come in direct contact with the patient, treating him as they would in private practice, and watching his progress from week to week. It affords them a working knowledge of the disease and its treatment that no other course can equal.

25 East Washington Street.

Miscellany

THE RAT IN ITS RELATION TO MAN AND HUMAN DISEASES

That the rat is a natural enemy of mankind seems beyond doubt. Besides the material loss from its depredation, which in this country alone is estimated to amount to from $35,000,000 to $50,000,000 annually, it is the principal agent in the spread and propagation of certain diseases, of which plague is the most important. A brief restatement of some facts bearing on this subject may be without interest.

In 1871, Rocher noticed that the first sign of an epidemic of plague was an epizootic of high mortality among rats. This was soon confirmed by Thompson in Sydney and Hunter in Hong-Kong. Bell cited the case of a Chinese who contracted bubonic plague following the bite of a rat. In consequence of this association the possible modes of the transmission of the disease have been considered with much care. Of all the theories set forth, the flea theory seems most attractive. Ogata first suggested that the fleas on plague-infected rats may play an important part in the dissemination of the disease, and Gauthier, Raybaud, Elkington and Liston were successful in conveying the disease by fleas from infected to healthy rats. Nuttall, however, was unable to prove that such transmission is possible. However, the India Plague Commission (*J. Hyg., Suppl.* 3, 1914) established as facts which are accepted generally that plague is transported by rodents and transmitted by fleas; that there is a seasonal increase in fleas followed by an increase in rodent plague, and that the seasonal increase in fleas is due to the fact that fleas are unable to maintain their vitality at a temperature above 85 F.

Inada and his associates (*J. Exper. Med.* **24**:471 [Nov.] 1916) detected spirochetes in the liver of a guinea-pig bitten by a rat, and also in the urine and kidneys of rats in 32.4 per cent. of the total number examined, and they consider this spirochete as the causative agent of infectious jaundice, naming it *Spirochaeta icterohaemorrhagiae.* Jobling and Eggstein (The Journal, Nov. 24, 1917) studied the wild rats in Nashville with the result that 10 per cent. of more than a hundred rats were found to harbor this organism. Stokes (*Lancet,* **1**:142 [Jan. 27] 1917), investigating infectious jaundice in the British armies in Flanders, found *Spirochaeta icterohaemorrhagiae* in the kidneys of field rats, and infected guinea-pigs with the organism. Otteraaen (*J. Infect. Dis.* **24**:485 [May] 1918) demonstrated the organism in the mouth of rats in Chicago, and he concluded that it is possible for rats to transmit the disease to men simply by biting. It has been pointed out that butchers, sewermen, and men in trenches are liable to contract the disease on account of their occasional association with rats.

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[1] Ormsby, O. S.: A Valuable Method of Employing Arsphenamin Syphilis, J. A. M. A. **75**:1 (July 3) 1920.

The subject of rat-bite fever has been considered in these columns before, and occasional new cases are being reported. Thus, Tunnicliff and Mayer (*J. Infect. Dis.* **23**:555 [Dec.] 1918) reported a case in a negro girl who developed the disease following the bite of a rat, but the streptothrix isolated from this case appeared to be different from typical *Streptothrix muris-ratti;* culturally, it grew profusely and produced a grayish-yellow on dextrose blood agar and, morphologically, it did not form long and wavy filaments. For these reasons they considered it to be rather like the weasel streptothrix—*Streptothrix putorii*—found in a person who developed a disease like rat-bite fever after being bitten by a weasel.

In 1903, Stefansky (*Centralbl. f. Bakteriol.* **33**:481, 1903) recognized what he called leprosy in rats in Odessa, and the same condition was soon reported by Wherry in India and Wherry and McCoy in this country (*J. Hyg.* **7**:337; The Journal, Aug. 22, 1908, p. 690). The relation between rat leprosy and human leprosy has been established in a way by the complement fixation test, human leper serum and antigen prepared from rat leprosy fixing complement.

The permanent reservoir of trichinosis infection must be some animal with cannibalistic tendencies. As rats are cannibalistic and trichinosis is common among them, they may be a natural reservoir for the parasite.

The assertion by Richardson (*Boston M. & S. J.* **175**:397 [Sept 21] 1916) that rats may be the active agent in the transmission of the virus of epidemic poliomyelitis has not been substantiated either by epidemic or by experimental observations. Lynch (The Journal, Dec 25, 1915, p. 2232) has reported a case of amebic dysentery in a rat and suggested that rats may be the disseminators of amebas pathogenic for man.

To counterbalance this multifarious rôle in the spread of disease, the rat, so far as we know, has no particular value to human beings in nature. One point in its favor is that it serves in the laboratory in the research of cancer; and since the rat is susceptible to leprosy, it may be of value in the study of leprosy also; but the numbers necessary for such purpose are of course, easily obtainable. It is obvious that proper methods for the eradication of the rat should be instituted everywhere without delay and should be vigorously conducted. However, the measures with which we are familiar are rather unsatisfactory. The animal is so intelligent that traps cannot be repeatedly applied. Fumigation by the ordinary process of burning sulphur has the risk of fire and the bleaching effect on goods subjected to the process. The Clayton method also has the disadvantage of causing serious damage to various goods. Among the many kinds of poisons used, the Danysz bacilli seem to be superior, but they have no effect on fleas, and the fleas from the dead rat may be disseminators of plague, as Raybaud points out, the fleas seeking a new host as soon as the body of a dead rat becomes cold. Rat killing at so much a head proves to be inadequate because of the rapid reproduction of the animal. Noir shows that if a hunter could kill from 2,000 to 3,000 rats a day, it would take about eight years to accomplish the total extermination of the estimated rat 8,000,000 population in Paris, without considering at all their reproductive increase in the meantime. A pair of rats can produce forty young rats within a year; hence he estimates that there would be 160,000,000 young rats to offset the loss in killed. Rat proofing is expensive and perhaps not universally feasible, but we must accept the fact that an effective antirat campaign will cost a great deal of money and energy. As pointed out by others, merely to put out traps and poisons without preliminary rat proofing can be productive of little good and no permanence. Rat proofing is of the greatest value as an antirat measure, and the practical results to be expected from it are much greater than those from any other method now available.

Book Notices

The Yeasts. By Alexandre Guilliermond, D.Sc., Professor of Botany, University of Lyons. Translated and Thoroughly Revised in Collaboration with the Original Author by Fred Wilbur Tanner, M.S., Ph.D., Assistant Professor in Bacteriology, University of Illinois. Cloth. Price, $6. Pp. 424, with illustrations. New York: John Wiley and Sons, Inc., 1920.

This is a translation of the French edition published in 1912, but has been brought up to date by the translator in collaboration with the author. The book is divided into two parts of about equal length. Part I contains chapters on the morphology, cytology and physiology of yeasts, together with methods in use for cultural work and for identification and classification. Guilliermond proposes a classification differing in many respects from the older one of Hansen. Five groups of the true yeasts (*Saccharomyces*) are recognized. The first includes those that multiply by cell partition; the second contains species that have retained traces of sexuality; the third includes most of the fermenting varieties; the fourth comprises those that do not ferment, according to the ordinary use of the term, but do produce ethers, and the fifth is a heterogeneous group. Part II consists of detailed descriptions of the known species of yeasts, both those recognized as true yeasts and *Torulae* and *Mycoderma.* The volume will be particularly useful to students of microbiology, as it contains in concentrated form all of the material of interest to them. The method of presentation involves some repetition, but this is not a serious fault. It is certainly of great value to have at hand a summary of a subject, the contributions to which are so many and so scattered through the literature.

History and Bibliography of Anatomic Illustration in Its Relation to Anatomic Science and the Graphic Arts. By Ludwig Choulant. Translated and Edited with Notes and a Biography by Mortimer Frank, B.S., M.D., Secretary, the Society of Medical History, Chicago. With a Biographical Sketch of the Translator and Two Additional Sections by Fielding H. Garrison, M.D., and Edward C. Streeter, M.D. Cloth. Price, $10 net. Pp. 435, with illustrations. Chicago: University of Chicago Press, 1920.

In 1916, Dr. Mortimer Frank undertook the translation of Choulant's History of Anatomic Illustration. To Dr. Frank, the history of medicine was more than an avocation. He contributed notably to many phases of the subject. No better tribute to his memory could have been arranged than for his friends to aid in the publication of his translation of Choulant. This book, published in Leipzig in 1852, is one of the classics of medical literature and, since the date of its publication, the authoritative work on this subject. Dr. Frank added to the book an exhaustive account of researches made by Sudhoff and others on medieval manuscripts. He included a bibliography almost up to the date of publication, supplemental notes prepared by Choulant, published in a German periodical in 1857, a biography and portrait of Choulant, and some new illustrations. This book may be said, therefore, to represent the last word on the subject. Since books of this kind are very special in character, his work should continue to serve as an authoritative one for at least another generation.

Dr. Fielding Garrison contributes to the work a brief biography of Dr. Frank, whose untimely death in 1919 prevented his seeing the completed copy of the work; an article on anatomic illustration since the time of Choulant; and, with

Dr. Streeter, an article on sculpture and painting as modes of anatomic illustration.

The close relationship that has existed for many years between the professions of art and medicine is well known to physicians. The well known work of Leonardo Da Vinci, who contributed more than 750 anatomic drawings to the literature of his period, is most conspicuous. In this book are mentioned the names of almost a thousand physicians, sculptors and painters who contributed to the art of anatomy and thus to its science.

The only faults noticeable are, first, the arrangement, which appears to be unsystematic and which does not permit differentiation of the portions of the book prepared by various contributors; and, second, the placing of all of the legends for the 350 illustrations on ten pages just preceding the index. Many of the legends are between twenty and thirty lines in length, and it is inconvenient to look at the picture and then turn several hundred pages to read a legend of such length. It is especially trying to bear in mind the minute details of a picture to which the legend calls attention.

By publishing the Choulant-Frank text, the University of Chicago Press has performed a service to medical science. Books of this kind are not "best sellers"—their sale is limited —yet no effort has apparently been spared to present a beautiful and artistic example of typography.

Handbook of Diseases of the Nose, Throat and Ear for Students and Practitioners. By W. S. Syme, M.D., F.R.F.P., & S.G., F.R.S.E., Surgeon to the Ear, Nose and Throat Hospital, Glasgow. Cloth. Price, $2.75. Pp. 329, with illustrations. New York: William Wood & Co., 1920.

This book is all that the full title implies. It is short, concise, and remarkably complete for a work of its size. The author has abandoned the usual textbook construction of more pretentious volumes, and has adopted a simple, readable, paragraph style, one paragraph, as a rule, to each subject. It follows, of course, that the subjects are briefly handled, yet it is a valuable book unquestionably to the busy practitioner and offers him a fairly complete view of the special field in epitome. For the use of the serious medical student it is possibly too brief an exposition to be depended on entirely. There are few illustrations, and of these a number might well be omitted without detracting from the merits of the book.

Operative Gynecology. By Harry Sturgeon Crossen, M.D., F.A.C.S., Associate in Gynecology, Washington University Medical School. Second edition. Cloth. Price, $10. Pp. 717, with 834 illustrations. St. Louis: C. V. Mosby Company, 1920.

The second edition of this valuable work brings up to date the operative work in the field of gynecology. There are 864 excellent illustrations of the various operations, and with the clear, concise text, the technic of the various operative procedures is readily followed. The chapters on prolapse of the uterus and bladder and on carcinoma of the uterus are complete, and cover those subjects in an excellent manner. The preparation of the patient, care during operation, and postoperative treatment are given full consideration. The book not only lays great stress on the various operative procedures, but also carefully considers all things that go to make the operations successful. It can be recommended as a good reference and guide in operative work in gynecology.

The Theory and Practice of Sanitation in Country Places Including the Bacteriolytic Tank System. By W. Ramsay Smith, M.D., D.Sc., F.R.S. Fifth Edition. Paper. Pp. 36, with illustrations. Adelaide: R. E. E. Rogers, 1920.

This readable little pamphlet has evidently been of considerable service, since it is now in its fifth edition. It contains a good, common sense discussion of rural methods of sewage disposal. The descriptions are clear, and the book contains a number of simple plans drawn to scale. One of the cardinal points in rural plumbing, namely, the great importance of separating the grease and sink waste from the contents of water closets, needs more emphasis than it receives. The mixture of grease with fecal matter is one of the main reasons for the frequent failure of rural systems of sewage disposal to work properly.

Medicolegal

Method of Treating Compound Comminuted Fracture—Evidence—As to Nurses

(Browning v. Hoffman et al. (W. Va.), 103 S. E. R. 484)

The Supreme Court of Appeals of West Virginia says that the plaintiff, a boy about 9 years old, suffered a compound comminuted fracture of the right leg, 2 or 3 inches above the ankle, and that this action was brought to recover damages for alleged negligence in the treatment of the injury in a private hospital conducted by the defendants as partners in business, one of whom, Dr. Hoffman, dressed the wound, with the assistance of the family physician, on Monday evening. Dr. Hoffman first thought that there should be an amputation, but, lacking the consent of the parents, decided to try to save the leg. After thorough cleansing and disinfection, taking out a loose sliver of bone, setting and wiring the bones, and closing the incision with sutures, the leg was put into a plaster cast, with cotton and gauze, and an opening or window left for drainage, inspection and treatment. Dr. Hoffman saw the boy on Tuesday morning and perhaps evening, and was then away until about 2 a. m. Thursday, in response to a call by the chairman of the Executive Committee of National Defense. Tuesday night the boy became delirious, and had a high temperature and a weak pulse. On the discovery of the unfavorable change, the head nurse, in addition to alteration of the treatment, endeavored to notify a young physician connected with the hospital, whose competence was not impeached, but she was unable to reach him before 10:30 a. m., when he visited the boy's room. The treatment adopted by the nurse was then continued, possibly with slight modification. The physician then tried to get into communication with members of the family, and made preparations to operate, but did not do so for want of consent. The father, a railroad man, was away until about 9 p. m., and was then unwilling to let the young physician operate, but was willing to let the family physician do it, while a rule of the hospital forbade operations there by surgeons not connected with it. The result was that the boy was removed to Cumberland, Md., where his leg was taken off at the hip and his life barely saved. The result of the trial was a verdict for $5,500 in favor of the plaintiff, from which $500 was remitted; and, besides, a new trial was granted.

The court holds that, if a surgeon adopts, in the treatment of a case, a method established and approved by physicians and surgeons, generally, in the community in which he performs the operation or gives the treatment, at the time thereof, and is not negligent or careless in its application, he is not liable for injuries caused by such treatment. If there are two or more approved methods of treatment of an injury of the kind committed to his care, he may adopt the one which, in his honest opinion, will be the more efficacious and appropriate under all of the circumstances, and, in such case, he is not liable for an injury resulting from an error in his judgment, if there be one. He is not bound at his peril to adopt the best method. The propriety of the use of a plaster-of-Paris cast in the treatment of a compound comminuted fracture of the leg having been established by uncontradicted evidence, in a case in which a surgeon is charged with malpractice in the treatment of the wound, it is error to give an instruction based on the hypothesis of negligence in the mere adoption and use of that method, even though an injury has followed, which might have resulted from use thereof in an improper manner. It is also error, in an action for malpractice by a physician or surgeon, to admit evidence of a method of treatment, antedating the treatment involved by a long period of time, and differing materially from the method adopted in the treatment and generally approved and used at the time thereof.

If, in the trial of such a case, incompetence of the nurses is relied on, and no evidence has been adduced for the purpose of proving it, except lack of graduation of the day and night nurses, the head nurse being a graduate, and there is no evidence of any omission of, or departure from, the instructions given them, or of any action or conduct on their part resulting in or causing the alleged injury, it is error to give an instruction founded on the assumption of evidence of their incompetence and negligence, or either of them. There was no evidence in this case of negligence on the part of any of the nurses. Not being physicians in charge of the patient, they had no authority to depart from the instructions given them by their employers. There was no proof that they did not obey their instructions or perform the duties assigned them, or that they were not properly instructed. Their failure to give correct information to members of the family, if any, or to remain at all times in the sick room, was not evidence of negligence contributing to or occasioning the result complained of.

Physicians Not Insurers—Requirements—Evidence

(Harju v. Allen (Minn.), 177 N. W. R. 1015)

The Supreme Court of Minnesota, in affirming an order granting a new trial after a verdict was rendered in favor of the plaintiff, says that the evidence was practically conclusive that he had suffered a fracture of some one or more of the pelvic bones, and that as a result the head of the right femur was driven in. The defendant failed to diagnose the injury correctly. The plaintiff's evidence was that, on occasions, the defendant told him that there was nothing the matter with him, that he was shamming, and told him that he should walk three hours every day; and, save for the application of liniment, gave him very little treatment. The defendant, on the other hand, contended that there was no evidence of negligence in diagnosis or treatment, and that a verdict should have been directed for him. With this, however, the court does not agree. A physician does not insure either correct diagnosis or correct treatment, but he is required to possess the skill and learning which is possessed by the average member of his school of medical profession in good standing in his locality, and to apply that skill and learning with ordinary and reasonable care. If he does this, he is not ordinarily liable for damages consequent on an honest mistake or an error of judgment in making a diagnosis or in prescribing treatment, where there is reasonable doubt as to the nature of the physical condition involved, or as to what should have been done in accordance with recognized authority and good current practice. But he cannot shield himself from liability by merely saying that, though he erred, he used his best judgment. Such a rule would dispense with both skill and care. He must exercise reasonable skill and care, and the question whether he has done so is usually a question of fact.

Nor does the court agree with the defendant's contention that a jury could not find negligence in either diagnosis or treatment without expert testimony charging the defendant with negligence. There are some facts pertinent to a case in malpractice which may be proved only by the testimony of experts. For example, a nonprofessional observer may not ordinarily diagnose disease; the standards of practice in different schools of medicine must be established by the testimony of experts of those schools; and generally with respect to matters of science or specialized art, or with respect to matters resting on pure theory, judgment and opinion based on reasons familiar only to experts, the opinion of experts is generally the only evidence receivable. But it is not the law that a physician can never be found guilty of malpractice except on opinion evidence of negligence furnished by other practitioners. It is not difficult to hold that there was evidence of malpractice in this case. If malpractice depended on the failure of the defendant to diagnose accurately the precise nature of the fracture which the plaintiff suffered, it would be difficult to say that such failure evidenced either proper skill or care, for the experts differed in their testimony as to just what was the nature of the fracture. But the experts on both sides, with the exception of the defendant himself, agreed that there was a serious fracture of some sort, and there was ample evidence that by the use of reasonable care and skill the defendant should at least have been able to determine that the plaintiff was suffering from some serious injury, which required treatment of a character entirely different from that which was in fact administered.

There was, however, error in permitting a hypothetic question to be asked an expert witness for the plaintiff, calling for an opinion as to the defendant's diagnosis and treatment, when the question omitted to advise the witness as to the nature and result of two roentgenograms made and used by the defendant for the purpose of diagnosis, although the roentgenograms did not reproduce the parts of the pelvis where the fracture or fractures occurred, and did not show a fracture, while roentgenograms taken by others after the defendant ceased his treatment plainly showed a fracture. A hypothetic question must embody substantially all the undisputed facts relating to the subject on which the opinion of the witness is asked. The pertinent inquiry was not whether or not there was a fracture in fact, but whether, on all the data considered by the defendant in his diagnosis, his conclusion that there was no fracture was arrived at in the exercise of due care. The roentgenograms formed one of the most important items of evidence on which the diagnosis and treatment were based.

Evidence of Contract to Pay for Operation

(Harrington v. Legge (Wis.), 177 N. W. R. 865)

The Supreme Court of Wisconsin says that the plaintiff was under a yearly contract with a railway company to treat, without charge to them, all of its employees injured in the course of their employment who came to him for treatment. The defendant testified that, on a Thursday, while assisting other section hands in moving a railroad frog, he felt a severe pain in his groin as a result of a rupture; that he was compelled to desist from heavy work for that day, but remained about the work until the usual quitting time, and went back on the two days following, although not able to perform his usual duties, so far as any heavy manual work was concerned. There was evidence from some of his coemployees as to his complaining of pain at the time in question and desisting from work. On Saturday evening he walked a considerable distance to the plaintiff's office, accompanied by an interpreter, and practically all the conversation that ensued was through the interpreter. The plaintiff testified that, on the defendant's stating his employment by the railway company, he asked him if he had sustained an injury while so employed, and the defendant said that he had not, that his trouble had been of some standing, and that he had been unable to get any slip or certificate from the foreman to present to the plaintiff, as the company's physician, in accordance with the custom. The plaintiff then informed the defendant that his trouble was of such a nature that it did not come within the scope of the plaintiff's employment by the railway company, and that he could not look after the case on the latter's account; but if the defendant was not satisfied with that conclusion, he might confer with the company's claim agent on the following Monday morning. The defendant then asked whether the plaintiff would look after it as a private case, and what it would cost. The plaintiff said that he would charge $50, instead of his customary charge of a larger amount, and that the defendant would have to pay the hospital expenses. The defendant agreed thereto, returned on Monday morning, was taken to the hospital to which the plaintiff was accustomed to take his private patients, was operated on, was given after-care by the plaintiff, and was finally discharged as cured. The plaintiff testified further that the operation disclosed that the rupture was of longer standing than from the preceding Thursday, and that if the defendant's contentions, as made on the trial, were correct as to the manner in which the rupture was sustained by heavy lifting, the pain would have been so severe that he would have been unable to do anything on the same day on which it occurred. The defendant testified that the agreement was that if he was injured in the employ of the company, the operation would be free to him; otherwise he must pay for it, $30. The supreme court thinks the testimony was clear and positive that there was an agreement between the parties that the defendant was to be operated on by the plaintiff for the hernia, for which $50 was to be paid by the defendant personally, and that pursuant to such agreement the defendant returned on Monday morning; wherefore a judgment in favor of the plaintiff for $50, with interest and costs, is affirmed.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

October, 1920, **77**, No. 2

Parole System and Its Relation to Occupational Therapy. A. J. Rosanoff and T. S. Cusack, Kings Park, N. Y.—p. 149.

Cases Illustrating Some Common Types of Errors in Psychiatric Diagnoses. L. G. Lowry, Boston.—p. 165.

Insanité, Legalité, Insecurité. C. B. Burr, Flint, Mich.—p. 181.

Case of Hypopituitarism. H. S. Newcomer and E. A. Strecker, Philadelphia.—p. 193.

Structural Brain Lesions of Dementia Praecox. A. E. Gurd, Ann Arbor, Mich.—p. 201.

Gas Neurosis Syndrome. H. S. Hulbert, Chicago.—p. 213.

Outpatient or Dispensary Clinics for Mental Cases. E. S. Abbott, Philadelphia.—p. 217.

Outpatient Clinic in Connection with a State Institution for Feebleminded. W. E. Fernald, Waverley, Mass.—p. 227.

Responsibility of Public in Relation to State Medical Institutions. W. H. Pritchard, Columbus, Ohio.—p. 237.

American Journal of Obstetrics and Gynecology, St. Louis

October, 1920, **1**, No. 1

Program for American Gynecology. R. L. Dickinson, New York. —p. 2.

Demonstration of Certain Transition Stages from Benign to Malignant Conditions in Ovary, Uterus and Vulva. T. W. Eden and G. Ley, London, England.—p. 11.

Induction of Labor at Term. C. B. Reed, Chicago.—p. 24.

Prophylactic Forceps Operation. J. B. DeLee, Chicago.—p. 34.

Extraperitoneal Cesarean Section. J. A. McGlinn, Philadelphia. —p. 45.

Cranial and Intracranial Birth Injuries. H. Bailey, New York.—p. 52.

November, 1920, **1**, No. 2

*Analysis of Failures in Radium Treatment of Cervical Cancer. F. J. Taussig, St. Louis.—p. 113.

Operation or Radium for Operable Cases of Cervical Cancer. W. P. Graves, Boston.—p. 122.

Equipment, Organization and Scope of Teaching in Obstetric Department of Modern Medical School. B. C. Hirst, Philadelphia.—p. 128.

Gynecologic Problems in Industrial Medicine. H. E. Mock, Chicago. —p. 131.

Development of Prenatal Care and Maternal Welfare Work in Paris Under Children's Bureau of American Red Cross. F. L. Adair, Minneapolis.—p. 141.

Importance of Follow-Up System for Obstetric Patients. G. W. Kosmak, New York.—p. 155.

*Indications for Operation in Spreading Peritonitis of Postabortal and Postpartal Origin. J. O. Polak. Brooklyn.—p. 161.

Errors in Gynecologic Diagnosis Due to Misplaced Organs. R. Peterson, Ann Arbor, Mich.—p. 170.

Treatment of Pregnancy and Labor Complicated by Cardiac Disease. F. S. Newell, Boston.—p. 179.

Blood Transfusion in Obstetrics and Gynecology. H. C. Williamson, New York.—p. 188.

Radium Treatment of Cervix Cancer.—Eighty-six cases of cervical cancer and six cases of vulvar cancer have been treated by Taussig by radium, partly in combination with surgical measures. The immediate results are far from inspiring, Taussig says, but this must, in part, be attributed to the fact that in the first year and a half every case was included no matter how wretched the patient's condition. He agrees with Bailey that the chance for doing harm in desperate cases is so much greater than for doing good that these women had better be given acetone treatment and opiates. Radium only leads to increased suffering. The technic of the radical Wertheim operation for cervical cancer was simplicity itself, compared to the technic of radium treatment in this disease. In cervical cancer of the inoperable stage, Taussig advises an intracervical application of 125 mgh., from 25 to 50 mgh. of which, in the form of a steel needle or 0.5 mm. silver capsule, is placed high up the cervical canal and the remaining 75 to 100 mg. in silver capsules packed against the cervical ulcer in accordance with its size and shape. The vagina and rectum are protected by a paraffin covered lead shied from 2 to 3 mm. thick and gauze used to immobilize the application. The application should last for from twenty to twenty-two hours, a total of from 2,500 to 2,750 mg. hours. Two weeks later a massive roentgen-ray dose over from 6 to 8 "portals" should be given. The second treatment should be given only in case the retrogression is not complete after eight weeks have elapsed. Then a small dose of from 1,800 to 2,000 mg. hours filtered with silver and 1 mm. of brass should usually be given as high as possible in the vaginal fornix. The cervix is usually obliterated at this time.

Treatment of Postabortal Peritonitis.—Observations in the clinical study of postabortal and puerperal peritonitis led Polak to conclude (1) that nature is competent to localize the lesions in the large majority of peritoneal extensions; (2) that advancing peritonitis has a definite symptom complex which is constant when the inflammation is spreading; (3) that in the presence of this symptom complex drainage is necessary and definitely lowers the mortality. The patient is placed in the high Fowler position; one or more icebags are applied to the abdomen and a proctoclysis by the Harris method of glucose-sodium-bicarbonate solution is begun. The pain is relieved by routine morphinization, small doses being given hypodermically at regular intervals. If the patient's resistance is capable of taking care of the peritoneal invasion, in from twelve to twenty hours there will be a definite recession in the severity of the symptoms and a fall in the polymorphonuclear percentage. On the other hand, if her resistance is insufficient, or the virulence of the invading organism greater than the protective reaction, the pulse, temperature and local abdominal symptoms will remain stationary or increase in severity; and most important of all, the polymorphonuclear percentage will rise. In the presence of these conditions drainage is imperative. A posterior vaginal incision through the fornix will usually liberate a pint or more of thin, flocculent blood-stained serum which on culture returns numberless streptococci.

American Journal of Physiology, Baltimore

Nov. 1, 1920, **54**, No. 1

*Effect on Composition of Blood of Maintaining an Increased Blood Volume by Intravenous Injection of a Hypertonic Solution of Gum Acacia and Glucose in Normal, Asphyxiated and Shocked Dogs. H. L. White and J. Erlanger, St. Louis.—p. 1.

*Functional Activity of Capillaries and Venules. D. R. Hooker, Baltimore.—p. 30.

*Visceral Sensory Nervous System. I. Lung Automatism and Lung Reflexes in the Frog (R. Pipiens and R. Catesbiana). A. J. Carlson and A. B. Luckhardt, Chicago.—p. 55.

*Effect of Epinephrin on Venous Blood Pressure. H. Connet, Baltimore.—p. 96.

Visceral Sensory Nervous System. II. Lung Automatism and Lung Reflexes in Salamanders (Necturus, Axolotl). A. B. Luckhardt and A. J. Carlson, Chicago.—p. 122.

Changes in Acid and Alkali Tolerance with Age in Planarians. J. W. MacArthur, Toronto, Canada.—p. 138.

*Alkaline Reserve of Blood of Insane. N. Suitsu, Philadelphia.—p. 147.

Gastric Tonus of Empty Stomach of Frog. T. L. Patterson, Kingston, Canada.—p. 153.

Studies on Submaxillary Gland. VI. Dependence of Tissue Activity on Volume Flow of Blood and on Mechanism Controlling this Volume Flow of Blood. R. Gesell, Berkeley, Calif.—p. 166.

VII. Effects of Increased Salivary Pressure on Electrical Deflections, Volume Flow of Blood and Secretion of Submaxillary Gland of Dog. R. Gesell.—p. 185.

VIII. Effects of Atropin on Volume Flow of Blood Electrical Deflections and Oxidations of Submaxillary Gland. R. Gesell.—p. 204.

Effect on Blood of Injection of Glucose and Gum Acacia Solutions.—A strongly hypertonic glucose and gum acacia solution was injected by White and Erlanger intravenously into normal, asphyxiated and shocked dogs, and the resultant changes in blood volume and composition were studied. The immediate effect was a marked increase in blood volume; in normal and asphyxiated animals the blood volume then gradually fell toward but did not completely return to normal in several hours. The blood volume, markedly diminished in shock, is increased to above its normal level by the injection, and then gradually falls to or below its normal level. The absolute plasma protein is increased slightly or not at all in normal animals and in asphyxiated animals; in an animal which had been bled there was a slight increase when the amount withdrawn was allowed for. The absolute amount of plasma protein is markedly diminished in shock, is increased by the injection and the increase continues for some time after the injection. It is believed that at least a part of the increase in plasma protein following the injection in shock is due to a passage of protein in through the vessel walls. Gum acacia seems to take the place of plasma protein in holding water in the circulation. There is a marked hyperglycemia immediately after the injection in normal animals; this is accentuated by morphin and asphyxia. The blood sugar falls to or nearly to normal within two hours. In shocked animals the blood sugar behaves much as in normal animals. No hemolysis, hematuria, hemoglobinuria, albuminuria, cylindruria, fluctuations in body temperature or any other untoward effects were observed as a result of the injections.

Functional Activity of Capillaries.—A method is described by Hooker whereby the peripheral circulation (particularly the capillaries and venules) in the cat's ear may be observed and photographed. It is thus possible to study in the living mammal the capillary circulation, investigation of which in the intact animal has hitherto been limited to the frog.

Visceral Sensory Nervous System.—This report is the beginning of an investigation and analysis of the reflexes evoked by the visceral sensory nerves in all the groups of vertebrates available for study. To date Carlson and Luckhardt have studied the reflexes from the visceral afferent system involving the skeletal musculature, the respiratory mechanism, the gastro-intestinal tract, the heart and blood vessels, and the urinary bladder.

Cause of Venous Blood Pressure Rise After Epinephrin Injection.—The various possible factors operating to produce the rise in venous blood pressure which occurs in the intravenous injection of epinephrin are discussed by Connet. The two factors chiefly responsible are the decreased heart rate bringing about decreased unit output of the heart, and a vasoconstrictor mechanism in the veins. The effect of the first factor is accentuated by the fact that the arterial pressure is greatly raised by epinephrin in the doses used. The first factor has been recognized before. Reasons are given why the second factor was previously overlooked. In dogs with good vagal tone and under an anesthetic, the rise in venous pressure is almost entirely due to the first factor. In cats whose vagal tone is not nearly as strong, the second factor predominates. This nervous mechanism is shown to be acted on peripherally by epinephrin and to be depressed by ether, curare and histamin, especially the last.

Alkaline Reserve of Blood of Insane.—The results of the studies reported on by Suitsu indicate that: (1) The alkaline reserve of the blood of the insane appears to fall within the limits considered normal for healthy persons; (2) there are no demonstrable differences in the absolute amounts of the alkaline reserve of the bloods from excited or depressed patients here studied; (3) the variability of the plasma carbon dioxid combining capacity seems to be higher in the insane than in the small group of normals here studied; (4) no noteworthy differences obtained in the alkaline reserve of the blood taken three and a half and fourteen hours after eating.

American Journal of Public Health, Chicago

November, 1920, **10**, No. 11

Present Status of Plague, Historical Review. W. H. Kellogg, Sacramento, Calif.—p. 835.
Methods of Plague Control. F. Simpson, Angel Island, Calif.—p. 845.
Roden Plague. C. L. Williams, New Orleans.—p. 851.
Botulism. E. C. Dickson, San Francisco.—p. 865.
Comparison of Bacterial Counts from Machine and Hand Washed Dishes and Their Significance. R. S. Dearstyne, Charlotte, N. C. —p. 871.
Value of Brilliant Green in Eliminating Errors Due to Anaerobes in Presumptive Test for B. Coli. T. C. Muer and R. L. Harris, Brooklyn.—p. 874.
Urgent Need for Standardization of Laboratory Work. A. Lederer, Chicago.—p. 876.

Annals of Surgery, Philadelphia

November, 1920, **72**, No. 5

*Hypophysial Duct Tumors. W. C. Duffy, New Haven, Conn.—p. 537.
Treatment of Craniocerebral Wounds and Its Results. H. Neuhof, New York.—p. 556.
New Appliance to Secure Proper Position and Steadiness of Head During Brain Operations. T. M. Johnson, Philadelphia.—p. 589.
Perforating Gastric and Duodenal Ulcer. C. E. Farr, New York. —p. 591.
*Persistence of Pyloric and Duodenal Ulcers, Following Simple Suture of Acute Perforation: R. Lewisohn, New York.—p. 595.
*Carcinoma of Duodenum. E. R. McGuire and P. G. Cornish, Jr., Buffalo.—p. 600.
*Ptosis of Third Portion of Duodenum with Obstruction at Duodenojejunal Junction. E. P. Quain, Bismarck, N. D.—p. 604.
*Jejunocolic Fistula. M. Ware, New York.—p. 607.
Relation Between Intestinal Damage and Delayed Operation in Acute Mechanical Ileus. F. T. Van Beuren, New York.—p. 610.
Orthopedic Treatment of Burns. A. H. Harrigan and S. W. Boorstein, New York.—p. 616.

Hypophysial Duct Tumors.—Two cases of hypophysial duct tumors are recorded by Duffy. A previously healthy man, 35 years old, began rather abruptly to suffer with severe headaches, progressive diminution of vision, and loss of libido sexualis. Positive Wassermann tests resulted in antisyphilitic therapy. Later, the diagnosis of tumor in the hypophysial region was made by means of radiography. The visual fields showed a bitemporal hemianopsia. The exploratory craniotomy was complicated by unusual hemorrhage; however, the cyst presenting above the sella and between the optic nerves was evacuated, and the patient recovered from the immediate effects of the operation, but died twelve days later with symptoms indicating failure of the medullary centers (about one and one-half years after the onset of symptoms). At the necropsy of this slightly obese man a squamous epithelial intracystic papilloma was found presenting above the enlarged sella with remains of the anterior hypophysial lobe and traces of pars intermedia preserved in the basal sector of the cyst wall. Death apparently was caused by increased intracranial pressure (cerebral edema). The testes showed histologically a marked atrophy. Thymus was retrogressive. Other glands of internal secretion showed no definite changes. Changes of subsidiary interest were found in the lung (bronchopneumonia, pulmonary infarcts) and appendix. A female child, 11 years old, who had suffered with headaches of increasing frequency for five years, progressive failure of vision for one year, and occasional projectile vomiting for eight months, was brought to the hospital because of increasing disability and the recent appearance of stupor. Instead of retardation of sexual characters, there was perhaps slight exaggeration of same. Radiography showed a suprasellar nodular shadow, due to calcification; partial destruction of posterior clinoids, and separation of the frontoparietal sutures suggesting a secondary hydrocephalus. At the exploratory craniotomy a suprasellar cyst containing 30 c.c. of fluid was evacuated and partly extirpated. Histologic examination of tissue from the wall of the cyst showed definite squamous epithelial cell derivatives presenting the picture of adamantinoma. Death apparently from cerebral edema. No necropsy.

Perforated Pyloric and Duodenal Ulcers.—Lewisohn says that closure of the perforation, gastro-enterostomy, and pyloric exclusion should be the method of choice in the treatment of perforated pyloric and duodenal ulcers. Simple closure of the perforation should be reserved for only those patients whose general condition is so poor that even a rapidly performed gastro-enterostomy would be too much of an operative risk.

Carcinoma of Duodenum.—Four cases are reported by McGuire and Cornish. Two cases are primarily carcinoma of the bile duct with secondary involvement of the duodenum, and two are definitely primary in the duodenum.

Ptosis of Duodenum.—Quain believes that this pathologic condition of the duodenum is not at all uncommon, and that careful search with fluoroscope and more diligence in abdominal exploration will prove this belief to be well founded. He has seen five cases. Duodenojejunostomy was made between the bulging duodenum and the descending jejunum. The results have been all that could be desired in the four patients who have been under observation.

Jejunocolic Fistula.—Following resection of 6 inches of the transverse colon for the removal of an annular carcinoma which manifested itself with symptoms of intestinal obstruction and performance of Ware's patient developed a jejunocolic fistula in the vicinity of the splenic flexure. A preoperative diagnosis was made and a successful operation was performed.

Archives of Dermatology and Syphilology, Chicago

December, 1920, **2**, No. 6

*Resistance (or Immunity) Developed by Reaction to Syphilitic Infection; Some Effects of Suppression of This Reaction. W. H. Brown and L. Pearce, New York.—p. 675.
*Provocative Reactions in Cerebrospinal Fluid in Neurosyphilis. H. C. Solomon, Boston, and J. V. Klauder, Philadelphia.—p. 679.
*Clinical Study of Reactions Following Intravenous Administration of Arsphenamin in Nonsyphilitic Persons. A. Strickler, H. G. Munson, Sidlick and A. Strauss, Philadelphia.—p. 692.
*Effects of Arsphenamin on Renal Function in Syphilitic Patients. J. A. Elliott and L. C. Todd, Charlotte, N. C.—p. 699.

Penicillium Brevicaule Var. Hominis Saccardo, 1877, Brumpt and Langeron, 1910, in American Case of Ringworm of Toes. F. D. Weidman, Philadelphia.—p. 703.
Dermatobia Hominis; Report of Case. T. B. Magath, Rochester, Minn.—p. 716.
Anaphylactoid Dermatitis Due to Direct Contact with Animal Epidermal Structures. A. J. Markley, Denver.—p. 722.
So-Called Dermatitis Dysmenorrheica; Report of Case; Review of Literature. F. Wise and H. J. Parkhurst, New York.—p. 725.
Varioliform Atrophic Folliculitis. L. Savatard, Manchester, England.—p. 743.
Scleroderma as Possible Manifestation of Chronic Arsenic Poisoning. S. Ayres, Jr., Los Angeles.—p. 747.

Reaction to Syphilitic Infection.—Experiments reported on by Brown and Pearce show that, in so far as syphilitic infections in the rabbit are concerned, the reaction which takes place at the site of inoculation tends to dominate the entire course of the infection; that, in effect, this reaction either inhibits or obviates the necessity for the development of lesions elsewhere and, conversely, that the reduction or suppression of the reaction by the use of any means that does not exercise an equal effect on the organisms themselves, removes this control and tends to increase the occurrence of generalized lesions and the severity of the infection.

Provocative Reactions in Cerebrospinal Fluid in Neurosyphilis.—Case histories are given by Solomon and Klauder to show that after treatment the cerebrospinal fluid, which was negative before treatment, may become positive in all routine tests, or a weakly reacting fluid may become much stronger. This is called a provocative reaction. It may be accomplished by the intravenous or intraspinal injection of arsphenamin. This is compared to the Herxheimer reaction or the production of neurorecurrences and is considered as the laboratory analogue. The provocative reactions are shown to occur in both the ventricular and spinal fluids. This is not a frequent phenomenon, and patients with vascular neurosyphilis with negative cerebrospinal fluids may not react in his manner. However, diagnosis may occasionally be made clear in obscure cases. In none of the cases in this series was the provocative reaction obtained with the blood serum. Despite the increase in the strength of the spinal fluid reacions, clinical improvement may result, and continued treatnent may again produce a negative fluid.

Reactions Following Intravenous Administration of Arsphenamin in Nonsyphilitics.—The percentage of reactive symptoms following intravenous injections of arsphenamin was found by Strickler to be equal in both syphilitic and nonyphilitic patients. The two most important factors in the roduction of arsphenamin reactions are (1) the patient and 2) the medicament. Of these two factors, the medicament s far more potent in causing reactive symptoms; the ntoward phenomena may be produced either by some impur-ty in the arsphenamin or by some chemical reaction between he arsphenamin and the chemical constituents of the blood, r both factors may be operative at the same time.

Effects of Arsphenamin on Kidney Functions.—The findings eported by Elliott and Todd suggest that the admitted nadequacy of the phenolsulphonephthalein test to detect acute ephritides applies also to syphilitic nephritis.

Arkansas Medical Society Journal, Little Rock

November, 1920, **17**, No. 6

Fundamental Cause of Abnormality. D. C. Walt, Little Rock.—p. 125.
Analysis of More Than Two Hundred Cases of Epilepsy Treated with Luminal. C. C. Kirk.—p. 128.

Boston Medical and Surgical Journal

Dec. 9, 1920, **183**, No. 24

Syphilis Clinic: Its Organization, Equipment and Personnel. H. Goodman, New York.—p. 667.
Tinea Capitis; Roentgen-Ray Treatment. C. G. Lane, Boston.—p. 673.
Significance of Functional Albuminuria in Young Men at Harvard University. D. C. Parmenter, Boston.—p. 677.
General Practitioner's Practice. P. R. Withington, Milton.—p. 681.
An Unusual Nephritis. F. Van Nuys, Weston.—p. 683.
Nontuberculous Complications of Pulmonary Tuberculosis. H. F. Gammons, Dallas, Texas.—p. 685.

Significance of Functional Albuminuria.—Approximately 8 er cent. of the students examined by Parmenter showed bumin in the urine. The examination of the sediment in all cases, showed nothing more than in occasional cylindroid or a few squamous cells. Of these forty men, six were excluded as having organic heart lesions which might account for their albuminuria. In the second examination some weeks following, sixteen of these thirty-four still persisted in showing albumin. In the third examination, made two weeks later, six of the thirty-four still showed albumin. The sediment of the final six showed nothing with the exception of a few cylindroids in two cases. This would seem to show that approximately 5 per cent. had a transitory albuminuria which may be designated, perhaps, as functional. Hence, it seems justifiable to Parmenter to disregard the transitory type of albuminuria, except as an index of physical ability during a definite time of life. The orthostatic type, on the other hand, while indicative of no physical deficiency serious enough to bar the individual from athletics seems worthy of close observation.

Dec. 16, 1920, **183**, No. 25

Differential Diagnosis of Tuberculosis. E. O. Otis, Boston.—p. 695.
Roentgen-Ray Diagnosis in Phthisis. F. W. O'Brien, Boston.—p. 702.
Samuel Fuller, the Pilgrims' Doctor. C. H. Bangs, Boston.—p. 708.
*Malignant Disease of Kidney with Unusual Symptoms. J. D. Barney, Boston.—p. 710.
Case of Acute Encephalomyelitis with Necropsy. H. Osgood, Buffalo.—p. 712.

Malignant Disease of Kidney.—The symptoms in one of his cases led Barney to make a diagnosis of "probably a nontuberculous pyonephrosis, possibly due to calculus." Operation disclosed a hypernephroma. The cardinal symptoms of renal tumor—hematuria, pain and tumor—were present to a greater or less degree, in this case, but the picture was so definitely one of an inflammatory process that the possibility of neoplasm was lightly, if at all, considered. The second case, in which the symptoms were also misleading was rightly diagnosed before operation because of the fact that a pyleogram showed marked deformity of the left renal pelvis, the injected fluid (25 per cent. sodium bromid) being scattered around in irregular masses. Careful abdominal examination showed for the first time a definite, but vague mass, apparently fixed, in the left upper quadrant. A diagnosis of malignant disease of the left kidney was made. Operation was considered futile. In the third case a diagnosis of malignant disease of the bladder was made and the kidney was not suspected until a very extensive metastasis in the femur pointed the way to the kidney as being the seat of an adenocarcinoma.

Florida Medical Association Journal, St. Augustine and Jacksonville

November, 1920, **8**, No. 5

Diagnosis of Ectopic Gestation. T. Truelsen, Tampa.—p. 71.
Treatment of Syphilis of Central Nervous System. R. N. Greene, Jacksonville.—p. 73.
Different Types of Diarrhea. G. M. Niles, Atlanta, Ga.—p. 75.

Illinois Medical Journal, Oak Park

October, 1920, **38**, No. 4

Fifty Per Cent. of Sickness Cannot Be Prevented. E. MacD. Stanton, Schenectady, N. Y.—p. 293.
Difficulties Encountered in Dealing with Mental and Delinquent Cases. E. A. Foley, Chicago.—p. 296.
Individual Preventive Medicine. A. Weld, Rockford.—p. 300.
Personal Experiences in U. S. Army Debarkation Hospital No. 5, Grand Central Palace, New York City. H. L. Kretschmer, Chicago.—p. 306.
Endocrine Malfunction and Epilepsy. A Syndrome. W. G. Parker, Mt. Vernon.—p. 309.
Headaches: With Special Reference to Those of Nasal Origin. R. Sonnenschein, Chicago.—p. 315.
Treatment of Goiter with Radium. A. N. Clagett, Chicago.—p. 318.
Intestinal Stasis and Constipation: Its Causes and Treatment from a Nonsurgical Standpoint. K. B. Luzader, Greenville.—p. 321.
Treatment of Perforated Appendix. J. F. Sloan, Peoria.—p. 323.
Peritonsillar Abscess and Its Radical Treatment. L. Ostrom, Rock Island.—p. 325.
Laboratory as Aid in Diagnosis and Treatment of Diseases of Thyroid. O. J. Elsesser, Freeport.—p. 328.
Removal of Nail from Left Bronchus by Aid of Fluoroscope. A. Werelius, Chicago.—p. 335.
Is Human Eye Degenerating? W. O. Nance, Chicago.—p. 335.
Trocar Thoracotomy Versus Rib Resection in Acute Empyema. O. F. Shulian, Quincy.—p. 339.

November, 1920, **38**, No. 5

Some Aphorisms of Endocrines. H. M. Brown, Milwaukee.—p. 397.
Rational Program for Prevention of Pollution of Lakes and Streams. P. Hansen, Chicago.—p. 404.
Early Diagnosis of Syphilis. C. C. Kost, Dixon.—p. 409.

Sarcoma of Kidney. J. Welfeld, Chicago.—p. 412.
Plea for Early Recognition of Renal Tuberculosis. D. N. Eisendrath, Chicago.—p. 414.
Neglected Form of Cervical Endometritis. H. T. Byford, Chicago.—p. 417.
Influence of Mind on Body: Its Limitations and Modus Operandi. M. Solomon, Chicago.—p. 419.
Von Pirquet Feeding System. E. Lackner, Chicago.—p. 425.
Some Things About Empyemata. F. B. Lusk, Chicago.—p. 429.
Progress of Medical Science During World War. W. A. N. Dorland, Chicago.—p. 434.
Physician as a Citizen. C. E. Humiston, Chicago.—p. 443.

Journal of Biological Chemistry, Baltimore

November, 1920, **44**, No. 2

An Apparatus for Continuous Dialysis or Extraction. H. Mann, New York.—p. 207.
*Determination of Total Alkaline Reserve of Body. W. Prentice, H. O. Lund and H. G. Harbo, Minneapolis.—p. 211.
*Variation in Cholesterol Content of Serum in Pneumonia. H. A. Kipp, Pittsburgh.—p. 215.
*Nature of Chlorin Combination in Urine. A. T. Cameron and M. S. Hollenberg, Winnipeg, Canada.—p. 239.
Fat Content of Embryonic Livers. C. G. Imrie and S. G. Graham, Toronto.—p. 243.
*Some Effects of Water Soluble Vitamin on Nutrition. W. G. Karr, New Haven, Conn.—p. 255.
Metabolism Studies with Diets Deficient in Water Soluble (B) Vitamin. W. G. Karr, New Haven, Conn.—p. 277.
Some Amino-Acids from Globulin of Coconut as Determined by Butyl Alcohol Extraction Method of Dakin. C. O. Johns and D. B. Jones, Washington, D. C.—p. 283.
Hydrolysis of Globulin of Coconut, Cocos Nucifera. D. B. Jones and C. O. Johns, Washington, D. C.—p. 291.
Some Proteins from Mung Bean, Phaseolus Aureus Roxburgh. C. O. Johns and H. C. Waterman, Washington, D. C.—p. 303.
Chemistry of Whitefish Sperm. V. Lynch, Cincinnati.—p. 319.
Alkali Reserve of Marine Fish and Invertebrates. Excretion of Carbon Dioxid. J. B. Collip, Departure Bay, Canada.—p. 329.
*Studies on Blood Fat. I. Variation of Blood Fat Constituents of Rabbits Under Normal Conditions. Y. Horiuchi, Boston.—p. 345.
*Id. II. Lipemia in Acute Anemia. Y. Horiuchi, Boston.—p. 363.
*Deficiency in Heat-Treated Milks. A. L. Daniels and R. Loughlin, Iowa City.—p. 381.
Biochemicals Studies on Marine Organisms. II. Occurrence of Zinc. M. Bodansky, Galveston. Texas.—p. 399.
Estimation of Phenolic Substances in Urine. F. F. Tisdall, Baltimore.—p. 409.
Composition of Inosite Phosphoric Acid of Plants. R. J. Anderson, Geneva, N. Y.—p. 429.
*Experimental Studies on Growth. XVI. Influence of Brain Tissue, Freed from Cholesterol, on Growth of White Mouse. T. B. Robertson and L. A. Ray, Toronto, Canada.—p. 439.
*Diastatic Ferments of Blood. D. S. Lewis and E. H. Mason, Montreal, Canada.—p. 455.
Certain Factors That Influence Acetone Production by Bacillus Acetoethylicum. C. F. Arzberger, W. H. Peterson and E. B. Fred, Madison, Wis.—p. 465.
Dihydroxyphenylalanine, Constituent of Velvet Bean. E. R. Miller, Auburn, Ala.—p. 481.
*Test for Antiberiberi Vitamin and Its Practical Application. C. Funk and H. E. Dubin, New York.—p. 487.
Amino-Acids of Gelatin. H. D. Dakin, Hudson, N. Y.—p. 499.
Quantitative Method for Determination of Vitamin in Connection with Determinations of Vitamin in Glandular and Other Tissues. F. K. Swoboda, Chicago.—p. 531.
Studies of Autolysis. VI. Effect of Certain Colloids on Autolysis. H. C. Bradley and H. Felsher, Madison, Wis.—p. 553.
*Experiments on Carbohydrate Metabolism and Diabetes. III. Permeability of Blood Corpuscles to Sugar. M. B. Wishart, New York.—p. 563.
Antiscorbutic Content of Certain Body Tissues of Rat. H. T. Parsons, Baltimore.—p. 587.
Antiscorbutic Requirement of Prairie Dog. E. V. McCollum and H. T. Parsons, Baltimore.—p. 603.

Alkaline Reserve of Plasma.—In the experiments made by Prentice and his co-workers, Lund and Harbo, the alkaline reserve of plasma before etherization was about 0.23; after etherization, from 0.016 to 0.018.

Cholesterol Content of Blood Serum in Pneumonia.—The cholesterol content of the blood serum in pneumonia, Kipp found, exhibits the following variations: (*a*) A primary hypocholesterinemia, the degree of which is dependent on the degree of lung involvement and the intensity of the infection. (*b*) A secondary hypercholesterinemia in the period of convalescence, during and continuing for a varying period of time after the resolution of the pneumonic exudate. (*c*) A return to the normal cholesterol content of the serum. The variations in the cholesterol in the blood serum in pneumonia is dependent on the activity of the leukocytes, and being transported by them to the area of acute inflammation acts as an antitoxic substance, neutralizing the bacterial toxins and those arising from the disintegration of tissue in the process of the inflammatory reaction. It also may serve as an adjuvant in the development of antigens which initiate the process of resolution of the pneumonic exudate. The utilization of cholesterol in acute toxic infections is directly proportional to the severity of the disease. The development of empyema definitely alters the variation of cholesterol in the serum in pneumonia.

Chlorin in Urine.—In the absence of chlorate or similar medication, Cameron and Hollenberg state, chlorin occurs in urine as chlorid only; organic chlorin and chlorin oxy-acids are absent.

Water Soluble Vitamin Is Appetite Provoking.—Karr claims that some relation exists in the dog between the desire to partake of food and the amount of the so-called water soluble B vitamin ingested. Brewery yeast, bakers' yeast, tomatoes and milk were investigated and found to be sources of this appetite provoking substance. Quantitative data are presented to show the relative potency of the various products investigated. The brewery yeast tested was much more potent than bakers' yeast. Drying at 100 C. does not affect the efficacy of these vitamin preparations, but autoclaving at 120 C. for from three to four hours leads to some destruction. Mammalian polyneuritis was induced in several animals and the symptoms were alleviated within a few hours by the ingestion of brewery yeast or tomatoes, substances rich in water soluble vitamin.

Studies on Blood Fat.—The blood fat constituents of nineteen normal rabbits, of different sizes and on different diets, have been determined by Horiuchi. The fat constituents of the plasma are markedly less than in the corpuscles. Cholesterol is one third of that of human beings, lecithin one half, and total fatty acids about two thirds, while the difference of corpuscle fats is very small. Rabbits as well as human beings and dogs have a racial and individual constancy of fatty substances in blood. It is definitely shown that the blood fat values are practically stable, even when 10 c.c. of blood are taken every day, if the duration of bleeding lies within three or four days. This is particularly so on the fat-free diet. When 10 c.c. of blood are drawn every day for a longer period, however, changes in amount of fat constituents take place.

Lipemia in Acute Anemia.—Lipemia, higher than any reported in alimentary lipemia in animals or in the blood of severe human diabetic acidosis, was produced by Horiuchi by a single hemorrhage on a rabbit. The duration of the lipemia of acute anemia is relatively short.

Deficiency in Heat Treated Milks.—In the process of heating milk, the calcium salts are rendered more or less insoluble, depending on the length of time the milk is heated. In this insoluble form they may be lost, owing to the fact that some of the precipitate adheres to the container, as in the case of long pasteurized or slowly heated milk, while some, for example in evaporated milk, separates out on standing. When especial care was taken to include the insoluble material by colloidal suspension, results comparable to those on raw and quickly boiled milk were obtained. Daniels and Loughlin secured no data indicating that either the fat soluble or the water soluble vitamin in milk is affected by heat treatment. Nor is the casein apparently affected. Rats fed superheated milk supplemented with calcium phosphate properly incorporated made normal growth gains. The inferior growth of rats on the long heat treated and superheated milk appears to be due wholly to the readjustments of the inorganic complexes. The application of these findings to infant nutrition is under investigation.

Influence of Brain Tissue on Growth.—The nervous system can be shown (*a*) by its importance for the regeneration of lost parts, (*b*) by the significance of the ratio of brain weight to body weight in determining the longevity of animals, and (*c*) by the dystrophy following on nerve section, to exert a stimulating influence on the growth of parenchymatous tissues. The stimulation of growth by nervous tissues may conceivably be due either to the nervous impulses conducted by them or to a substance officiating as a growth hormone which is conducted to the tissues wholly or in part through nerve fibers. Brain tissue from which the cholesterol has been extracted by cold acetone, administered by mouth, in dosage of 36 mg. daily, is without effect on the growth of mice. It is inferred by Robertson and Ray that if nervous tissues do contain a potent catalyzer of growth other than cholesterol it is also soluble in cold acetone and is removed from the brain in the process of extracting the cholesterol.

Diastatic Ferments in Blood.—Lewis and Mason failed to find any constant increase in the blood diastase in diabetes and there does not seem to be any direct relation between the height of the blood sugar and the diastatic activity. There is a marked variation in the level of the ferments in cases of nephritis, but no evident connection between the type of disease and the diastatic activity, and no constant relation between the progress of the lesion and the diastatic index.

Test for Antiberiberi Vitamin.—Funk and Dubin describe a method for testing the antiberiberi vitamin content of various substances, using autolyzed yeast as a standard. They have also been able to carry out a systematic fractionation of autolyzed yeast testing the vitamin activity at each stage of the purification.

Carbohydrate Metabolism and Diabetes.—No specific alteration of the distribution of sugar between the blood plasma and corpuscles was found by Wishart in experiments with different quantities and modes of administration of glucose, different degrees of pancreatectomy and diabetes, lipemia, acidosis, exercise, cold, or different levels of the renal threshold. Inasmuch as the sugar content of the corpuscles is subject to considerable irregularities from unknown causes and without known physiologic significance, plasma analyses should be preferred to those of whole blood for experimental and clinical purposes.

Journal of Immunology, Baltimore

September, 1920, **5**, No. 5

Simplification and Partial Revision of Factors Involved in Complement Fixation Test for Infectious Abortion in Cattle. C. S. Gibbs and L. F. Rettger, New Haven, Conn.—p. 399.
Antigenic Properties of Globin; Independence of Properties of Serum and Tissue Proteins, as Exemplified by Absence of Antibody from Globin of an Immunized Animal. C. H. Browning and G. H. Wilson, Glasgow.—p. 417.
Protective Value of Pneumococcus Vaccination in Mice and Rabbits. A. B. Wadsworth, Albany, N. Y.—p. 429.
*Serologic Relationships of Liver and Kidney. M. S. Fleisher, T. G. Hall and N. Arnstein, St. Louis.—p. 437.
Placental Transmission of So-Called Normal Antibodies. III. Antilysins. G. C. Reyman, Copenhagen, Denmark.—p. 455.
*Serologic Study of Cholera Immunity. I. Agglutinin. R. Umemura, Tokyo.—p. 465.
*Value of Intrapalpebral Mallein Test in Diagnosis of Glanders. E. H. Mason and R. V. B. Emmons.—p. 489.

Serologic Relationships.—By means of complement fixation eactions and absorption of serums prepared against guineaig liver and kidney, Fleisher and others have been able to how that there exists a definite relationship between the antirgan serums and the homologous antigens. The antigens nd antiserums are not simple but are complex in nature and robably are composed of several different partial antigens nd immune bodies. It is suggestive that possibly these artial antigens and antibodies can be arranged in three groups: The first having a very wide range of activity and aving a relationship to all or practically all tissues of the pecies; the second having a limited range of activity and aving relationship only with the tissue used in the preparaion of the antiserum; and the third being possibly a group f antibodies, also rather limited in their range of activity ut reacting only or more strongly with individual tissues ther than the one used as the immunizing substance.

Serology of Cholera Immunity.—Experiments done by Jmemura have shown that agglutinin begins to come down t the time when the serum proteins begins to precipitate by he addition of ammonium sulphate, and is completely precipiated at from 4.6 to 4.8 saturation, and, therefore, agglutinin s present in both euglobulin and pseudoglobulin and never in ither exclusive of the other. It is present also in fibrinolobulin, but not in albumin. There is a uniform relationship etween the agglutinin and the protein bodies in all animals horse, goat and rabbit).

Value of Intrapalpebral Mallein Test.—Mason and Emmons onsider the complement fixation reaction (intrapalpebral mallein) of greatest value, it being positive in 75 per cent. of the ninety-four horses examined. The agglutination reaction ranks second, confirming a suspicious mallein test with a definitely positive reaction in 44 per cent. of the cases in the same series. Therefore, they would conclude that the complement fixation reaction is of the greatest benefit in confirming a doubtful intrapalpebral mallein test, but that this reaction should be considered in conjunction with an agglutination test, one to act as a check on the other.

Medical Record, New York

Dec. 4, 1920, **98**, No. 23

Anxiety Neurosis. H. Laveson, New York.—p. 925.
Survey of Gastrointestinal Methods. J. L. Kantor, New York.—p. 929.
Monakow's Views on Cerebral Localization. J. Smith, New York.—p. 931.
Stammering, As It Is. E. Tompkins, Pasadena, Calif.—p. 935.
Treatment of Gastric Achylia. M. Sturtevant, New York.—p. 939.
Fighting Fire with Fire. G. L. Servoss, Reno, Nev.—p. 941.
*Unusual Case of Lateral Sinus Thrombosis. J. Friedman and S. D. Greenfield, Brooklyn.—p. 942.
Is Tuberculosis Contagious? G. K. Dickinson, Jersey City, N. J.—p. 943.

Lateral Sinus Thrombosis.—In the case recorded by Friedman and Greenfield a diagnosis of sinus thrombosis was not made, nor even suspected, before operation. There were no symptoms nor signs at the time that pointed to anything more than the usual "typical mastoid." The operation disclosed an infected thrombosis completely occluding the vessel lumen with a collection of pus in the sinus. The internal jugular was ligated but not resected. The patient made an uneventful recovery.

Mental Hygiene, New York

October, 1920, **4**, No. 4

Medical Opinion on Questions Relating to Sex Education and Venereal Disease Campaigns. J. B. Watson, Baltimore, and K. S. Lashley, Minneapolis.—p. 769.
Out-Patient Clinic in Connection with State Institution for Feebleminded. W. E. Fernald, Boston.—p. 848.
Extending Field of Conscious Control. W. A. White, Washington, D. C.—p. 857.
Mental Hygiene of Industry. M. C. Jarrett, Northhampton, Mass.—p. 867.
State Hospital in Relation to Public Health. F. E. Williams.—p. 885.
Imbalance in Development of Personality as a Cause of Mental Ill Health. E. B. Spaulding, New York.—p. 897.
Public-School Clinics in Connection with State School for Feebleminded. E. E. Woodill.—p. 911.
Mental Hygiene Requirements of a Community. T. H. Haines, Jackson, Miss.—p. 920.
Industrial Cost of Psychopathic Employee. M. J. Powers, New York.—p. 932.
Mental Mechanisms. G. W. Mills, New York.—p. 940.

Nebraska State Medical Journal, Norfolk

November, 1920, **5**, No. 11

Corneal Ulcers and Treatment. E. B. Brooks, Lincoln.—p. 313.
Empyema. B. L. Shellhorn, Peru.—p. 317.
What Shall We Do With Old Folks? W. S. Fast, Ingleside.—p. 319.
Tuberculosis in Children, a Family Disease. N. Jones, Omaha.—p. 324.
Antrum as Main Source of Nasal Catarrh. H. B. Lemere, Omaha.—p. 326.
Cataract; Intracapsular Extraction; Case. W. D. Shields, Holdrege.—p. 332.

New York Medical Journal

Dec. 11, 1920, **112**, No. 24

Faculty and Student. J. A. Fordyce, New York.—p. 921.
*Polymorphism of Epidemic Lethargic Encephalitis. A. Gordon, Philadelphia.—p. 926.
*Cutaneous Anthrax. J. R. Graham, New York.—p. 931.
Roentgen-Ray Treatment of Epithelioma with Thin Filter. J. Remer and W. D. Witherbee, New York.—p. 935.
Superficial and Deep Roentgen Dose Estimation. W. H. Meyer, New York.—p. 936.
Stereoscopic Campimeter Slate. R. I. Lloyd, Brooklyn.—p. 944.
Plea for Physicotherapy. J. Riviere.—p. 948.

Polymorphism of Lethargic Encephalitis.—Gordon states that lethargic encephalitis is a protein disease with its histologic characteristics of a definite type but with a great variety of localizations throughout the entire central nervous system.

Treatment of Cutaneous Anthrax.—The introduction of anti-anthrax serum directly into the body of the lesion itself by means of several small injections around the periphery of the eschar is endorsed by Graham. The method was evolved by Joseph C. Regan. He uses from 7 to 10 c.c. locally, once daily, and at the same taime administers from 20 to 40 c.c. intramuscularly, or intravenously, if the bacillus is found in the blood. At Bellevue Hospital, where this idea has been put into effect in a routine way, they have not been so conservative, for there they have used the serum intravenously in all cases, and have repeated the doses locally and in the vein every four hours for several days at a stretch, without any serious or even especially unpleasant consequences. Practically all the cases this year have been treated by this method. The death rate in 1920 has been 10 per cent., only two of twenty patients so treated succumbing to the disease.

Pennsylvania Medical Journal, Harrisburg

November, 1920, **24**, No. 2

Practical Points in Heart Diagnosis. S. C. Smith, Philadelphia.—p. 49.
Errors and Oversights Resulting from Use of Blood Pressure Apparatus. G. E. Hein, Pittsburgh.—p. 55.
Transient Auricular Fibrillation. J. D. Heard and A. H. Colwell, Pittsburgh.—p. 59.
Treatment of Complicated Cleft Palate. J. B. Roberts, Philadelphia.—p. 64.
War Surgery of Face and Jaws as Applied to Injuries and Deformities of Civil Life. R. H. Ivy, Philadelphia.—p. 69.
Tuberculosis and Its Relation to Industrial Medicine. M. R. Taylor, Philadelphia.—p. 72.

Philippine Journal of Science, Manila

June, 1920, **16**, No. 6

Philippine Euphorbiaceae, III. E. D. Merrill.—p. 539.
*Determination of Glucose and Starch by Alkaline Potassium Permanganate Method. F. A. Quisumbing.—p. 581.
Growth of Rice as Related to Proportions of Fertilizer Salts Added to Soil Cultures. S. F. Trelease.—p. 603.
Social Bees of Philippine Islands. T. D. A. Cockerell.—p. 631.
*Protozoologic and Clinical Studies on Treatment of Protozoal Dysentery with Benzyl Benzoate. F. G. Haughwout, E. Domingo and W. De Leon—p. 633.

Determination of Glucose and Starch.—A new method for the analysis of starch and glucose has been developed by Quisumbing and applied to the determination of starch in commercial starch and flour. The method gives results as accurate as the Munson and Walker method with commercial starch. However, it cannot be used with flour with the acid hydrolysis method. For the determination of the latter, the saliva or the diastase method should be used. In either case, the alkaline potassium permanganate is practically as reliable as the Munson and Walker method.

Benzyl Benzoate in Protozoal Dysentery.—A case of acute balantidiosis, complicated by infections with hookworm and trichuris, was treated with benzyl benzoate. At the time treatment was started, twenty-three days after the onset of the disease, the patient was exhausted and apparently near to death. The abdominal pain and tenesmus associated with the dysenteric process disappeared within twenty-four hours after treatment was started and did not return again, even after treatment was stopped twenty-four days later. The parasites showed a tendency to diminish in numbers in the feces until the eighth day following the institution of treatment, when they suddenly appeared in the stool in immense numbers. On this day the stool was feculent, but contained mucus. No demonstrable tissue elements were found. Haughwout is inclined to regard this as the expression of a wholesale exodus of the ciliates from the tissues. He believes that had the patient not been under treatment, this "swarming" of the parasites would have been accompanied by pain, tenesmus, and the other symptoms constituting the dysenteric complex. That the patient did not exhibit the symptoms that ordinarily accompany the departure of such large numbers of parasites from the tissues is largely due to the selective action of benzyl benzoate. This drug, as Macht has shown, act in a manner similar to papaverin, in that it tends to inhibit peristasis of smooth muscle organs, and lowers their tonicity and relaxes their spasm.

July, 1920, **17**, No. 1

Military Surgeon and Civilian Practitioner. W. B. Banister, M. C., U. S. Army.—p. 11.
Obstetrics and Its Relation to Infantile Mortality. F. Calderon, Manila.—p. 19.
*Clinical Analysis of One Hundred Cases of Enterocolitis with Especial Reference to Edema, Dehydration and Putrid Odor of Stools. J. Albert and Fe Horilleno, Manila.—p. 27.
Complement Fixation Test for Syphilis; Incubation for Fixation at Ice Box Temperatures. J. W. Smith, Jr.—p. 31.
*Diphtheria in Philippine Islands. L. Gomez, A. M. Kapauan and C. Gavino, Manila.—p. 37.
Physician and Laboratory. J. E. Ash.—p. 47.
Keeping Qualities of Dried and Pulverized Vaccine Virus. O. Schobl.—p. 55.
Venom of Philippine Cobra (Alupong) Naja Naja Philippinensis. C. Monserrat, O. Schobl and L. E. Guerrero.—p. 59.
Clinical Forms of Panophthalmitis Observed in Philippine General Hospital. A. R. Ubaldo.—p. 65.
Corneal Paracentesis. H. Velarde.—p. 71.
Case of Pollakiuria Immediately Relieved by External Liberation of Pelvic and Iliac Portions of Ureter. J. Eduque.—p. 79.
Informal Presentation of Two Urologic Cases: Diverticulum of Bladder and Left Renal Calculus Complicated by Pyelitis. I. A. Pelzman.—p. 85.
*Streptococcus Hemolyticus: A Case Study. H. G. Johnson.—p. 91.
Clinical Studies on Lethargic Encephalitis. P. Lantin and W. Vitug.—p. 97.
Xeropthalmia in Fowls Fed on Polished Rice and Its Importance. L. E. Guerrero and I. Concepcion.—p. 99.
Dunham Fan in Roentgenograms. P. S. Seabold.—p. 105.
Disease Carrier Problem in Philippine Islands. C. Brillantes.—p. 109.
*Autoinfection, So-Called, During Puerperium. G. Rustia.—p. 119.

Enterocolitis.—Of the 100 cases analyzed by Albert and Horilleno, thirty-seven presented edema. Twelve patients died. Edema may be considered, therefore, as a not infrequent symptom of enterocolitis in children. It appears ordinarily after the first week of the onset of the disease, more commonly in the face; and, contrary to the opinions of others, the authors' experience has shown that when it appears at the end of the first week it usually means a favorable outcome. However, when it appears very late in enterocolitis with protracted course and frequent relapses, this symptom must be considered an unfavorable sign of prognosis, indicating chronic advanced toxemia or cachexia, or a complication of the kidney. Thirty-nine of the 100 patients presented dehydration, desiccation, exsiccation, or anhydremia, of which twenty-two died. It is therefore a sign of unfavorable prognosis. Putrid odor of stools was noted in eleven cases. Eight of these patients died.

Diphtheria in Philippines.—Diphtheria occurs in the Philippine Islands and shows practically the same clinical manifestations and bacteriologic and pathologic findings as in other countries. It is rather infrequent, and does not seem to be so contagious; nor does it develop in epidemic form. It occurs in all races and is more frequent in children during the first five years of life. In spite of antitoxin treatment, the mortality is higher than in other countries, which condition, Gomez says may be due to a greater prevalence of laryngeal cases. Postdiphtheritic paralysis is not of frequent occurrence.

Streptococcus Hemolyticus Infection.—Johnson records the case of a man, a victim of dementia praecox, who developed a sore throat. *Streptococcus hemolyticus* in nearly pure culture was obtained. Later, toxic symptoms became pronounced. A blood culture proved to be streptococcus. The case now resolving itself into a bacteremia and septicemia, the usual treatment of elimination, and alkalis and glucose by rectum was started. In addition, polyvalent antistreptococcus serum was given in 100 c.c. doses, every four hours, both intravenously and subcutaneously. The administration of the serum was continued throughout the disease. Blood cultures showed a diminution in the amount of growth. On the fifth day, the first metastatic involvement appeared in the metatarsophalangeal joint of the great toe of the right foot. The joint was opened and a small quantity of seropurulent fluid obtained. The same day the left knee became involved, and this went on rapidly to suppuration. Nearly overnight, a previously well joint would give signs of pus and have to be opened. The right knee, left ankle, left elbow, left knee, right wrist, right elbow, and right sacroiliac joints were all involved and were opened. A pure culture of streptococcus was obtained from the exudate from all the diseased joints. On the twelfth day, the right parotid gland became involved and progressed rapidly to a suppurative parotiditis, draining spontaneously through the external ear. During this time the blood cultures showed less and less growth until only a faint growth was obtained. Each culture showed the same organism. An autogenous vaccine was prepared and an initial dose of 2,000,000 given, and a second dose of 4,000,000. The serum was continued as before. About eight hours after the last dose of vaccine, the temperature suddenly rose to 104 F. the pulse became very rapid, and the patient was in extreme condition. The following morning, fluid was demonstrated in the right chest. The fluid showed streptococcus. The seventeenth day, a fluctuating swelling, the size of a grapefruit, was noted over the anterior aspect of the left chest. The area of cardiac dulness, and the dulness in the mass, and the fluid in the right and left chests, all merged together. Pus was obtained on aspiration. Approximately 200 c.c. of pus were removed through an incision. The abscess evacuated itself in spurts, and each spurt apparently corresponded to each heartbeat. The incision was enlarged and the cavity explored. An irregular hole, about the size of a 50-cent piece, was discovered through the intercostal muscles in the fifth interspace about the location of the costochondral junction of the fifth rib which was necrotic. The opening led directly into the pericardial cavity, and by inserting the finger into the same, the apex of the heart was felt distinctly under the finger. The patient died on the twentieth day. Necropsy demonstrated the pericardial sinus. The joint surfaces were eroded until the bare bone ends lay in direct apposition. Pus was obtained from the peritoneal cavity and from the spinal canal. This case was followed by another, with the primary infection in the lungs, which was demonstrated to be *Streptococcus hemolyticus* and went on to the same fatal termination, developing all the severe involvements, with the exception of the pericardium and joints.

Autoinfection During Puerperium.—Eighty cases were examined anterpartum by Rustia. The hemolytic streptococcus was present in fifteen cases; nonhemolytic streptococcus in three cases; bacteria other than streptococcus in fifty-three cases; sterile, nine cases.

So. Carolina Medical Association Journal, Greenville

November, 1920, **16**, No. 11

Hospital Standardization in South Carolina. J. R. Young, Anderson. —p. 270.
Significance of Nervousness in Children. J. F. Munnerlyn, Columbia. —p. 274.
Diphtheria. E. W. Carpenter, Greenville.—p. 278.
Epilepsy and Its Treatment. N. M. Owensby, Atlanta, Ga.—p. 279.
Institution of Rat Surveys. C. V. Akin.—p. 281.
Some Recent Experience in Kidney Surgery. G. T. Tyler, Greenville. —p. 284.

Tennesee State Medical Journal, Nashville

November, 1920, **13**, No. 7

Uterine Febroids. H. M. Tigert, Nashville.—p. 241.
The Dietetic and Medical Treatment of Gastric and Duodenal Ulcers. S. Harris, Birmingham, Ala.—p. 247.
Tabulations and Preliminary Observations of Reported Venereal Disease Cases. G. A. Hays, Nashville.—p. 253.
Milk in Its Relation to Public Health. M. Jacob, Knoxville.—p. 255.
The Cervix Uteri. V. D. Halloway, Knoxville.—p. 260.
Nutrition. J. T. Barbee, Knoxville.—p. 262.
A Plea for Early Operation in Puerperal Infection. J. H. Carter, Memphis.—p. 266.
A Consideration of Symptoms Due to Intracranial Pathology. B. F. Turner, Memphis.—p. 267.
Some Practical Points in Fractures. J. P. Baird, Dyersburg.—p. 269.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 27, 1920, **2**, No. 3126

Diagnosis and Treatment of Some Diseases of Endocrine Glands. G. R. Murray.—p. 807.
Fatal Case of Malignant Tertian Malaria Contracted in North of England. E. E. Glynn and J. C. Matthews.—p. 811.
Miner's Nystagmus: Suggestions for Its Prevention. D. L. Anderson. p. 813.
Coal Miner's Nystagmus and Its Predisposing Causes. A. J. Martin. p. 814.
*Treatment of Rheumatoid Arthritis by Vaccines. H. W. Crowe.—p. 815.
*Diphtheria Carrier of Unusual Type. J. Allen and D. R. Wood. —p. 818.
Life History of Ascaris Lumbricoides. F. H. Stewart.—p. 818.
Fibroma of Ileocecal Valve. J. C. Jefferson.—p. 819.
Intra-Uterine Diagnosis of Congenital Heart Disease. B. H. Stewart. —p. 819.
Cholecystitic Heart. H. L. Flint.—p 819.

Vaccine Therapy of Rheumatoid Arthritis.—The basis of the treatment in this series of 143 cases was the hypothesis put forward by Crowe in 1914, that rheumatoid arthritis is primarily due to *Staphylococcus epidermidis-albus* (var. deformans); that just as in tuberculosis, there are present in the majority of cases secondary infections, with or without a local focus; that these secondary infections cause the variety of joint manifestations; that where the radical treatment of a local infective focus, with or without vaccines, results in amelioration or cure of the disease, the explanation is that the system, relieved of some of its microbic enemies, had then been strong enough to overcome the primary organism; and, finally, that the *M. deformans* or its toxin acts primarily on the nervous system and are responsible for the neuropathies which are the predominating, if not the sole, symptom of uncomplicated rheumatoid arthritis.

Unusual Diphtheria Carrier.—In the case reported by Allen and Wood, the mother of a family had a small area of impetigo on the scalp; a swab from this was returned showing *B. diphtheriae.* She also had *B. diphtheriae* in the throat. The series of cases reported indicate very strongly the necessity of swabbing all contacts in the home irrespective of age and also of searching for and examining any other lesions.

Indian Journal of Medical Research, Calcutta

April, 1920, **7**, No. 4

Best Method of Obtaining Precipitating Antiserums. W. D. Sutherland and R. G. C. Mitra.—p. 669.
Technic of Agglutination. W. F. Harvey.—p. 671.
Production of High Titer Serums. W. F. Harvey.—p. 682.
Pellicle Formation in Broth Culture by B. Cholerae. K. R. K. Iyengar.—p. 701.
*Preparation of a Simplified Culture Medium for Field Workers. D. Norris.—p. 704.
Summary of Recent Observations on Anopheles of Middle East. S. R. Christophers.—p. 710.
Malaria of Monkeys. C. Donovan.—p. 717.
Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. J. F. Caius and K. S. Mhaskar.—p. 722.
Dracontiasis in Animals; Guinea-Worm in a Cobra. D. A. Turkhud. —p. 727.
Arthropods of Medical and Veterinary Importance in Mesopotamia; Their Relation to Disease. I. Gad Flies of Mesopotamia. W. S. Patton.—p. 735.
Id. II. Mesopotamian House Flies and Their Allies. W. S. Patton. —p. 751.
*Use of Hydrocyanic Acid Gas for Fumigation. W. G. Liston.—p. 778.
Standardization of Disinfectants with Special Reference to Those Used in Chemical Sterilization of Water. S. R. Christophers, K. R. K. Iyengar and W. F. Harvey.—p. 803.
*Etiology of Sprue. T. Heaton.—p. 810.
Hook Worm Infection in United Provinces. J. W. D. Megaw.—p. 840.

Simplified Culture Medium; Caseinogen.—The preparation of a dry nutritive powder from caseinogen is described by Norris. This powder does not require the addition either of peptone or extractives but may be made up into solid nutritive medium merely by the addition of agar and normal saline or tap water. It is obvious, therefore, that it would be extremely useful for field workers both on account of its portability and the extreme ease with which it can be made into culture medium. It is suggested that the name "trypsinoids" be given to the powder. Similar experiments with ordinary brewers' yeast fresh and dried are described but it would appear under the conditions tried that caseinogen yields the more nutritive powder of the two.

Fumigation by Hydrocyanic Acid Gas.—Hydrocyanic acid gas is an effective disinfectant for bubonic plague and certain other diseases transmitted by porters or intermediary hosts. The disinfecting action of this gas is not due to the direct action of the gas on the germs which cause these diseases but to the fact that it kills the animals or insects which harbor these germs and protects them from the natural agencies which bring about their destruction. Owing to its characteristic odor, and to the existence of simple and delicate chemical tests for its detection, this very poisonous gas can be used safely by persons who exercise a moderate amount of caution. In addition to these important advantages the gas does not injure the most delicate fabrics or metals; it does not render food unfit for consumption; grain will germinate after exposure to the gas. Heat is not required for generating the gas so that the danger of fire is avoided and the gas is lethal for vermin in so low a concentration when mixed with air that it is not then explosive. The chemicals for generating the gas are easily and cheaply obtained. The gas is very diffusible, it can rapidly penetrate between grain bags and other cargo where rats find shelter. It even penetrates for some inches into grain stored in bags or spread on a floor; it is easily and rapidly removed from rooms or holds by free ventilation. The details of its use, including apparatus are described by Liston.

Etiology of Sprue.—The peculiarities of the incidence and geographical distribution of sprue Heaton says point to a physiologic rather than to an infective cause. The immediate relief from all infective symptoms in response to nonspecific treatment is contrasted with the very slow and uncertain recovery of the digestive function. This also is taken to indicate that the digestive failure is the essential disability, and the infection secondary. The prominence of infective processes in the mouth in most sprue cases, and their tendency to relapse, cannot be explained by any physiologic failure of digestion. It is, however, even less easily explicable by any infective hypothesis, for it is in origin physiologic, depending essentially on lowered resistance; the actual infecting organism is accidental and variable.

Journal of State Medicine, London

November, 1920, **28**, No. 11

State, Doctor and Venereal Disease. J. H. Sequeira.—p. 327.
Harben Lectures, 1920. Lecture II. Antigens and Antibodies. M. Nicolle.—p. 343.
Case of Oriental Sore Cured by Intravenous Injections and Inunctions of Antimonium Tartaratum. G. C. Low.—p. 354.

Lancet, London

Nov. 27, 1920, **2**, No. 22

*Chorea. C. Wall.—p. 1081.
Acute Rheumatism in Children Under Twelve Years of Age. F. J. Poynton, D. Paterson and J. C. Spence.—p. 1086.
Senecio Poisoning. A. R. Cushny and H. E. Watt.—p. 1089.
Malignant Growths of Upper Jaw and Antrum; A Survey of Notes of Thirty-Nine Cases. E. D. D. Davis.—p. 1090.
Disappearance of Mediastinal Neoplasm Under Roentgen Ray and Radium Treatment. R. T. Lewis.—p. 1092.
Present Epidemic of Scarlet Fever. J. Brownlee.—p. 1093.
Case of Epidemic Myoclonic Encephalitis with Recovery. M. W. Bulman.—p. 1093.
Plastic Operation to Restore Part of Ear, Using a Silver Wire Frame. H. Curtis.—p. 1094.

Chorea.—The results of a study made by the authors at the Hospital for Sick Children, Great Ormond-street, of a severe outbreak of acute rheumatism in children under 12 years of age are set forth in this paper. The total number of cases was 172. In 40 per cent. there was an hereditary tendency. Nearly 13 per cent. died and over 17 per cent. became complete invalids. The most frequent solitary manifestation of rheumatism is chorea. Twelve of these patients died. Sixty-six per cent. showed some heart lesion. The twenty-two deaths in this outbreak of rheumatism were with one exception due to carditis. The exception was death from vomiting, acetonemia and collapse, apparently the result of pushing sodium salicylate. The fatal cases of rheumatism most frequently commenced with an acute arthritis, rapidly followed by carditis. Stress is laid on the association of severe stiff neck with serious heart disease. The idea that children's rheumatism is an infection from the bowel the authors state is an hypothesis unsupported by clinical evidence.

Dec. 4, 1920, **2**, No. 23

Mental Hygiene. E. F. Buzzard.—p. 1127.
Influence of Great War on Modern Surgery. C. F. M. Saint.—p. 1130.
*Case of Hystero-Epilepsy with Delayed Puberty. Treated with Testicular Extract. T. C. Graves.—p. 1134.
*Milk in Tropics. R. J. Blackham.—p. 1136.

Hystero-Epilepsy with Delayed Puberty.—Graves cites a case of hystero-epilepsy, associated with delayed puberty, observed in a twin, and successfully treated with testicular extract. A point on which he lays special stress. He says that the therapeutic value by oral administration of extracts of organs having internal secretions (apart from the thyroid and pituitary) has been the subject of skepticism on the part of some pharmacologist, and at best they have been regarded as having only a psychotherapeutic value as placebos, but in his case a real psychotherapeutic effect appears to have been produced. It is noteworthy that two observers found the same thing, namely, a diminution in the intensity of the symptoms when one tablet was administered and a nonrecurrence of the condition when fully under the influence of two tablets.

Dried Milk in Tropics.—Dried milk is a valuable food which has a wide sphere of usefulness, not only in the feeding of infants and invalids, but in domestic and commercial cookery. For use in the tropics and in places such as Malta, where cow's milk is unobtainable and goat's milk dangerous, it has a large range of application, and on long voyages it presents many advantages over condensed milk. From long and varied experience of its use in war and peace Blackham is inclined to think that milk powder presents the only solution at present available of the manifold problems associated with "milk in the tropics."

Medical Journal of Australia, Sidney

Oct. 9, 1920, **2**, No. 15

Intestine Obstruction. W. D. Upjohn.—p. 353.
Rôle Played by Physician and Surgeon in Treatment of Exophthalmic Goiter. W. J. S. McKay.—p. 357.

Oct. 16, 1920, **2**, No. 16

Present Problems of Visceral Syphilis. R. R. Stawell.—p. 371.
Suppurative Middle Ear. F. Andrew.—p. 376.
*Value of Oil of Chenopodium in Treatment of Strongyloides Infection. H. H. Willis.—p. 379.

Oil of Chenopodium in Strongyloides Infection.—The treatment employed by Willis consisted of the administration of oil of chenopodium, 0.06 c.c. for each year of age up to 20 years and 1.5 c.c. for adults, given as a single dose on an empty stomach and followed in one hour by a purgative dose of magnesium sulphate. Preliminary purgation was not deemed necessary. Fifty-eight persons were treated. This treatment was repeated after seven days, the same dose being given.

Medical Journal of South Africa, Johannesburg

September, 1920, **16**, No. 2

Venereal Disease in Transvaal Schoolchildren. C. L. Leipoldt.—p. 25.
Retrospect on Four Thousand Cases. G. P. Mathew.—p. 31.
Suicidal Strangulation. G. J. M. Meile.—p. 35.
Impressions of the Durban Congress. C. L. Leipoldt.—p. 36.

Archives Médicales Belges, Liége

July, 1920, **73**, No. 7

The Pathology of Charles the Fifth. Van Duyse.—p. 563.
*Heredity of Gastric Secretion. F. Dauwe.—p. 578.
*Early Postarsenical Neurosyphilis. R. Lakaye.—p. 587.

Heredity of Gastric Secreting Functions.—Dauwe describes twelve striking examples of inherited achylia or hypersecretion. One man had recurring attacks of pain and other disturbances from gastric ulcer, the first hematemesis at 25. Necropsy at 62 showed a perforated ulcer and scars of two ulcers at different points. The mother had had several attacks of hematemesis and other symptoms of gastric ulcer, and the man's brother has stenosis of the pylorus from cicatricial healing of an ulcer. Dauwe has been impressed with the longevity of families in which hypersecretion is common. It seems to be a local expression of general vigor. The teeth are usually good and the spirits, outside of pain periods. The families in which achylia is common have poor teeth, little appetite, rapid intestinal digestion, and tendency to atony. The gastric achylia develops at a certain period in life just as the members of a family may all become bald at about a certain age.

Postarsenical Neurosyphilis.—Lakaye's seven cases testify that meningosyphilis and neurosyphilis may develop early, after arsphenamin treatment, before the subsidence of the chancre. The Bordet-Wassermann reaction was positive in all while they had the chancre; the symptoms of the neurosyphilis developed suddenly from five weeks to three months after the last injection of the first series. It had been supposedly adequate, from 3.9 to 5.4 gm. in two months and a half. There had been no symptoms calling attention to the nervous system. Lumbar puncture at the close of the series might have given a hint, but it is difficult to persuade patients to allow this. By following the arsphenamin course with a course of mercury at once, it might have been possible to ward off this early neurosyphilis. Three of the men presented facial paralysis, one optic neuritis, as also one woman, and one man had auditory neuritis with deafness. All recovered under combined treatment with small doses.

Bulletin de l'Académie de Médecine, Paris

Nov. 9, 1920, **84**, No. 35

Frequent Adulteration of Potassium Boro-Tartrate. P. Marie and others.—p.. 209.
*Surgery of Double Ureters. F. Legueu.—p. 213.
Athrepsia and Congenital Syphilis in Indo-China. A. Thiroux.—p. 215.
Benzyl Cinnamate plus Cholesterin to Immunize Against Tuberculosis. F. Barbary.—p. 218.

Surgery of Double Ureters.—Legueu found twenty-two instances of double ureters in the last few months; they were revealed by pyelography. This demonstrated in five of the cases that the lesion in the kidney was localized around the opening into one of the double ureters, while the rest of the kidney seemed to be sound. It thus proved possible to excise the diseased portion, leaving a sound ureter in the sound part of the kidney. In one case of bilateral renal tuberculosis, he resected part of the left kidney, leaving the sound part with the sound one of the double ureters. After recovery from this, he removed the right kidney entire; the patient is now doing well with only one kidney and the top of this kidney amputated.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 22, 1920, **44**, No. 31

Intercurrent Epidemic Encephalitis. Sicard.—p. 1243.
Cerebrospinal Fluid in Diphtheric Paralysis. De Lavergne.—p. 1246.

Bulletin Médical, Paris

Oct. 30, 1920, **34**, No. 51

Reinfection with Syphilis Three Years After Arsphenamin Treatment of Syphilitic Chancre. G. Thibierge.—p. 953.
*By-Effects of Arsphenamin. P. Gastou.—p. 954.
*Specific Treatment of Tabes. M. Ferrand.—p. 960.
Chancres on the Head. C. Simon.—p. 970.

Accidents with Arsphenamins.—Gastou discusses the causes, prevention and treatment of the immediate, the early and the delayed undesired reactions with intensive arsenical treatment of syphilis. He emphasizes that the cause may be from the toxicity of the drug, the method of application, or the intolerance of the subject, or all combined, and that the treatment should take account of the previous condition, reactions to previous injections, whether the disease is recent, in full activity, and whether there is any indication of a reaction on the part of the nervous system or viscera. The urine should be examined before every injection and special caution is necessary if it contains bile pigments, albumin or much sediment. The injection should always be made extremely slowly, watching for the least untoward sign. The physician realizing his civic responsibility should keep the record of these cases written up in full to date, and a solution of epinephrin should always be at hand to combat any signs of intolerance.

Specific Treatment of Tabes.—Ferrand regards the discovery of the chronic meningovascularitis of tabes as one of the most important acquisitions of the French school of pathology of the nervous system. It accompanies every case of abes, and is responsible for a large number of the nontabetic nervous symptoms in the clinical picture. Prompt and vigorous treatment is indispensable, he reiterates, to arrest the evolution of this meningeal syphilosis. In the most favorable cases it may be possible to cure it before extensive and definite lesions of sclerosis and the consecutive degeneration have become installed. At least its progress can be retarded and the damage restricted. By systematic search for biologic and clinical signs of the incipient phase we can detect its first onset, and by striking hard at once may ward off further damage. Even with fully established tabes, specific treatment may mitigate many of the symptoms and arrest further rogress for a long time. Small, repeated doses are advocated y some while others prefer large doses at longer intervals. He summarizes the experience of certain leading syphilologists in this line to date.

Gynécologie et Obstétrique, Paris

1920, **1**, No. 1

*Hypernephroma in the Uterus. H. Hartmann and A. Peyron.—p. 1.
*Obstetric Operations at Childbirth. G. Schickelé.—p. 19.
Influenzal Pneumonia Complicating Childbirth. E. Petersen.—p. 37.
Influenza at Copenhagen Maternity. E. Hauch.—p. 55.
Postpartum Lethargic Encephalitis. Couvelaire and Trillat.—p. 63.
Multiple Metastases with Ovarian Carcinoma. T. Cavour.—p. 71.
Congenital Lipomas in Round Ligaments. J. Ducuing.—p. 81.

Hypernephroma in the Uterus.—Hartmann and Peyron found in a case of abdominal tumor that a mass of tissue, resembling a putrid placenta, projected into the vagina. The patient was a woman of 58 in a grave septic condition, weak from repeated losses of blood. The uterus was curetted, bringing out large quantities of a soft, friable tumor tissue, part blackish and part a pinkish gray. A round hard mass that felt like a fibroma was left unmolested. Two months later abdominal panhysterectomy revealed that the tumor was an epithelioma of the uterus with the typical structure of a cortical hypernephroma. They have found eleven cases on record of hypernephroma in the broad ligament or ovary, but none originating in the uterus. Peyron also casually discovered a small hypernephroma in the testicle of a horse, and Gaudier has reported a case of abdominal tumor in a girl of 4 with precocious sexual characters. After removal of the tumor, which proved to be a hypernephroma, the breasts retrogressed and the hair on the body dropped out, but the bones still showed deficiency of calcium, confirming the endocrine disturbance. In the twelve cases of hypernephroma in genital organs only two have been free from recurrence, and there were two operative fatalities from involvement of adjacent organs. In the case here reported, there was recurrence the third month and the seventh month, both in the cicatrix in the vagina, but the tumors retrogressed under excision and radium. When last seen, two or three months later, not a trace of the tumor could be discovered, and the general health was excellent. Hypernephroma cells seem to be peculiarly susceptible to the action of radium.

Obstetric Operations.—Schickelé objects to the expression "the surgical era in obstetrics," saying that the modern operations on the gravid uterus at term represent merely progress in the art of obstetrics. He does not see much future for symphysiotomy or pubiotomy on account of the lacerations and mortality, but extols the advantages of abdominal cesarean section with a longitudinal incision in the lower segment of the uterus, reached through a transverse incision in the vesico-uterine peritoneum. The danger of hemorrhage and of rupture later is the same as with the classic technic, but infection develops in the pelvis or subcutaneous tissue and not in the peritoneum. He describes four successful cases of the kind with infection already installed in a contracted pelvis. Another series of cases described show the preferable technic when there is cancer of the uterus or rectum, or dystocia from other cause. With placenta praevia, he continues, statistics show a maternal mortality of from 8 to 10 per cent. and a fetal mortality of about 60 per cent. with the ordinary obstetric treatment while, with cesarean section, over 50 per cent. of the children have been saved and the risk for the mothers is scarcely more than 5 per cent. Those who died succumbed to their anemia rather than to the results of the operation, demonstrating that the decision to operate came too late. If the woman has been bleeding for several weeks or has a history of profuse hemorrhages at preceding childbirths, no time should be lost.

Paris Médical

Nov. 13, 1920, **10**, No. 46

*Treatment of Neurosyphilis. P. Ravaut, Arbeit and Rabeau.—p. 353.
*Blood Culture Medium. R. J. Weissenbach.—p. 363.
Familial Contagion of Lethargic Encephalitis. De Laroche.—p. 364.

Intraspinal Treatment of Neurosyphilis.—This communication from Ravaut's service in the Hôpital Broca relates the excellent results obtained with a hypertonic solution of neoarsphenamin mixed with the patient's own spinal fluid. The dose is from 4 to 6 mg. of the arsenical, and eight cases described demonstrate the benefit to be derived in meningomyelitis, tabes and general paresis when the most propitious moment for the injections is learned from the biologic reactions in the spinal fluid. Some bear the injections better than others; probably the meninges are less pathologic.

Citrated Blood Culture Mediums.—Weissenbach expatiates on the advantages of whole blood, citrated, and laked with ether as a culture medium for all the micro-organisms which thrive on albumin or hemoglobin. He has been using it for four years with constant satisfaction.

Presse Médicale, Paris

Nov. 13, 1920, **28**, No. 83

*Classification of Infectious Jaundice. M. Garnier and J. Reilly.—p. 813.
*Carbon Monoxid Poisoning. Legry and Lermoyez.—p. 816.
Friedmann's Treatment of Tuberculosis. M. Nathan.—p. 818.

Classification of Jaundice.—Garnier and Reilly warn that spirochetosis should be suspected in every case of febrile jaundice; return of fever after a phase of apyrexia confirms the diagnosis. But if the fever persists during the entire phase of the jaundice and drops gradually by lysis, then typhoid or paratyphoid should be incriminated. In certain rare, mild cases, the origin of the jaundice is still a mystery, but, jaundice without fever or general symptoms excludes spirochetosis. If the jaundice is intense, sudden waves of fever later suggest secondary infection. If, on the other hand, the jaundice is slight, the general health good, and slight subfebrile temperature is noted about the fifteenth day, attenuated spirochetosis should be suspected. Grave spirochetal jaundice in their experience was encountered five times more frequently than acute yellow atrophy of the liver. Certain micro-organisms seem capable of causing jaundice, but their invasion is not invariably accompanied with jaundice, or it may be so slight as to escape attention.

The Spinal Fluid in Carbon Monoxid Poisoning.—The blood in the cerebrospinal fluid may reveal the carbon monoxid long after it has disappeared from the blood stream. In a case described the lumbar puncture fluid was almost pure blood, confirming the assumption of a congestive and hemorrhagic process in cortex and meninges as part of the reaction to the poison.

Nov. 17, 1920, **28**, No. 84

The Reducing Power of the Tissues. H. Roger.—p. 825.
Resection of Cancer in Carotid Region. J. L. Roux-Berger.—p. 827.
*Prophylaxis of Oriental Ophthalmias. J. David.—p. 828.

Prophylaxis of Ophthalmia in the Orient.—David is chief of the medical service in Lower Galilee, and he lauds the effectual action of instillation daily into the eyes of 2 drops of a 1 per cent. solution of zinc sulphate to which has been added 5 per cent. of the 1:1,000 solution of epinephrin. This seems to cure and ward off ordinary catarrhal conjunctivitis and render conditions unfavorable for trachoma. He urges the systematic enforcement of this measure in all schools, factories, and other groups in countries where ophthalmia is common.

Progrès Médical, Paris

Nov. 6, 1920, **35**, No. 45

Torsion of Ovarian Cysts. A. Aimes.—p. 483.
*Presumptive Signs of Tuberculosis. E. Queyrat.—p. 487.
Auscultation of Twin Pregnancy. S. E. Bermann.—p. 489.
The Symptoms of Love as Depicted in Ancient Literature. V. Niclot. —p. 489.

Presumptive Signs of Tuberculosis.—Queyrat refers to the aspect of the skin and the general build, his deductions based on his personal observations of tuberculosis developing later.

Nov. 13, 1920, **35**, No. 46

Delbet's Polyvalent Vaccine. R. Dupont.—p. 495.
*Syphilitic Neuritis After Emetin. Bourgin.—p. 500.
*Sulphur Treatment of Psoriasis. Delanoe.—p. 501.

Syphilitic Neuritis After Injection of Emetin.—Two years after cure of a syphilitic chancre under arsphenamin, the man of 45 was given on account of dysentery an injection of emetin in the right shoulder. Less than twenty-four hours afterward flaccid paralysis had developed in the right arm, followed six months later by painful neuritis in the same arm. Under a vigorous course of arsphenamin the symptoms subsided but not to a complete cure. Bourgin recalls a similar case reported last year by Nicaud in which multiple paralysis developed in diphtheria not long after a course of emetin treatment.

Sulphur Treatment of Psoriasis.—Delanoe reports the case of an Arab woman cured in a week of rebellious psoriasis by Bory's method of intramuscular injection of 8 c.c. of a mixture of 1 gm. precipitated sulphur; 5 gm. guaiacol; 10 gm. camphor; 20 gm. eucalyptol, and 100 gm. sesame oil. The injections are made once a week, with local application of coal tar.

Pediatria, Naples

Oct. 1, 1920, **28**, No. 19

*Nutritional Disturbance and Sepsis in Infants. S. Maggiore.—p. 889.
*Familial Spastic Paraplegia. S. de Stefano.—p. 895.
*Congenital Cyanosis. L. Moncalvi.—p. 907.

Nutritional Disturbance and Sepsis in Infants.—Maggiore has found that infants presenting the grave types of nutritional disturbance known as "decomposition" and "toxicosis" all had bacteria in the blood stream. This was constant in the 600 infants examined. On the other hand, his experience testifies that the mild forms of nutritional disturbance were due to lack of the proper vitamins in the food. He presents evidence to sustain these assertions, and emphasizes the brighter outlook which this view of nutritional disturbance entails, as infection can be warded off from infants or cured by vaccine therapy, while the lack of vitamins can be corrected.

Familial Spastic Paraplegia.—De Stefano has encountered five cases in two families in the last year, and two other members of one of the families are known to have suffered from the same. In his five cases the paraplegia developed at the age of 16 months, 2½, 4, 5 and 6 years, and there was a history of syphilis in both families. The condition was progressive, both physically and mentally, one child at least in each family being an idiot. In conclusion he suggests that intraspinal specific treatment might be given a trial in such familial cases if the child is seen before the initial inflammatory meningeal reaction has entailed irreparable degeneration.

Congenital Cyanosis.—Moncalvi's long study of congenital cyanosis is based on a case under observation from the age of 2 months to 5 years, the child still living in fair health. The roentgen-ray and other findings testify that there is dextrocardia and situs inversus with congenital stenosis of the orifice of the pulmonary artery, and probably a patent arterial duct and interventricular septum.

Policlinico, Rome

Oct. 11, 1920, **27**, No. 41

*War Deafmutism. E. Podestà.—p. 1139.
*Purpura from Iodoform Poisoning. G. Aperlo.—p. 1148.
*Pilocarpin for Edema of Glottis. C. Arrigoni.—p. 1150.

Oct. 18, 1920, **27**, No. 42

Present Status of Mycosis of Respiratory System. C. Basile.—p. 1171.
Sarcoma of Tibia at Site of Trauma. A. Magi.—p. 1174.
Quinin and the Gametes of Malaria. A. Neumann.—p. 1177.
Methylene Blue as Adjuvant to Quinin. A. de Blasi.—p. 1177.

War Deafmutism.—Podestà's extensive experience has convinced him that hysteria is not responsible for the inability to speak and hear in all the cases of deafmutism among the soldiers. The emotional stress of the war is enough alone to explain it in many cases without invoking hysteria.

Purpura from Iodoform Poisoning.—Aperlo dressed with iodoform gauze a tuberculous fistula in the lumbar region of a girl of 3 with tuberculous spondylitis. When the dressings were changed the seventh day, the temperature began to go up, and indicanuria and tube casts with edema indicated nephritis. On suspicion of iodoform poisoning, the medicated gauze was changed for plain gauze and conditions improved for three days but then symptoms of hemorrhagic purpura developed, in both skin and bowel. The patches of purpura were restricted to the face and labia majora. The child had been under iodo-iodid treatment for three months, and was probably saturated with iodin and its salts, but immediate removal of the iodoform gauze warded off the fatal termination of the iodin poisoning, such as four Italian clinicians have reported.

Edema of the Glottis in Measles.—Arrigoni states that in a recent epidemic of 160 cases of measles, in six there was edema of the glottis, and it was promptly arrested in three by injection of pilocarpin. This was followed by profuse salivation, vomiting of mucus and sweating. The heart and lungs were watched over with care, and heart tonics given before and after the pilocarpin.

Oct. 25, 1920, **27**, No. 43

*Diabetes Insipidus and Infantilism of Pituitary Origin. G. Antonelli.—p. 1203.
Sodium Citrate in Pneumonia. G. Marcialis.—p. 1211.
Some War Surgery Experiences, G. Angioni.—p. 1213.

Diabetes Insipidus and Infantilism of Pituitary Origin.—Antonelli reports in detail a case in a young man in which by exclusion the pituitary seemed to be mainly responsible for the intense diabetes insipidus and the pronounced genital and somatic backward development. There was also moderate polycythemia with lymphocytosis and monocytosis.

October, 1920, **27**, Surgical Section No. 10

*Gastrocolic Fistula. A. Cividali.—p. 301.
Lessons from War Surgery. G. de Francisco.—p. 310.
*Heliotherapy and Surgical Tuberculosis. L. Negri.—p. 324. Cont'd.
Extraction of Bullet in Fourth Lumbar Vertebra. D. Taddei.—p. 336.

Fistula Between Stomach and Colon.—Cividali says that this can be suspected when there is fecal vomiting without symptoms of obstruction of the bowel, and rapid passage into the stools of substances ingested. A good test substance for the purpose is a suspension in milk or water of lycopodium seeds, as they slip easily through the fistula. The contents of the stomach pass unmodified into the colon, thus setting up irritation and bringing on diarrhea. Roentgenoscopy completes the diagnosis, and prompt operation cures as a rule. The case to which he calls attention is, he thinks, the one hundred and sixth on record in accessible literature. In a few instances the fistula grew up spontaneously, and in others it spontaneously closed after a gastro-enterostomy, but entero-anastomosis was the usual treatment. He cites Eisner's cases in which three years after the segment of the colon had been resected but left adherent to the stomach, the free ends merely closed with a few stitches, some of the contrast meal was seen to enter these excluded stumps. Three days later, however, they were free from bismuth, showing that they must participate in peristalsis. In exceptional cases it has proved possible to detach the colon and merely suture the gap left by what had been the fistula.

Heliotherapy in Surgical Tuberculosis.—Negri was able to apply heliotherapy successfully at Novara to twenty-five persons, including a number of cases of gland, and bone and joint lesions of the arms. With tuberculous lesions on the legs or in the vertebrae, the patients were taken into the clinic for as long as possible, and then allowed to continue the treatment at home. The altitude is only 216 meters above sea level, but excellent results were realized, even in a case of Pott's disease in which earning capacity was regained in a little more than a year. In one case the lesion in the knee was of twenty-five years' and in the neck and foot of ten years' standing. Thirteen of the patients were adults between 18 and 56, the others children from 3 to 16. In two of the cases the cure has been complete during more than six years to date. He emphasizes in the conclusion of this instalment that in all form of tuberculosis, reactivation of the skin is of the greatest importance.

Riforma Medica, Naples

Sept. 11, 1920, **36**, No. 37

*Extirpation of the Liver. A. Perroncito.—p. 830.
Congenital Cataract with Inherited Syphilis. S. Baldino.—p. 833.
*Ether-Oil Anesthesia by the Rectum. M. Balsamo.—p. 834.
Empyema and Abscesses in the Lungs. H. Lilienthal (New York).—p. 839.

Removal of the Liver.—Perroncito describes the results of anastomosing in dogs the vena porta and the vena cava and, after this had healed, removing the liver.

Ether-Oil Anesthesia by the Rectum.—Balsamo says of this form of anesthesia that there have been eight fatalities in a total of 2,500 cases in which it was applied. In his own 200 cases there were no threatening by-effects except in one instance in which a blunder had been made in the technic, but in three cases there was slight postoperative intestinal hemorrhage. In one of these the anesthesia had been applied five times in succession for a series of operations in reconstructing the nose. Tenesmus was never observed, nor any unfavorable action on liver or kidneys. This method of anesthesia, he declares, has a number of advantages and no contraindications, and does away practically with the necessity for an anesthetist. He adds that it may have been a coincidence, but the fact remains that during the same period there were a number of cases of postoperative pneumonia and bronchitis with other methods of anesthesia but none in these rectum cases. In hard drinkers the anesthesia was not always complete but was easily supplemented with a few whiffs by inhalation, as also when the ether-oil was expelled at once. This occurred in 50 per cent. of the children but rarely in adults. The operations were of all kinds, from mastoid operations to amputation of the thigh and nephrectomies.

Sept. 18, 1920, **36**, No. 38

*Anaphylactic Iritis. A. Mazzei.—p. 853.
*Medical Treatment of Incipient Cataract. N. Scalinci.—p. 854.
Finding of Uric Acid in Sputum. G. Felsani.—p. 858.
Immunity Phenomena in Protozoan Diseases. G. Galeotti.—p. 860.

Anaphylactic Iritis.—Mazzei found the reaction in the injured rabbit iris much more pronounced after a second injection of the serum than after the first injection. He accepts this as a manifestation of anaphylaxis.

Medical Treatment of Incipient Cataract.—Scalinci refers to cataract developing in persons with a special diathesis or dyscrasia. He recalls that an iodid solution undoubtedly passes into the interior of the eye and may restore the local metabolism to approximately normal and thus arrest the tendency to opacity. Favorable results have been reported from electrolytic introduction of iodin salts but this, like subconjunctival injections, must be reserved for exceptional cases. On the other hand, the iodid collyrium and bathing the eye with iodid solution are simple and easy procedures. The solution should not be stronger than 0.25 or 0.5 per cent. at first. Smarting usually indicates that the drug is not pure. He prefers a 1 per cent. solution of sodium iodid or rubidium iodid with addition of a trace of calcium phosphate. No benefit can be anticipated with secondary, congenital or stationary cataract. The best results are obtained when the lens is first beginning to show a tendency to opacity, especially incipient diabetes. The lens may still be transparent but changes in refraction show disturbance in the molecular imbibition of the hydrogel of the lens, and conditions may be restored to normal by the local iodid treatment. The widest field for its application is incipient senile cataract of the subcapsular, cortical type, which may be regarded as a manifestation of dyscrasia. The diathesis or dyscarsia should be combated at the same time. Dor asserts that of every ten patients with incipient cataract, eight can have the process arrested, one can be cured and only the tenth finds his condition not modified. Others are less enthusiastic, but Scalinci remarks in conclusion that this local iodid treatment is well worth a trial.

Archivos Españoles de Pediatría, Madrid

April, 1920, **4**, No. 4

Lethargic Encephalitis. E. Suñer Ordoñez.—p. 193.
Child of Six Sleeps in Lethargy for Month. E. A. García Sierra.—p. 204.
*Postdiphtheric Paralysis. A. R. Lozano.—p. 208.

Generalized Postdiphtheric Paralysis.—The diphtheria in the boy of 3 had not been recognized or treated, but the pains, head drop and generalized paralysis about a month after the febrile sore throat improved rapidly under antitoxin treatment. He was given a total of 20,000 units, 5,000 units on alternate days, and by the end of the month the only trace left of the paralysis was the loss of the knee jerk and an almost imperceptible difference in the use of the right leg.

June, 1920, **4**, No. 6

Acute Nephritis in Children. L. Morquio.—p. 321.
Syphilis and Marriage. A. E. A. Sainz de Aja.—p. 340.
*Rheumatism plus Chorea and Endocarditis. F. Viñals.—p. 351.

Rheumatism, Chorea and Endocarditis.—The boy of 3½ had acute articular rheumatism and before the month was out had developed both chorea and endocarditis. Then, under sodium salicylate, from 1.5 to 2 gm. daily, for three weeks, and then Fowler's solution for a month, all the symptoms disappeared and recovery seemed to be complete.

July, 1920, **4**, No. 7

*Meningococcus Meningitis in Infants. A. Cavengt Gutiérrez.—p. 385.

Meningococcus Meningitis in Infants.—Cavengt reports five cases; the onset was slow and insidious, in some merely suggesting digestive derangement. The course of the disease in these cases was from fifteen to thirty days. The antiserum proved promptly effectual in three cases but in the others the child was not seen in time. The serotherapy was supplemented with bromids and baths, with disinfection of the upper air passages and heart tonics; one infant had to be fed through a tube in the nose as trismus prevented feeding by the mouth. It is better to err on the side of injecting the antiserum in the absence of meningitis than to omit it in a case of actual meningitis. In one child of 2 months the treatment was not begun until the tenth day but the severe symptoms promptly subsided without leaving a trace. Vaccine treatment may prove a useful adjuvant.

Archivos de Neurobiología, Madrid

September, 1920, **1**, No. 3

*Words Beginning with P in Mental Test. E. Mira López.—p. 241.
*Hallucinosis in Syphilitics. J. M. de Villaverde.—p. 251.
*Climacteric Epilepsy. J. Sanchis Banús.—p. 274.
Endocrine Derangement with Progressive Lipodystrophy in Young Woman. G. Marañon.—p. 290.

The Psychologic P Test.—Mira López comments on the fatigue when tests of mental function are long and exacting, calling attention to the advantages of a test by having the blindfolded subject repeat as many words beginning with the letter P as he can think of in the course of five minutes. The words are recorded as he speaks them, listing each fifteen-second group separately. This test arouses interest and is thus a better index of the actual intelligence than parrot-like repetition of words, while it throws light on the vocabulary.

Hallucinosis in Syphilitics.—De Villaverde reports three cases in which hallucinations developed three months and a half, ten months and two years after infection. They occurred during periods of excitement and more or less delirium. Hallucinations of hearing were more common than the visual, and sometimes there were ideas of persecution. The attacks lasted several days and recurred, but finally subsided completely under vigorous specific treatment, and in all the blood and spinal fluid responded normally to various tests after recovery. In one of the cases the young man developed dementia praecox a year later. In three other cases the complete picture of catatonia developed a year or two after infection with syphilis, but one of the young men had had similar attacks at times from the age of 15, and did not contract syphilis till 20. The spinal fluid gave normal responses in all of them and also the blood in the first two. He compares this material with the literature on psychoses in syphilitics.

Climacteric Epilepsy.—Sanchis Banús reports three cases in which women with an inherited neuropathic taint and signs of degeneracy, but nothing serious enough to interfere with ordinary life, developed epileptic seizures for the first time during the endocrine stress of the menopause; a fourth patient with a similar history had a positive Wassermann reaction and is omitted from this discussion. The seizures occurred during the menstrual periods. Under ovarian treatment and bromids they did not return in the one case under observation for three months.

Brazil-Medico, Rio de Janeiro

Sept. 25, 1920, **34**, No. 39

Otorhinolaryngology Lecture. Renato Machado.—p. 637.
*Staphylococcus Septicemia. O. Clark.—p. 639.

Staphylococcus Septicemia Without Suppuration.—Clark has encountered six cases of rheumatoid disease in almost all the joints, causing intense suffering, with areas of necrosis in the jaws, accompanied by continuous or remittent fever, and *Staphylococcus aureus* cultivated from the blood and alveolar pyorrhea. The necropsy findings are given in one of the cases. In Lane's book, he says, a case is illustrated in which a similar multiple rheumatoid arthritis with the staphylococcus in the blood was cured by colectomy. Elsewhere it is stated that in such cases *Streptococcus longus* was found in 88 per cent. and the staphylococcus in scarcely 12 per cent. Clark does not venture to decide whether the teeth or the bowels were primarily responsible in his cases.

Gann, Tokyo

March, 1920, **14**, No. 1. Paging refers to summaries.

Induced Metastasis of Chicken Sarcoma. K. Tatenuma and S. Okonogi.—p. 1.
*Incipient Gastric Epithelioma. K. Murayama.—p. 2.
Transplantable Mouse Tumors. T. Kimura.—p. 5.

Incipient Gastric Cancer.—Murayama found some defect in the muscular wall of the stomach at the site of the incipient cancer in three cadavers. The fate of epithelial hyperplasia in the stomach thus seems to depend on whether the muscle beneath is intact or not. The cancer once started, whether metastasis develops early or not seems likewise to be connected with the depth of the defect in the muscle.

August, 1920, **14**, No. 2

Nucleus Segmentation, etc., in Excised Carcinoma Tissue. K. Oshikawa.—p. 9.
*Suprarenal Tumors in Horses and Cattle. T. Kimura.—p. 10.

September, 1920, **14**, No. 3

Inoculation of Sarcomatous Tumors in Oriental Negro Fowls. Y. Kon and T. Fujii.—p. 21.
Resistance to Heat of Chicken Chondroma Cells. T. Takamori.—p. 24.

Suprarenal Tumors in Horses and Cattle.—Kimura has 40 specimens of tumors from the slaughter houses. They were nearly all located on the testicle or skin but 5 were in the suprarenals. He has found records in the literature of similar suprarenal tumors from 24 horses and 46 cattle. Those in the cattle were of cortical origin in all but 10 of the total 38, while they originated in the medulla in all but 2 of the 26 cases in horses. The histologic findings in his 5 cases are shown in three plates.

Deutsche medizinische Wochenschrift, Berlin

Sept. 23, 1920, **46**, No. 39

Prevention of Postoperative Adhesions. Eden and Lindig—p. 1069.
*The Surgical Treatment of Renal Calculi. M. von Brunn.—p. 1070.
Modified Method for Fixation of the Kidney. Von Mezö.—p. 1072.
*The Trousseau Phenomenon in Tetany. H. Schäffer.—p. 1073.
Roentgen Irradiation of a Distant, Large Field in Myomas and Metropathy. P. W. Siegel.—p. 1075.
Sensitization in Roentgenotherapy. L. von Rhorer.—p. 1077.
Outbreak of Nitrobenzol Poisoning in Infants. H. Ewer.—p. 1078.
Blood Pressure and Hypnosis. E. Lenk.—p. 1080.
Spread of Tuberculosis of Male Genital Organs. Praetorius.—p. 1081.
Latent Gout, Resulting Neuralgia; Treatment. Hesselbarth.—p. 1082.
*Technic of Cesarean Section. H. Martius.—p. 1082.
Deaf-Mutism from Practitioner's Standpoint. G. Brühl.—p. 1084.

Surgical Treatment of Renal Calculi.—Brunn cites eight cases of nephrolithiasis, in seven of which a cure was possible but in several instances only after serious and difficult intervention. He calls attention to the frightful inroads that renal calculi make on the parenchyma of the kidney when they are not removed in season. In all cases of renal calculi in which a spontaneous passing of the stones is unlikely owing to their size, prompt surgical intervention is strongly indicated. In the surgeon's hands the prognosis as regards a permanent cure is excellent.

The Trousseau Phenomenon in Tetany.—Since the Trousseau phenomenon has increasing importance in the diagnosis of latent tetany, Schäffer thinks that a more careful study of its mode of origin will throw light on attacks of tetany. He considers the question from three different standpoints: 1. Is the anemia produced by the pressure of the constricting band on the arteries of the upper arm essential in the production of the Trousseau phenomenon or is the manifestation due to stimulation of the nerve fibers? 2. If the cramp in the hand is due to nerve stimulation, is it the direct result of the stimulation of motor nerves or is it of a reflex nature due to excitation of sensory nerves? 3. Is the Trousseau cramp a form of tetanus or a purely tonic condition or a combination of both? He concludes that the Trousseau phenomenon in tetany is produced by the direct stimulation of the nerve trunks in the sulcus medialis. The arterial anemia in the arm is not essential. The phenomenon is of a reflex nature. The cramp is a form of tetanus. The participation of the tonic function of the muscle is at least probable. The action current curve of the muscle after a prolonged spontaneous tetanic attack resembles that of the voluntarily innervated muscle when in a fatigued condition.

Technic of Cesarean Section.—Martius divides the history of cesarean section into five periods and considers the progress made in each period. The ancients performed the operation only on the dead mother. Pliny reports that a member of the Julian family owed his life to this operation, and the Julians derive their cognomen "Caesar" from *caedo,* to cut, so that cesarean section does not get its name from Caesar but the Caesars derive their name from the operation. The first authentic operation on a living woman dates back to 1610, Trautmann of Wittenberg being the operator. In the third period, the Porro period, from 1876-1882, the mortality of the mothers was decreased but the uterus was sacrificed. In the fourth epoch, by means of better suturing methods a conservative obstetric procedure was established. This is the period of classic cesarean section. The fifth period, which extends down to our own day, is characterized by the endeavor to discover a better method for infected cases, which led to the introduction of extraperitoneal cesarean section. It has reduced the mortality rate very much. But Martius thinks that it has now outlived its day and is at the present time seldom indicated. In uninfected cases he thinks it is unnecessarily complicated, and in infected cases of the milder type he prefers the intraperitoneal deep cesarean section as being simpler from the technical standpoint, less dangerous for the bladder, and it does away with the extensive wounds of the connective tissue. In severe infections he recommends total extirpation of the infected uterus, or, in young women, if it seems inadvisable to sacrifice the fertility of the mother, he advises the perforation of the living, necessarily already more or less damaged child. In determining the degree of the infection, we must rely on the general clinical impression, the amount of fever and the character of the pulse.

Deutsches Archiv für klinische Medizin, Leipzig

Dec. 12, 1919, **131**, No. 1-2

*The "Focal Reactions." R. Schmidt (Prague).—p. 1.
Continuous Arrhythmia with Auricular Tachysystoly. D. Gerhardt.—p. 35.
Dilatation of the Heart. W. Weitz.—p. 47.
Elimination of Water Through the Lungs. R. Siebeck and J. Borkowski.—p. 55.
Work Hypertrophy of the Heart. Hasebroek.—p. 62.
*Test for Tonus Function of Stomach. O. Bruns.—p. 70.
Defect in Auricular Septum; Three Cases. H. Zeidler.—p. 85.
Urea Content of Blood in Health and Disease. Von Dolivo.—p. 109.

Focal Reactions.—Schmidt reiterates that any and every irritation affecting the organism severely enough is liable to induce focal reactions, whether the irritation is endogenous, exogenous, vaccines, protein bodies or drugs. With any acute infectious sore throat or attack of gout, etc., there is always a possibility that it is merely a focal reaction in some chronic latent pathologic condition in tonsils or joints or elsewhere. He emphasizes further the close analogy between the focal and general reactions induced with tuberculin and with parenteral injection of milk, and advises supplementing the tuberculin test with the milk test. If the response to both is practically the same, the specificity of the tuberculin reaction should be regarded with much reserve.

To Estimate Contracting Power of the Stomach.—Bruns has found that rapidly filling the empty stomach with air throws light on the degree of tonus at the time. A ureter catheter with a condom tied on the tip is easily swallowed, the other end connected with a bromoform manometer, and this records fluctuations in the size and pressure in the stomach. The intragastric pressure keeps at a certain level, the stomach contracting around the air or the food in the stomach. This explains why the contrast meal does not settle down by gravity altogether. He found further that the protrusion of the abdominal wall is not due to the stomach but to a local reflex in the wall. His charts and other data confirm the energetic peristaltic increase in the pressure which accompanies the sensation of hunger. Peristaltic waves in the empty stomach may be responsible for our growing hungry. His research demonstrated also the influence of vagotonia on peristole and peristalsis.

Jahrbuch für Kinderheilkunde, Berlin

1920, **93**, No. 4

*Action of Magnesium on Metabolism. E. Schiff and E. Stransky.—p. 205.
*Residual Nitrogen in Blood of the Newly Born. A. Bálint and E. Stransky.—p. 210.
*Protracted Intubation. J. von Bokay (Budapest).—p. 214.
*Congenital Atresia of the Duodenum. A. v. Koós.—p. 240.

Influence of Magnesium Ions on the Metabolism.—Schiff and Stransky tabulate findings which apparently demonstrate that after subcutaneous injection of magnesium sulphate the elimination of calcium in the urine was much increased and the retention of calcium reduced. This throws a new light, they say, on the rôle of the magnesium ions in metabolism. Any disturbance in magnesium metabolism, tending toward abnormal retention of magnesium, would derange calcium metabolism at the same time, and entail undue losses of calcium.

Residual Nitrogen in the Newly Born.—Bálint and Stransky found the residual nitrogen content of the blood abnormally high in thirteen of twenty newly born infants, but it declined to normal by the fifth or sixth day. They ascribe the common uric acid infarcts to this.

Protracted Intubation.—Von Bokay reviews his twenty-eight years of experience with intubation, and especially his seventy-three cases of prolonged intubation in which he used the bronze tube coated with gelatin and alum to cure pressure lesions after the ebonite tube had been worn for from sixty to 244 hours. The entire period of intubation with both in turn had been from 150 to 637 hours. Only 9.5 per cent. of the children were over 6, and 40 per cent. were infants. The success of the medicated tube was complete; only in four instances was there any disturbance a few weeks later, requiring temporary resumption of the intubation or removal of a small growth on a vocal cord. One child is not included in the above statistics as the girl of 5 required laryngotomy and still has to wear her laryngotomy tube.

Congenital Atresia of the Duodenum.—Von Koós did not dare to apply gastro-enterostomy to the child of 13 months with extreme debility from incessant vomiting. The operation had revealed what seemed to be an hour-glass stomach, and a ligament apparently binding down the stomach was resected and the abdomen sutured. The child showed only transient benefit, and necropsy revealed congenital atresia of the upper duodenum, the ballooning of the bowel above the atresia having simulated half of an hour-glass stomach.

Monatsschrift für Kinderheilkunde, Berlin

October, 1920, **19**, No. 1

*Wildbolz Urine Test for Tuberculosis. Eliasberg and Schiff.—p. 5.
*Clinical Significance of Residual Nitrogen. Stransky.—p. 10.
Relative Quantities of Albumins and Globulins in the Blood Serum of Infants. Schiff and Roser.—p. 15.
*Cholesterin Content of the Blood Serum. Strathmann-Herweg.—p. 20.
*Familial Situs Inversus. K. Ochsenius.—p. 27.
The Transmission of Acquired Characters. A. Peiper.—p. 44.

Biologic Test for Active Tuberculous Focus by the Response to Intradermal Injection of Patient's Own Urine.—During the previous four months Eliasberg and Schiff have been trying Wildbolz' method for the diagnosis of tuberculosis in children, which was described in The Journal, Aug. 9, 1919, p. 456, and Dec. 18, 1920, p. 1755. Altogether they examined forty children. They cannot confirm the statements of Wildbolz in every particular but think the method is worth using. In order to form a correct judgment in regard to the relationship between allergy in the individual and the reaction produced by the tuberculin-like substance in the urine, they made control tests in the case of most of the children. In one group of children they injected the urine of other, nontuberculous patients who had shown no reaction after the injection of their own urine. They also applied the urine test to other anergic and allergic children, using the urine of markedly tuberculous children, so that a large percentage of the children, some of whom were known to be allergic and some of whom reacted positively to their own urine, were also tested as to their behavior toward the urine of other children. All the children with a negative Pirquet reaction and without a frank tuberculous focus were found, on examination, not to have the tuberculin-like substance in their urine. Children who reacted to tuberculin were injected with the urine of these children and likewise showed no reaction. When these nontuberculous children were injected with the urine of frankly tuberculous patients they likewise gave no positive reaction. They regard the behavior of children so examined as furnishing proof of the specificity of the urine reaction. Further investigation, however, showed that the urine reaction of Wildbolz does not furnish an absolute criterion in regard to the activity of a tuberculous focus.

The Clinical and Prognostic Importance of Residual Nitrogen of the Blood in the Diseases of Childhood.—Stransky reports some of the results of his investigations on residual nitrogen in the blood of children. He made examinations in eighty-five cases, including fifty infants. He confirmed the finding of Balint that in the newborn, during the first few days, there is a high percentage of nitrogen in the blood, which diminishes toward the end of the first week. This increase may be connected with the appearance of the uric-acid infarct, and is probably caused by endogenous decomposition of protein or by cell decomposition. The increase is slight and has no clinical significance. In infancy the values scarcely differ from those of early childhood; the fluctuations are, however, more marked in infancy than in later years, for which reason slightly increased values must not be regarded at once as pathologic. Values ranging from 40 to 50 mg. per 100 gm. of blood were often found without accompanying pathologic symptoms. One possible explanation for the marked fluctuation in infancy is the fact that it is difficult to make the tests with the infant's stomach empty. Increased values in infants are mainly due to nutritional disturbances (alimentary intoxication, pedatrophy, dyspepsia). They are, in fact, pathognomonic for alimentary intoxication, but only persisting high values have any significance. In older children, nephritis is the principal cause of increased nitrogen values, but the nephritis is usually of an acute character, of short duration and of favorable prognosis.

The Cholesterin Content of the Blood Serum.—Strathmann-Herweg says that, if they are thriving, both breast-fed and artificially fed infants present normal cholesterin values in the blood serum, irrespective of whether their diet is rich or poor in fats. Children born prematurely are no exception to the rule. In exudative diathesis and in rickets certain variations from normal occur occasionally, but even here the values usually remain normal. Hypocholesterinemia was observed in anemia of various origin; also in infantile scurvy, and during the restorative process after disturbances of nutrition if unusually slow. In various infections—sepsis, pyodermia and tuberculosis—the values were usually normal but occasionally increased.

Familial Situs Inversus.—Ochsenius describes in two brothers, aged 6 and 12, respectively, two examples of heterotaxia and states that this is only the fifth case of familial situs inversus totalis in nontwins reported in the literature. Expatiating, he says that situs inversus is not a deformity in the true sense of the term. Both positions of the organs, the normal and the reversed, are only possible varieties of formation; it simply is true that the situs solitus vastly predominates. Situs inversus partialis is always to be regarded as a deformity and often gives rise to serious disturbances of development on account of the anomalous position of certain organs, whereas in situs inversus totalis developmental disturbances do not usually occur. Occasionally, however, duplication of organs occurs, a case having been described by Deselaers in 1912. Roentgen examinations are revealing, in recent years, more cases of anomalous position of organs than were formerly discovered.

Münchener medizinische Wochenschrift, Munich

Sept. 17, 1920, **67**, No. 38

*Metabolism Experiments in Grave, Afebrile Tuberculosis. E. Grafe.—p. 1081.
The Selective Affinity in Infection Processes. L. R. Grote.—p. 1083.
Septicemia Processes and the Effect of Measures Stimulating Function. W. Weichardt.—p. 1085.
Age and Sex in Relation to Osteomalacia. S. Hirsch.—p. 1087.
Environment in Relation to Ossification. Stettner.—p. 1091.
Arteriovenous Aneurysms of Common Carotid Artery and Cavernous Sinus in Relation to Pulsating Exophthalmos. C. Seyfarth.—p. 1092.
Improved Fluoroscopy of Internal Organs. Stein.—p. 1095.
Osteotomy for Rachitic Forward Curve of Femur. Boeckh.—p. 1095.
Collargol Treatment of Bladder Papillomas. G. Praetorius.—p. 1096.
"Use of the Term 'Coefficient' in Medicine." Marchand.—p. 1097.

Metabolism Experiments in Grave, Afebrile Tuberculosis.—Grafe says that from a practical standpoint it is important to know whether in afebrile tuberculosis there is an increase in the metabolism of the whole body in much the same manner as in carcinoma (Wallensteiner) and in leukemia (Grafe). On the basis of his observations over a period of years he feels himself in a position to decide the question. A table gives the results of his investigations in ten afebrile, very active, progressive, open, severe cases of tuberculosis. Of these ten cases only two showed no increase in metabolism, in one case the increase was very slight, while the others presented increases of from 20 to 36 per cent. He concludes that the gross calory requirement in severe, progressive tuberculosis, with the patient in bed and suffering from no marked dyspnea, no matter whether there is a moderate fever or no fever, is from 50 to 55 calories per kilogram of body weight, or about 1,500 calories per square meter of body surface. In cases with high fever, from 60 to 65 calories per kilogram, or about 1,700 calories per square meter are required for really adequate nutrition. In practice it may not be always possible to attain this standard, but we must strive for this goal.

Therapeutische Halbmonatshefte, Berlin

Sept. 1, 1920, **34**, No. 17

*Surgical Treatment of Pulmonary Tuberculosis. T. Naegeli.—p. 461.
The Drug Uzara. A. Gürber.—p. 465.
Caseinotherapy. N. Arweiler.—p. 470.
Gonorrhea and Its Treatment; Vaccinotherapy. C. Ahronheim.—p. 478.

Results of Surgical Treatment of Pulmonary Tuberculosis.—Quoting from Sauerbruch, Naegeli states that of 381 patients operated on, 134, or 35 per cent., have been cured to the extent that for at least a year and a half after the operation they have been free from fever, present negative sputum and are able to perform their regular daily work. They were for the most part severe cases, resistant to internal, dietetic treatment for many years, cases that on account of large caverns and copious expectoration were especially dangerous as sources of infection. Naegeli reviews the outcome with the various methods of surgical treatment employed in recent years—among others, artificial pneumothorax; extrapleural thoracoplasty, which is to be considered if adhesions make artificial pneumothorax impossible; paravertebral resection (Sauerbruch), which consists of a more or less extensive resection of the first to the eleventh ribs; filling the lung cavities with paraffin (Baer); resection of the cartilage of the uppermost ribs on the ground that ossification of this cartilage has brought about a narrowing of the upper thorax aperture (Freund), and other methods of less established value. Naegeli thinks that the results of surgical treatment of pulmonary tuberculosis (which, of course, is indicated only if other measures have been persistently tried and have failed) have been very gratifying.

Wiener klinische Wochenschrift, Vienna

Sept. 9, 1920, **33**, No. 37

Central Processes in Perception of Colors. O. Pötzl.—p. 811. Conc'n in No. 38, p. 844.
Differentiation of Microsporia and Trichophytosis. Stein.—p. 815.
Gunshot Injuries and Operative Treatment of Peripheral Nerves. K. Preleitner.—p. 818.
Fats of Tubercle Bacilli as Antigens. Bürger and Möllers.—p. 820.

Sept. 16, 1920, **33**, No. 38

Germ-Free Circular Spaces Produced on Bacteria Slides by Metals, Metallic Salts and Volatile Bactericides. A. Luger.—p. 833.
Inclusion Bodies in Idiopathic Herpes Zoster. B. Lipschütz.—p. 836.
Operation on Pedunculated Gastric Myoma. E. Neuber.—p. 838.
Diphtheria Bacilli in Pleural Empyema. W. Goldschmidt.—p. 840.
Microscopic Observation of Capillaries. E. Weiss.—p. 840.

Zeitschrift für Kinderheilkunde, Berlin

1920, **26**, No. 5

*Ultraviolet Rays in Tetany. K. Huldschinsky.—p. 207.
Epilepsy in Children. J. Husler.—p. 239.
*Whooping-Cough Convulsions and Spasmophilia. K. Blühdorn.—p. 251.

Ultraviolet Rays in Tetany.—Huldschinsky treated six cases of spasmophilous rickets. Symptoms of tetany would disappear in from four days to four weeks; laryngospastic and clonic cramps even after the first intensive exposure. In five of these cases a reduction of the rachitic process was observed. It is recommended to administer lime during the first month of treatment, to assist the reduction of tetany, because rickets is not influenced by lime, while tetany may be wholly prevented by its use.

Convulsions in Whooping Cough.—Blühdorn recommends lumbar puncture and the simultaneous use of a narcotic in cases where spasmophilia or serous meningitis probably affect the etiology. Discussion of three fully described cases.

Zeitschrift für Tuberkulose, Leipzig

August, 1920, **32**, No. 5

*Index of Predisposition to Tuberculosis. H. Hollaender.—p. 257.
*Camphor in Treatment of Hemoptysis. K. Zehner.—p. 276.
Prevalence of Tuberculosis in Cattle in Europe. W. Seifert.—p. 283. Begun in No. 4, p. 206.

The Immunity Reaction and the Prognosis Index in Tuberculosis.—Hollaender has found that the blood serum of certain persons is not modified when tuberculin is added to it, while others' serum shows more or less turbidity or precipitation. The serum of children usually behaves like that of the parents. His research seems to indicate that the element causing the precipitation is a specific antitoxin for the toxin of the tubercle bacillus. In other words, the reaction is an index of the individual's preparedness against tuberculous infection. This preparedness may fluctuate, the serum losing the precipitating property under certain conditions; he found this to be regularly the case in pregnant women near term and for a short time afterward. But they regained it then, and by building up the system and strengthening it in various ways and by prophylactic vaccine therapy the serum can acquire this precipitating property. The index is determined by adding to 0.5 c.c. of the centrifugated blood serum an equal amount of the tuberculin reagent. This reagent is made by diluting the official solution of tuberculin tenfold with physiologic sodium chlorid solution containing 0.5 per cent. phenol. The reagent is poured on top of the serum from a pipet to avoid mixing, keeping the line of contact distinct. The test tube is then corked and kept at 37 C. for twenty-four hours, handling carefully not to mix the two fluids. Then at the line of contact there will be found a more or less opaque zone between the two fluids or a loose ring of turbidity or a floating flake or merely a slight impairment of the transparency at the zone of contact, or both fluids may show no change and appear as evenly transparent as before. These different findings represent the different degrees of the defensive preparedness of the individual at the moment. They explain the true cause of the congenital or acquired predisposition to tuberculosis or the cause of the immunity. In the already infected, they show what the prospects are for throwing off the infection. Applied in connection with the tuberculin skin test, the findings class the subjects in ten grades. The skin tuberculin test reveals the *acquired* and the immunity serum reaction, the *natural* reaction to the tubercle bacillus toxin. Hollaender has found this index of great assistance in estimating the prognosis and guiding treatment at the institution in his charge at Budapest, and with its aid has produced a vaccine which, he says, seems to conform better than others to the requirements for prevention and cure.

Camphor in Treatment of Hemoptysis.—K. Zehner declares that camphorated oil must be regarded as the sovereign means to arrest profuse hemorrhage from the lungs. He theorizes to explain its action as mechanical and dynamic in both stasis and perforation hemoptysis. Volland has been very successful with subcutaneous injection of from 25 to 30 gm. of 10 per cent. camphorated oil. Zehner gives moderate doses of the 20 per cent. and has scarcely ever known it to fail.

Zentralblatt für Chirurgie, Leipzig

Sept. 18, 1920, **47**, No. 38

*Osteochondritis Deformans Juvenilis Coxae. E. Kreuter.—p. 1162.
Improved Method of Suturing Muscular Layer to Poupart's Ligament in Herniotomy. M. Linnartz.—p. 1165.
Treatment of Fistulas Following Bone Lesions and Osteomyelitis. A. W. Fischer.—p. 1167.
Improved Technic for Operation on Harelip. T. Escher.—p. 1169.
Plastic Substitute for Paralyzed Trapezius. Szubinski.—p. 1172.

Etiology and Pathogenesis of Osteochondritis Deformans Juvenilis Coxae.—Kreuter gives four illustrations from a bilateral case of this disease in a girl of 9. The findings in this case and the investigations of Pommer, which he discusses, lead Kreuter to conclude that this osteochondritis must be regarded as a type of arthritis deformans and cannot be considered a distinct disease process of the infantile hip joint as Perthes believed when he proposed the name "osteochondritis deformans." That the disease should present different phases when developing in the bones of children below the age of puberty than it does in adults and in old age is naturally to be expected. In view of the different structure of the bones in the various stages of life, the manner in which the function of the bones is affected would, of course, differ. Kreuter emphasizes that it is not a juvenile but an infantile disease type, for which reason the powerful endosecretory influence of the still quiescent "puberty glands" plays no part in its development. In agreement with Pommer he thinks that in the reported case the impairment in the elasticity of the articular cartilage was the primary disturbance, that the subchondral processes must be regarded as secondary, and that the deformity of the epiphysis is the result of functional factors.

Zentralblatt für Gynäkologie, Leipzig

Sept. 18, 1920, **44**, No. 38

A Heterologous, Mixed Tumor of the Uterus. R. Schröder and A. Hillejahn.—p. 1050.
*Sign of Threatened Rupture of the Uterus. W. Auer.—p. 1058.
Etiology and Diagnosis of Tubal Pregnancy. M. Hirsch.—p. 1062.

Alleged Sign of Threatened Rupture of the Uterus.—Auer reports, on the basis of his investigations in the Universitäts-Frauenklinik in Bonn, that, not only during the expulsion period but also in the first stage of labor, consequently several hours before birth is complete, it was noted distinctly in 12 per cent. of all cases of childbirth that at least on one side the round ligament was pushed above a horizontal line through the navel, notwithstanding the regular course of labor. Therefore he cannot agree with Zweifel in regarding the upward displacement beyond the navel of the insertions of the round ligaments as a sign of threatened rupture of the uterus. He admits, however, that owing to the small number of cases further investigation of the subject is necessary.

Zentralblatt für innere Medizin, Leipzig

Sept. 18, 1920, **41**, No. 38

*Effect on Diuresis of Sodium Chlorid. Brunn.—p. 657.

Effect on Diuresis of Sodium Chlorid in Water Intake.—Brunn remarks that, with greater knowledge and better appreciation of factors outside the kidneys, which bear on the secretion of urine, the problem of diuresis has become not only more complicated but has also increased in importance both from the physiologic and the pathologic standpoint. As the result of his experiments he thinks we must modify our views in regard to the effect on diuresis of sodium chlorid. His experimental subjects were given in bed 1 liter of water at 8 a. m. The urine was collected every half hour until 12 o'clock, measured, tested for specific gravity and the total amount of sodium chlorid secreted during the four hour period determined. When 1 liter of tap water was given, more than the amount of fluid ingested was secreted in three hours. When distilled water was substituted, diuresis was not only not checked but seemed rather more rapid. When 3 gm. of sodium chlorid were added, not quite the whole amount of fluid ingested was secreted in four hours. With 6 gm. added, not much more than 9/10 of the fluid intake was secreted in the urine. With from 9 to 12 gm. added, only 50 per cent. of the fluid ingested was secreted within four hours; with 24 gm. only 33⅓ per cent. In spite of the greatly increased sodium chlorid intake, the amount of sodium chlorid secreted in the urine in the four hour period was never much increased and was often decreased. With additions of 12, 18 and 24 gm. of sodium bicarbonate, diuresis was checked in much the same manner as by sodium chlorid. The addition of sugar to water always caused an increase of diuresis; 100 gm. of sugar to 1 liter of water produced 1,600 c.c. of urine in four hours.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 2, 1920, **2**, No. 14

Is Tuberculosis a Children's Disease? J. de Bruin.—p. 1268.
*Tuberculin Treatment. P. J. L. de Bloeme.—p. 1284.
History of Tuberculosis. J. P. K. de Zwaan.—p. 1291.

Oct. 16, 1920, **2**, No. 16

*Surgical Tuberculosis. O. Lanz.—p. 1511.
*Immunity and Tuberculosis. K. Edel.—p. 1522.
Vestibular Tests with Ocular Paralysis. Weve and Sonnen.—p. 1528.
*Forceps Delivery and Later Development. J. H. Engelkens.—p. 1538.
Vision and Choice of Occupation. A. Verwey.—p. 1542.
*Medical Subjects in Dutch Art. G. van Rijnberk.—p. 1555.

Tuberculosis.—This and the following series of articles are lectures delivered in a graduate course on different aspects of tuberculosis. De Bloeme's presentation of tuberculin treatment confirms anew that after thirty years the question of tuberculin treatment is still unsolved. Lanz says of bone and joint tuberculosis that if all curative hygienic-dietetic measures can be applied, the prognosis is not unfavorable. Treatment of tuberculous joint lesions in children should always be conservative. He emphasizes the necessity for not letting children creep and play around on the unprotected floor. The tubercle bacilli get into their mouths from their hands, and get into their intestines from their soiled slice of bread and butter. It would be a good plan, he says, if we followed the example of the Orientals and put off our shoes before entering the house. As to renal tuberculosis, the mortality after nephrectomy has been constantly declining until now it is less than 4 per cent. In conclusion he mentions the case of a young man free from pathologic antecedents who consulted him on account of a nodule in the epididymis. He advised a vacation with local and general sun baths. In three weeks the sun rays had acted like a cataplasm, lighting up the cheesy focus found in the epididymis, with perforation and fistula.

Immunity to Tuberculosis.—In discussing in particular the immunity of the skin to tuberculosis, Edel relates the case of a woman with lupus who developed pulmonary tuberculosis after the lupus had been cured. The lung lesions also subsided under treatment, but then the lupus recurred. He ascribes this to production of antibodies in one local process which kept the other local process under control; when this was cured, the other got a chance to flare up.

Forceps Children.—Engelkens has been reexamining children delivered by forceps. The total thus delivered at the Amsterdam and Groningen maternities, 1900-1914, was 448, but only 232 could be traced to date. Among these were 2 children with epilepsy, 2 with chorea, 2 who had had convulsions, 1 idiot, 1 with congenital torticollis, 2 imbeciles, and 4 feebleminded. But in this entire group other factors were manifestly responsible for the abnormality except in one of the epileptic children and possibly one of the imbeciles. His conclusion is that injury from forceps extraction properly done may be regarded as practically negligible.

Medical Subjects in Dutch Art.—In this instalment van Rijnberk reproduces six engravings showing the quack practice common in the sixteenth century of ostensibly cutting stones out of the forehead, the confederate under the table handing up the stones. Only one of the engravings shows the operator and the patient alone and so intent on the procedure that there is a possibility that this portrays a bona fide attempt to remove a calculus or foreign body.

Hospitalstidende, Copenhagen

Dec. 17 to 31, 1919, **62**, Nos. 51-53

*Involvement of the Rectum in Gonorrhea in Women. H. Boas.—p. 1377.
Herpetiform Dermatitis with Toxic Psychosis. H. Boas.—p. 1383.
Case of Recurring Myositis. R. M. Fog.—p. 1401.
*Recurring Papillomas in Larynx of Children. A. Plum.—p. 1405. Conc'n in No. 53, p. 1421.
Artificial Pneumothorax in Pleurisy with Effusion. E. Als.—p. 1431.

Gonococcus Infection of the Rectum in Women.—Boas found the rectum involved in fourteen of eighty-eight women with gonorrhea. The gonorrheal proctitis did not cause any special subjective or objective disturbance, and it proved amenable to treatment in most of the cases. This consisted in irrigation with a hot solution of potassium permanganate, retained in the rectum. He urges the necessity for examining for involvement of the rectum in every case.

Recurring Papillomas in the Larynx in Children.—Plum reviews the literature on this subject and the experiences in Schmiegelow's service with sixteen cases. Tracheotomy was required in two infants and in six of the nine given endolaryngeal treatment. The results with radium treatment of the recurring papillomas were very encouraging in two of the four cases in which it was applied. Otherwise the treatment consisted in laryngoscopy every two or four weeks and removal with excision with Paterson's clamp of any recurring papillomas. This had to be kept up from three to forty-nine months, with an average of two and a half years. The procedure was repeated in one case thirty-two times, but fourteen was the average.

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*Cardiac Arrhythmia; Auto-Observation. H. J. Vetlesen.—p. 1057.
*Spondylitis Deformans. F. Harbitz.—p. 1076.
*Local Anesthesia for Abdominal Operations. S. Widerøe and O. C. Borchgrevink.—p. 1086.
*Missed Delivery for Five Years. G. Schaanning.—p. 1103.
*Early Arteriosclerosis. O. Lie.—p. 1115.

Cardiac Arrhythmia.—Vetlesen describes in detail his own experience with recurring attacks of delirium cordis, the attacks growing constantly more numerous and longer until finally one lasted for sixty-nine days. It was arrested after failure of other measures by chinidin sulphate, which aborted also the seven attacks he has had since. He comments on his disinclination to submit his case to specialist diagnosis and prognosis—his longing was only for effectual treatment, the usual point of view of the patient, lay or medical.

Spondylitis Deformans. — Harbitz found the vertebrae fragile and porous and the spine bent and rigid in the woman of 72 who had suffered from pains in the spine at times for thirty years, accompanied sometimes by fever. The intervertebral disks had entirely disappeared, and the lumbar vertebrae displayed a tendency to crumble after dissection. There was also old arthritis deformans of the knees and hip joints. Everything testifies to the infectious nature of the spondylosis.

Local Anesthesia for Abdominal Operations.—The various methods for local anesthesia and nerve blocking are described and compared, and their application in 86 per cent. of 44 operations on the stomach; in 89 per cent. of 18 on the bile passages; in 43 per cent. of 28 operations on the intestines, and in 93 per cent. of 27 intra-abdominal abscesses. Gynecologic operations are the least adapted for these methods of anesthesia of all abdominal interventions, and Widerøe and Borchgrevink resorted to them only in 25 per cent. of their 25 operations of this kind in the given period. They prefer Braun's method of blocking the splanchnic nerves by infiltrating them with a needle 12 cm. long introduced down to the spine, between the aorta and the vena cava. This blocks also the celiac ganglion and the superior mesenteric plexus.

Missed Delivery.—Schaanning tells of a woman of 44 who after eleven years of sterility became pregnant, and at about the ninth month had a period of severe pain but no hemorrhage. The movements of the fetus were not felt after the eighth month, and at term there were pains suggesting labor but no other signs of delivery. She was healthy after this for five or six years, her abdomen somewhat enlarged, but otherwise apparently normal until a transient eczema brought her to a physician. He palpated a hard tumor in the abdomen, and extracted a fetus lying freely movable in the abdominal cavity, enveloped still in its membranes. The fetus measured about 40 cm. in length but there were no signs of irritation from its presence.

Arteriosclerosis in Relation to Dementia Praecox.—Lie has examined from this point of view seventy men and forty-two women with dementia praecox during the last three years. Peripheral arteriosclerosis was evident in 54.4 per cent. of the men and in 10.5 per cent. of the women. Syphilis could be directly incriminated only in two cases, but all the men and some of the women were tobacco users. Most had begun to use tobacco between 12 and 15, but one had begun at the age of 4 or 5 and one at 6.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 2 Chicago, Illinois January 8, 1921

THE PREVENTION OF DIABETES MELLITUS

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On the broad street of a certain peaceful New England village there once stood three houses side by side, as commodious and attractive as any in the town. Into these three houses moved in succession four women and three men—heads of families—and of this number all but one subsequently succumbed to diabetes. The remaining member of the group died of cancer of the stomach at the age of 77 years. A search for the cause of these deaths, untimely in the majority of instances, led to the accumulation of the data on which this paper is based. From the conclusions which the present analysis of 1,000 cases of diabetes suggests, it is hoped that eventually many similar deaths from diabetes mellitus can be prevented.

Although six of seven persons dwelling in these adjoining houses died from a single cause, no one spoke of an epidemic. Contrast the activities of the local and state boards of health if these deaths had occurred from scarlet fever, typhoid fever or tuberculosis. Consider the measures that would have been adopted to discover the source of the outbreak and to prevent a recurrence. Because the disease was diabetes and because the deaths occurred over a considerable interval of time, the fatalities passed unnoticed. Even the insurance companies failed to grasp their significance, and yet probably no group of individuals in the community carried pro rata a higher amount of insurance than did these six diabetics. Has one not a right to expect boards of health and insurance companies to make at least an attempt to prevent similar losses?

Perhaps one reason for this apparent negligence is the widespread pessimism concerning the possibility of prevention of chronic diseases in the latter half of life, in contrast to the optimism prevalent concerning the results accomplished in the prevention of acute infectious diseases in the early decades. It is true that statistics in the past have fostered this view, but that is no reason for believing they will support it in the future. Infectious diseases have been so thoroughly exploited that today the time is opportune to attack the problem of the chronic diseases on which already years of patient labor have been expended, with progress too little appreciated.

There are entirely too many diabetic patients in the country. Statistics for the last thirty years show so great an increase in the number that, unless this were in part explained by a better recognition of the disease, the outlook for the future would be startling. In 1900 the death rate from diabetes in the registration area of the United States was 10 per hundred thousand, and in 1915, 18 per hundred thousand. In the same period in Boston, it rose from 14 to 26 on the same basis. There are probably more than half a million diabetics in the United States. Therefore, it is proper at the present time to devote attention not alone to treatment, but still more, as in the campaign against typhoid fever, to prevention. The results may not be quite so striking or as immediate, but they are sure to come and to be important.

In seeking for means to avoid diabetes, one naturally inquires how, in the example of the country town cited above, the one who escaped the disease differed from the six who had it. What was there in the habits and temperament of this person to render him immune? All knowing the group would unhesitatingly answer that this one individual was of normal weight, and the others who developed diabetes were fat. Therefore, in what follows, obesity and its relation to diabetes will be discussed.

THE RELATION OF OBESITY TO DIABETES

The association of obesity and diabetes has long been noted. A few years ago an analysis of 1,063 of my own cases showed that in more than 40 per cent. of the number marked obesity preceded the outbreak of the disease, and the prediction was made that if more exact data were available the percentage would be fully twice as great. Writers generally have observed this connection, and von Noorden not only emphasized the necessity of examining the urines of fat persons for sugar, but also suggested that examinations of the blood sugar of fat persons would disclose their approach to the disease when the urine was sugar free. In other words, a prediabetic stage in fat persons has been recognized. But the closeness of the dependence of diabetes on obesity demands still more elucidation.

Recently, while compiling the data for age, height and weight of a series of 118 diabetics whose respiratory metabolism had been studied at the Nutrition Laboratory of the Carnegie Institution, it was found that persons above the age of 50 rarely acquired diabetes if their weight remained a little below normal, and, in general, the connection between obesity and diabetes was even more intimate than the literature showed. These statistics, although striking, were too few for generalities. Therefore, data from 1,000 successive cases of diabetes in which the age, weight and height were known have been compiled and are reported in this paper.

Such extensive and inclusive data have not been published heretofore. Even if one searches the best of the monographs on diabetes it will be found that the case records, while giving the weight, frequently fail to give the height. This unfortunate practice is not limited to diabetes. Indeed, it is only too true that during life patients are weighed, and at death they are measured, but in neither life nor death are both height and weight taken. This may explain why the data in this series of 1,000 cases throw additional light on obesity as a predisposing cause of diabetes, and at the same time suggest how the disease may be prevented.

COMPARISON OF DIABETICS AND NORMAL PERSONS BY WEIGHT

In comparing the weights of 1,000 cases of diabetes with normal persons, the tables were employed which are published by the Association of Life Insurance Directors and Actuaries of America [1] for those of 15 years or over, the tables of Wood [2] for those between 4 and 15 years of age, and those of Crum [3] for children up to and including the fourth year. In view of the errors incidental to clothes and heels and the inaccuracies on the part of the patient or friends, it seemed best to substitute for the normal average figure a normal zone extending from 5 per cent. below to 5 per cent. above it. Thus, if 100 pounds was shown in one of the tables as the normal weight, the normal zone would extend from 95 to 105 pounds. The percentages of weight below or above this normal zone are based on a comparison of the diabetic's age, height and maximum weight with the standard weight for the same age, height and sex. The maximum weight was usually coincident with the onset of diabetes. Regarding the maximum weight, care was particularly exercised to repeat the question in securing information, because patients are often forgetful, do not know, or hesitate to give the upper limit. Thus, a woman may state that her weight is the highest ever reached on the day of observation and give this as 160 pounds, whereas the scales show that it is 200 pounds. Regarding the height, also, the statements of the patients are most unreliable. An error of an inch would vitiate considerably the value of the conclusion. Consequently, it has been an invariable practice actually to measure the height.

TABLE 1.—VARIATION FROM NORMAL OF MAXIMUM WEIGHTS, AT OR PRIOR TO ONSET, OF ONE THOUSAND CASES OF DIABETES, CALCULATED FOR HEIGHT, AGE AND SEX

Age, Years	Number of Cases	Below Standard Weight, per Cent. 30-21	20-11	10-6	Normal Average Zone, per Cent. +5 —5	Above Standard Weight, per Cent. 6-10	11-20	21-30	31-40	41-50	51-60	61-70	71+	Percentage of Each Decade Below Normal Zone
1-10	16	0	3	2	5	3	2	..	..	1	..	..	..	31
11-20	59	2	11	8	24	6	4	2	1	..	1	..	..	36
21-30	131	..	15	13	41	15	29	9	4	..	3	..	2	21
31-40	178	1	9	12	28	22	34	25	15	14	10	6	2	12
41-50	291	2	8	7	31	19	59	59	40	30	18	10	8	6
51-60	223	..	4	7	16	28	39	48	45	14	13	5	4	5
61-70	84	..	..	2	8	10	17	23	14	7	1	1	1	2
71-80	18	..	..	1	6	3	2	3	2	1	..	..	..	6
1-80	1,000	5	50	52	159	106	186	169	121	67	46	22	17	

When Table 1 is read from left to right, it will be seen that in the first column are arranged the decades of onset. In the next column come the total number of cases in the decade. And next, arranged on each side of the standard weight zone, are columns showing the number of persons who are a given percentage below or above it. The last column to the right gives for each decade the percentage of the persons in that decade who were more than 5 per cent. below normal weight. Reading now across the lowest line of the table, we see the total number of cases for each percentage group below and above the standard.

The table shows that among 1,000 diabetic persons there was no instance in which diabetes occurred when the maximum weight was 31 or more per cent. below the normal zone, whereas there were 273 persons who developed the disease among those who were 30 or more per cent. above it.

If one examines the next pair of groups nearer the normal zone, namely, those between 21 to 30 per cent. below and above normal, it will be seen that these contain five cases below the normal in contrast to 169 above normal. Consolidating this pair of groups with those mentioned in the preceding paragraph, one might add that of 1,000 persons with diabetes there were only five who showed a maximum weight 21 or more per cent. below normal, while there were as many as 394 whose maximum weight was 21 or more per cent. above normal. Therefore, in this series, when the persons were 21 or more per cent. overweight, diabetes occurred seventy-nine times as frequently as when in the corresponding degree of underweight.

When analyzing the cases studied at the Nutrition Laboratory, I was challenged by the fact that no person above the age of 50 acquired diabetes whose maximum weight had remained 21 per cent. below the normal standard. It may be asserted that there are comparatively few persons in the community who are 21 or more per cent. below average weight, and that this accounts for the disparity. At the moment, no wholly satisfactory statistics are at my disposal to refute this assertion, because for these groups the statistics of insurance companies may not mirror the actual distribution by weight of the population as a whole. Fortunately, however, satisfactory data are available to

TABLE 2.—NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY MORTALITY INVESTIGATION, 1844-1905 *

Weight	No. of Persons
Normal	19,096
5 per cent. under	25,602
10 per cent. under	24,278
15 per cent. under	18,423
20 per cent. under	6,367
25 per cent. under	1,631
30 per cent. under	160
35 per cent. under	16
40 per cent under	4
5 per cent. over	14,379
10 per cent. over	9,437
15 per cent. over	6,704
20 per cent. over	4,441
25 per cent. over	2,640
30 per cent. over	1,521
35 per cent. over	843
40 per cent. over	356
45 per cent. over	161
50 per cent over	85
55 per cent. over	49
60 per cent. over	56
Total	136,249

* These statistics are "based upon insured lives and so represent healthy, selected individuals who have passed examinations for life insurance."

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1. Association of Life Insurance Directors and Actuaries of America, New York **1:** 38, 67, 1912.
2. The Ninth Year Book of the National Society for the Study of Education, Part I, Health and Education, Chicago, 1910, p. 34.
3. Quarterly Publication of the American Statistical Association, Boston **15:** 332, No. 115, 1916.

show the percentage of persons in the community who are in the next groups 6 to 20 per cent. below weight and 6 to 20 per cent. above weight (Tables 2 and 3). These tables were brought to my attention by the courtesy of Dr. Edwin Welles Dwight, medical director of the New England Life Insurance Company, who repeatedly has aided me in my statistical studies. It is proper to add that Dr. Dwight is not responsible for my conclusions. Of 136,249 insured healthy persons of the New England Mutual Life Insurance Company Mortality Investigation between the years 1844 and 1905, there were 74,670 who were from 5 to 20 per cent. below weight, and less than one half that number, 34,961, who were 5 to 20 per cent. above weight. Similarly, of 744,672 persons of the Medico-Actuarial Mortality Investigation, 1885-1908 inclusive, there were 472,271 who were from 5 to 30 pounds (not per cent.) below normal, and less than one sixth, 59,228, in the corresponding group above normal. Therefore, if weight were not a factor in the development of diabetes, one might expect to find twice (New England Mutual) or about six times (Medico-Actuarial) as many diabetics among the substandards as among the overweights.

Look at the facts. The table shows quite the reverse. In the 6 to 20 per cent. group underweight there are 102 cases, but in the corresponding group overweight there are 292 cases, or three times as many. Hence, persons in the community at large who are from 6 to 20 per cent. above weight are from six to twelve times as liable to diabetes as their counterparts in the same group below weight.

The table as a whole shows that of the 1,000 diabetics considered, the maximum weights of only 10 per cent. were below the standard weight zone, while 15 per cent. came in that zone and 75 per cent. above it.

If one examines by decades the relative proportion of those contracting diabetes who were 6 or more per cent. underweight, it is evident that as the decades advance the proportion changes from 30 per cent. to 2 per cent. There was but one patient out of eighteen underweight in the eighth decade. It is questionable whether a new series of 1,000 cases, with substandard persons more in mind, would show such wide variation between the early and the late decades. Great pains must be taken to secure the data of children, and repeated cross-questioning of the parents is necessary to secure reliable data. This subject will receive further attention in this paper.

For convenience, standard weight tables for adult males and females with clothes and heels are inserted (Tables 4 and 5).

TABLE 3.—MEDICO-ACTUARIAL MORTALITY INVESTIGATION, 1885-1908 INCLUSIVE *

Variation from Average Weight in Pounds	Number of Persons
—50 and more	1,685
—35 to —45	57,737
—25 to —30	207,486
—15 to —20	209,805
—10	28,894
— 5	26,186
Average	24,525
+ 5	20.412
+10	16,453
+15 to +20	22,363
+25 to +30	14,520
+35 to +45	54,295
+50 to +60	46,417
+65 to +80	12,119
+85 and more	1,775
Total	744,672

* These statistics are "based upon insured lives and so represent healthy, selected individuals who have passed examinations for life insurance."

TABLE 4.—GRADED AVERAGE WEIGHT OF MEN *

Age Group	5 Ft.	5 Ft. 1 In.	5 Ft. 2 In.	5 Ft. 3 In.	5 Ft. 4 In.	5 Ft. 5 In.	5 Ft. 6 In.	5 Ft. 7 In.	5 Ft. 8 In.	5 Ft. 9 In.	5 Ft. 10 In.	5 Ft. 11 In.	6 Ft.	6 Ft. 1 In.	6 Ft. 2 In.	6 Ft. 3 In.	6 Ft. 4 In.	6 Ft. 5 In.
15-19	113	115	118	121	124	128	132	136	140	144	148	153	158	163	168	173	178	183
20-24	119	121	124	127	131	135	139	142	146	150	154	158	163	168	173	178	183	188
25-29	124	126	128	131	134	138	142	146	150	154	158	163	169	175	181	187	192	197
30-34	127	129	131	134	137	141	145	149	154	158	163	168	174	180	186	192	198	203
35-39	129	131	133	136	140	144	148	152	157	162	167	172	178	184	191	197	203	209
40-44	132	134	136	139	142	146	150	154	159	164	169	175	181	187	194	201	208	214
45-49	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
50-51	135	137	139	142	145	149	153	157	162	167	172	178	184	191	198	205	212	218

TABLE 5.—GRADED AVERAGE WEIGHT OF WOMEN

Age Group	4 Ft. 8 In.	4 Ft. 9 In.	4 Ft. 10 In.	4 Ft. 11 In.	5 Ft.	5 Ft. 1 In.	5 Ft. 2 In.	5 Ft. 3 In.	5 Ft. 4 In.	5 Ft. 5 In.	5 Ft. 6 In.	5 Ft. 7 In.	5 Ft. 8 In.	5 Ft. 9 In.	5 Ft. 10 In.	5 Ft. 11 In.	6 Ft.
15-19	104	106	108	110	112	114	117	120	123	126	130	134	138	141	145	150	155
20-24	107	109	111	113	115	117	120	123	126	129	133	137	141	145	149	153	157
25-29	110	112	114	116	118	120	122	125	129	132	136	140	144	148	152	155	159
30-34	113	115	117	119	121	123	125	128	132	136	140	144	148	152	155	158	162
35-39	116	118	120	122	124	126	129	132	136	140	144	148	152	156	159	162	165
40-44	120	122	124	126	128	130	133	136	139	143	147	151	155	159	162	166	169
45-49	123	125	127	129	131	133	136	139	142	146	151	155	159	163	166	170	173
50-54	125	127	129	131	133	135	138	141	144	148	152	157	162	166	170	174	177

* Tables 4 and 5 are Table III, page 37, and Table VIII, page 66, of the Medico-Actuarial Mortality Investigation, Volume I, compiled and published by the Association of Life Insurance Medical Directors and Actuarial Society of America, New York, 1912.

DIABETES—A PENALTY OF OBESITY

Diabetes, therefore, is largely a penalty of obesity, and the greater the obesity, the more likely is Nature to enforce it. The sooner this is realized by physicians and the laity, the sooner will the advancing frequency of diabetes be checked. The penalty of taking too much alcohol is well known, and a drunkard is looked on with pity or contempt. Rarely persons who become fat deserve pity because of a real tendency to put on weight despite moderate eating, but usually most should be placed in somewhat the same category as the alcoholic. In the next generation one may be almost ashamed to have diabetes. Jewish patients, sometimes hypersensitive to physical ills, but often rightly anxious to take things in time, are already beginning to realize this fact. I was recently told by the relative of one patient who died under distressing circumstances following laxity in diet that the man's one desire was to avoid a death from diabetes, because this had been so common in his ancestry. It is all nonsense to use polite terms for being "just fat." It is generally prudent and always far more effective to say to the patient: "You are too fat," than cautiously to remark: "You are a trifle obese." Fat diathesis! Granted there is one person in a thousand who has some inherent peculiarity of the metabolism which has led to obesity, there are 999 for whom being fat implies too much food or too little exercise, or both combined.

THE SUBSTANDARD WEIGHT PATIENTS

Patients in the table who developed diabetes, though underweight, furnish a group for very particular study. They should represent a purer, simpler type of the disease. As this fact is now realized, subsequent cases falling into this class will be better analyzed and the number possibly reduced in size. On investigation of this series I have already found that twenty-nine of the 107 were really doubtful diabetics according to the more accurate standards of today. They include that dangerous group, "renal" diabetics, "insurance" diabetics who are sometimes acccepted as risks, and other extremely mild cases. There may be further reductions because a considerable number probably weighed more than is recorded, for the tendency of the statistical error, as has been already said, is in the understatement rather than the overstatement of weight. An hereditary and familial element was present in twenty-four, and among these there were eight examples of more than one case in the family. Several cases showed stigmas of degeneracy, and it is my impression that greater familiarity on my part with such signs would increase the number that should be classed in this way. Conversely, there were several extraordinarily severe cases, and yet in some of these very cases in which the disease appeared severe, the patients withstood it for an unusually long period. Indeed, it would seem justifiable to formulate this diabetic law: *It is rare for diabetes to develop in an individual above the age of 20 years who is habitually underweight, and when it does so develop the case will usually be found to be either extremely severe, extremely mild, or associated with a marked hereditary taint or degenerative stigmas.* The tendency to diabetes appears to be congenital. It is most intense in childhood; but, escaping that period, the individual is less and less likely to acquire the disease if he remains underweight, whereas in the obese the tendency finds a fertile soil. In the fat the predisposition may be no greater, but the external cause is more provocative.

Nervous excitement or nervous strain has also been considered a factor in the etiology of diabetes. It is notable, however, that soldiers returning from the front did not show sugar in the urine. About 40,000 passed through the hospital center in France where I was consultant; yet, though the urines were systematically examined, but two cases of diabetes were discovered. It will be important to note the incidence of diabetes in the same soldiers at a period some months later when added weight was the rule. On the other hand, it is true that a good many cases have come under observation of children who have stood exceptionally high in their classes at school and have later developed the disease. Perhaps the number is relatively small when compared with the great number of schoolchildren, but these cases have made a deep impression on the writer.

OBESITY PREDOMINANT IN OTHER FACTORS OFTEN MENTIONED IN THE ETIOLOGY OF DIABETES

The preponderating influence of obesity in the development of diabetes explains various peculiarities in diabetic case histories and furnishes a new point of view from which to regard them.

1. *Conjugal Diabetes.*—Of eighteen persons concerned in my series there was but one who was thin. Husband and wife were alike fat, and the implication is strong that they contracted the disease from exposure to good food rather than to one another.

2. *Frequency of Diabetes in the Jewish Race.*—One has only to visit the Jewish quarter of a large city to be impressed with the frequency of obesity. Overfeeding begins in childhood and lasts to old age. Very likely with the increasing affluence of the Jewish race in this country, permitting indulgence in their well-known fondness for style, obesity will tend to diminish and along with it diabetes. The fashion plate makers are far ahead of insurance company presidents in their propaganda for a normal weight. All one needs to do is to glance at the morning paper to see ladies and gentlemen portrayed for our benefit whose sylphlike figures are models of weight and height—nay, more, they are invariably a trifle below the standard weight and so might bear the legend: "Immune to diabetes." Already obesity is seen less among the well-to-do than formerly. This applies not alone to the Jewish race, but to all races.

3. *Frequency of Diabetes Among the Richer Classes of Society.*—This was exemplified in the six persons cited in the opening sentences of the paper. At the time these individuals lived, ideas of exercise for pleasure and the benefit of the body had not penetrated this rural region. Consequently, in this as in many other New England villages, though fortunately to a less extent now, the well-to-do were unusually fat. In fact, even today it is common observation to note that country families tend more to obesity than their city cousins of similar means.

4. *Heredity.*—This may simply mean unusual exposure to an obetic environment. One should not forget that obesity is usually an acquired characteristic, and acquired characteristics are little subject to transmission from parent to child. The handicap of a diabetic heredity may be to a considerable extent counteracted by avoidance of overweight. What a comfort and stimulus to diabetic parents and gain to their children!

5. *Mental Workers in Contradistinction to Physical Workers.*—The former are more likely to be fat. But the probability of more frequent urinary examinations among the more intelligent and city dwellers might explain the apparent increase in frequency. Worms said that diabetes was so frequent among the mentally active in Paris that one in ten had the disease.

6. *A Sequel to Infectious Diseases.*—Convalescents have big appetites, and unfortunately are almost fanatically overfed during a period of forced inactivity and at the very time when the pancreas must necessarily, like the rest of the body, be in a vulnerable state.

7. *Diabetes and Gout.*—Is it usual to see gout in the thin?

8. *Rarity of Syphilis in Diabetes.*—Statistics of the Peter Bent Brigham Hospital, those of von Noorden, and my own all agree in this regard—that syphilis is less common in diabetics than in the general population. Although data on the weights of syphilitic patients are not known to me, it is possible, first, that those who acquire the disease are more often thin than fat, and, secondly, that they more often lose than gain weight after the disease has fully developed. Who weighs and measures syphilitics? However, the shorter duration of life of patients with tuberculosis, cancer and syphilis in part explains the decreased frequency of diabetes in their presence.

9. *Age.*—The second decade of Table 1 proves an exception to those which follow in that there were more patients who developed diabetes above the standard weight than below it. This is almost the case in the first decade as well. In fact, obesity appears to play no part at this age, and so far as present evidence is available it must be acknowledged that these decades constitute an argument against the importance of obesity as a predisposing factor in the development of diabetes. Life insurance tables for prediction of longevity also give preference to persons in the first, second, third and even a part of the fourth decade who are slightly above normal weight. Until more data concerning diabetic children are acquired, it is necessary to be cautious about conclusions, either pro or con, regarding obesity and diabetes at this age. In explanation of the many cases of diabetes in children who were not obese is Naunyn's conception of the virulence of the diabetic tendency in childhood which leads it to break forth without an external stimulus. Of the correctness of this interpretation, however, I am not quite convinced. It is possible that even here obesity is more of a predisposing agency than would appear. It might well be that a future compilation of children's cases would avoid errors of heights and weights unnoticed in this series, which began many years ago, when the cross-questioning of parents was less searching. The maximum weight of a child is even less frequently known than that of an adult. It should also be stated that in order to secure 1,000 cases with definite data it has been necessary to exclude from the entire group of diabetics more cases from the first decade than from the others. Likewise, in the second decade there is an added source of error because here more rapid accessions of weight occur and the peaks of these accessions often escape record. The subsequent histories of children once overweight should be compared with those of normal weight or below weight, and the incidence of diabetes in each group determined. Finally, the total number of cases in these decades is relatively small, making conclusions less justifiable. In the future, the proportion of cases of diabetes in children compared with diabetes in later years will probably continue to increase. Thus, if one examines the distribution by decades of onset of the disease prior to von Noorden's time, it will be found that six writers with an extensive diabetic practice recorded an average of only 0.7 per cent. of all their cases as occurring in the first decade. Von Noorden's clientele showed 1.9 per cent., while, in my more recent series ending in 1917, this had risen to 4.7. Likewise, in the second decade fall 8.3 per cent. of my cases, nearly twice the figure of most former observers. The relative disproportion of diabetes by age is, therefore rapidly disappearing. At present the most common decades of onset are the fifth and sixth, in which the outstanding peculiarity, according to my table is that there are more cases markedly overweight than in the other decades.

POSSIBILITY OF PREVENTING MOST CASES OF DIABETES

In the presence of a wasting disease, diabetes is almost unknown. With the advent of tuberculosis and cancer, it may almost disappear. This is the foundation for the modern treatment suggested by Dr. Allen, who substituted for these wasting diseases the symptom, emaciation, without the disease. If the principle of low nutrition is effective in treatment, how much more will it be effective in prevention! And this the statistics of these 1,000 cases prove.

Real headway against the ravages of a disease begins with its prevention rather than with its treatment. Prevention implies a knowledge of the predisposing agency. Overweight is a predisposition to diabetes. The individual overweight is at least twice, and at some ages forty times, as liable to the disease. For the prevention of more than half of the cases of diabetes in this country, no radical undernutrition is necessary; the individual is simply asked to maintain the weight of his average fellow man.

The diffusion of knowledge about the disadvantages of overweight should be popularized. The Chicago class in obesity conducted by the city board of health was a splendid step in this direction, and so was F. G. Brigham's suggestion at an alumni dinner that each of the Colgate alumni should be assessed for a contribution to their alumni fund of $5 for each inch girth measure in excess of 36 inches.

The physician should take pride in the prevention of diabetes in his practice. Obese patients should be frankly told that they are candidates for diabetes. The physician should consider it as important to prevent his patients acquiring diabetes as he feels it incumbent on himself to vaccinate them against smallpox or typhoid fever, or to protect them from exposure to tuberculosis. Not only is it a duty for physicians to do this, but it is a privilege, the adoption of which will instantly redound to the credit of the physician himself in the eyes of his patients. The physician who has suffered from his inability to combat the disease successfully will welcome the opportunity of preventing its development in those susceptible to it.

But it is to the diabetic patient and his relatives that one can look most confidently for help in preventing diabetes. They know the disease and can be counted on. and should be encouraged to disseminate information about its prevention. They do not wish other members of their families to acquire it. They will be thankful to protect their friends. With these they come in contact in health and in time, and not, as the physician, in disease and too late. We do not half realize the possibilities of using diabetic patients as apostles of food hygiene. It is a question of life or death for these diabetic patients to know food values, and none better than they realize the harm of excess of weight. The diabetic, therefore, is a good teacher, and diabetic patients outnumber the physicians more than 5 to 1. Our teachers, however, must be guided, and cautions must be issued against rapid or extreme loss of weight. Indeed, today the potential power of the diabetics in this country for good almost offsets the harm that results from their having the disease. Such measures, however, are but general, and they will never suffice for the prediabetic. These should be more concrete.

A PLEA FOR EARLY DIAGNOSIS

It is well known that diabetic patients come too late for treatment. If the disease is detected early it is far more susceptible to diet. It is easier to diagnose than tuberculosis. Funck deplored the scant attention paid to the discovery of a trace of sugar in the urine, which was often more a harbinger of death than an apical tuberculosis. How considerable was the interval between the date of the onset and the beginning of treatment can be inferred by the loss of weight that occurred during this period in 600 of my cases. The reduction below the maximum weight amounted on the average to 30 pounds. One of the reasons for this delay in diagnosis is the neglect of frequent or routine urinary examinations. Thus, in the last seventy-seven cases of diabetes, in which the patients were especially questioned with this in view, it was found that in thirty instances there had been no urinary examination before the disease was discovered, and in eighteen instances the interval since the previous examination was three or more years. Therefore, it is necessary to establish the custom of urinary examinations being made more frequently and more universally. Every one should have the urine examined on his or her birthday. More energy must be exerted to discover this disease. One must hunt for it. How easily new cases of diabetes can be brought to light, the subjoined incident will disclose:

March 30, 1920, there came to my office a woman with diabetes. She was given the usual examination with suggestions for treatment, and as it was impracticable for her to enter the hospital, she was taught on the spot to examine her urine. She went home and shortly after contracted pneumonia and died. But in the intervening days amid her household cares she found time and took enough interest to examine the urines of ten others in her boarding house, and in so doing discovered the presence of diabetes in a boy. She gave him sound advice and sent him to his own physician, who also subsequently died, and a few days ago the boy came to me, telling this story. On the day she learned the Benedict test and made these ten urinary examinations for her friends, Louisa Drumm was 79 years and 4 months old! Can one not appropriately say to younger diabetic patients: "Go thou and do likewise"?

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THE FUNDAMENTAL CLASSIFICATION OF DISEASE BY THE BASAL METABOLIC RATE *

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The basal metabolic rate is a measurement of the heat production in an individual under standard conditions; like the temperature, therefore, it is a measurement of certain heat phenomena inherent in the living organism. Just as the thermometer divides diseases into the febrile and afebrile groups, so the basal metabolic rate differentiates diseases into three fundamentally distinct and characteristic groups:[1] those with normal basal metabolic rates (a normal heat production); those with increased rates, and those with decreased rates. The basal metabolic rate has, therefore, a greater fundamental significance[2] than simply as a test for hypothyroidism or hyperthyroidism although, as will be seen, a very high percentage of all abnormal basal metabolic rates are dependent on or accompanied by an altered function of the thyroid gland.[3]

Of the diseases thus far investigated, those characterized by an increased basal metabolic rate[2] are exophthalmic goiter,[4] the hyperthyroidism of thyroid adenoma,[5] the active stage of acromegaly (hyperpituitarism), and all febrile conditions. In other diseases,[6] such as essential hypertension, pernicious anemia, leukemia, diabetes and possibly a very few not yet investigated, a basal metabolic rate slightly above normal may occasionally, though inconsistently, be encountered at various stages of the disease. In actual practice we have found that at least 95 per cent. of all abnormally increased basal metabolic rates are due to hyperthyroidism[7] (either that of exophthalmic goiter or of thyroid adenoma) if a febrile condition is eliminated by the thermometer.

A decreased basal metabolic rate is characteristic of myxedema,[8] and to a lesser degree, of hypopituitarism There are other conditions, however, in which there is a decrease in the heat production, for example, those conditions which resemble the early stages of myxedema without the edema and which Plummer has tentatively grouped under the term secondary hypothyroidism, largely because they improve clinically as a result of thyroid administration. In this subgroup are cases of inanition from prolonged fasting or from restricted food intake, such as occurs in anorexia nervosa, in esophageal stricture or in cardiospasm; lastly, a few cases of decreased metabolic rate cannot be placed with any of the preceding groups and must remain unclassified for the present.

Finally, there is the very large number of diseases, not included in the foregoing groups, in which the basal metabolic rates are normal. Of these various conditions the most important from a diagnostic point of view is neurosis simulating hyperthyroidism. As a benign nontoxic adenomatous or colloid enlargement of the thyroid is often present incidentally in neurotic persons, it is sometimes impossible to eliminate the presence of a slight hyperthyroidism without the help of the basal metabolic rate.

For practical diagnosis, an increased basal metabolic rate indicates hyperthyroidism, either from exophthalmic goiter or thyroid adenoma, provided active acromegaly is ruled out and the group of febrile diseases is eliminated by a normal temperature curve. A knowledge of the temperature curve is necessary because an elevated basal metabolic rate usually occurs in conditions, such as mild tuberculosis, in which the evening temperature is slightly elevated, although at the time of the metabolism test the temperature may be normal. On the other hand, in hyperthyroidism, the temperature curve is normal, unless the patient has an intercurrent infection, such as tonsillitis, arthritis, endocarditis or tuberculosis. The basal metabolic rate is of the utmost value in the differential diagnosis of mild hyperthyroidism (of either type) and a neurosis simulating hyperthyroidism which often may be asso-

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[1] Boothby, W. M.: The Value of the Basal Metabolic Rate in the Treatment of Diseases of the Thyroid, Med. Clin. North Am. **3**: 603-618, 1919.

[2] Boothby, W. M.: The Clinical Value of Metabolic Studies of Thyroid Cases, Boston M. & S. J. **175**: 564-566 (Oct. 19) 1916. McCaskey, G. W.: Basal Metabolism Determinations in General Internal Diagnosis, Clinical Application with Illustrative Cases, J. A. M. A. **74**: 927-931 (April 3) 1920. Means, J. H.: Studies of the Basal Metabolism in Disease and Their Importance in Clinical Medicine, Boston M. & S. J. **174**: 864-870 (June 15) 1916.

[3] Goetsch, E.: Studies on Disorders of the Thyroid Gland, II, Further Experiences with the Epinephrin Hypersensitiveness Test with Especial Reference to "Diffuse Adenomatosis" of the Thyroid Gland, Endocrinology **4**: 389-402, 1920. Sandiford, Irene: The Basal Metabolic Rate in Exophthalmic Goiter (Cases for 1917), with a Brief Description of the Technic Used at the Mayo Clinic, ibid. **4**: 71-87, 1920. Snell, A. M.; Ford, Frances, and Rowntree, L. G.: Studies in Basal Metabolism, J. A. M. A. **75**: 515-522 (Aug. 21) 1920.

[4] Means, J. H., and Aub, J. C.: The Basal Metabolism in Exophthalmic Goiter, Arch. Int. Med. **24**: 645-677 (Dec.) 1919. Sturgis, C. C., and Tompkins, E. H.: A Study of the Correlation of the Basal Metabolism and the Pulse Rate in Patients with Hyperthyroidism, ibid. **26**: 467-476 (Oct.) 1920. Sandiford, Irene (Footnote 3, second reference).

[5] Judd, E. S.: Results of Operations for Adenoma with Hyperthyroidism and Exophthalmic Goiter, Ann. Surg. **72**: 145-51 (Aug.) 1920. Mayo, C. H.: Adenoma with Hyperthyroidism, ibid. **72**: 134-141 (Aug.) 1920.

[6] Lusk, Graham: A Series of Papers on Clinical Calorimetry by Lusk, Du Bois and their associates, appearing in the Archives of Internal Medicine, beginning in 1915, Volume 15.

[7] McCaskey, G. W. (Footnote 2, second reference).

[8] Boothby, W. M. (Footnote 1). Janney, N. W., and Henderson, H. E.: Concerning the Diagnosis and Treatment of Hypothyroidism, Arch. Int. Med. **26**: 297-318 (Sept.) 1920.

ciated with an enlarged colloid goiter or a thyroid adenoma which is not producing an excess of the thyroid hormone. In this type of case, even very slight technical errors must be eliminated, and therefore an exact method of determining the basal metabolic rate must be used and not one which merely gives an approximation of the true rate. Furthermore, particular pains must be used to prevent physiologic errors, because some neurotic persons are easily excited and may pass a sleepless night worrying about an unknown test that is to occur in the morning; other causes of a restless night, such as headache, backache, menstrual pains, slight indigestion or a mild cold (even without an elevated temperature), may cause the patient to be somewhat restless and uneasy during the test with a consequent slight elevation of the metabolic rate. Therefore, all patients having a rate ranging between + 10 and + 20 per cent. should have the test repeated on a subsequent day when disturbing factors are eliminated or at least greatly minimized. An increased metabolic rate in a neurotic patient is due to the fact that the rate was not obtained with the patient under basal or standard conditions. This point is emphasized to aid those who are beginning to use the basal metabolic rate as a diagnostic method; if the conditions for determining a true basal metabolic rate are not obtained or the method of determination is not carried out with the care necessary to eliminate even slight errors, one of the most valuable methods of diagnosis and classification of disease will fall into discredit from the discordant results obtained. It is only fair to say that the method is not suitable for the busy practitioner unless he is able to procure a properly trained technician who will have the time and means to carry out with exactness the fine details of technic requisite for obtaining a true basal metabolic rate; it is practical, however, for any small well equipped and carefully conducted clinical laboratory. For routine clinical work, we prefer the gasometer or open method[9] of indirect calorimetry to the closed circuit system.[10]

The basal metabolic rate is of the greatest help in the differentiation of recurring or persistent hyperthyroidism and the nervous or debilitated condition which occasionally follows thyroidectomy and in which it is important to know whether the thyroid is still overactive and causing thyroid intoxication. In this connection it must be remembered that the hyperthyroidism[11] of either exophthalmic goiter or thyroid adenoma presents waves of intensity alternating with periods of remission and occasionally even of intermission; in this irregularity, hyperthyroidism resembles certain febrile diseases, except that the time element in the former is weeks or months, instead of hours or days. Since the basal metabolic rate in thyroid disorders indicates the intensity of thyroid intoxication, it parallels the exacerbation or remission of the hyperhyroidism, so that a normal or nearly normal rate may be found in a patient who presents himself for examination during a period of thyroid remission and gives a more or less definite history of previous exacerbations of hyperthyroidism. On the other hand, the number of these cases is very small and does not include the arge group of neurasthenics who give a positive epinephrin reaction,[12] but who have normal basal metabolic rates.[13] We have found no evidence that this group of neurasthenics with normal basal metabolic rates, although they may have some of the symptoms resembing those of mild hyperthyroidism, is dependent on variations in the physiologic activity of the thyroid gland as suggested by Goetsch.[3]

The value of the basal metabolic rate in following the course of hyperthyroidism and the effect on it of treatment is comparable to the temperature curve in febrile disorders, a variation in the basal metabolic rate indicating a parallel variation in the thyroid activity. Although the basal metabolic rate gives information of the degree of thyroid activity, it does not measure the patient's ability to withstand a superimposed stress, such as an operation; in other words, it does not tell us whether or not an operation is safe. We do know, however, that the higher the metabolic rate the greater is the stress to which the patient is being subjected and the greater is the consequent reduction in his reserve powers and the probability of the presence of serious organic damage; therefore, in a large series, the mortality in patients with high rates is greater than in patients with low rates. This is strikingly similar to the value of the temperature curve in febrile diseases, since, in pneumonia, for example, the patient with a temperature of 105 F. may quickly recover, while a patient with a temperature of 103 or even less may die, although on the average there is a higher mortality in the more severe pneumonias, their severity being determined by the temperature curve. Just as in the febrile diseases, the patients with a given temperature do not always present the same degree of reaction, as evidenced by the general clinical picture, so patients with the same basal metabolic rate may show different types of reaction; some are extremely sick, in crises, and with profound organic lesions, while others are obviously carrying the rate well. Nevertheless, the basal metabolic rate serves as a valuable criterion in deciding on the best type of operative procedure.[14] In general, the mortality rate is increased in the group of patients with high metabolic rates, and therefore the ability of the patient to withstand thyroidectomy as a primary operation must be considered carefully. As a general rule, preliminary ligations are less frequently indicated in patients with rates below + 50 per cent. and very rarely in patients with rates below + 40 per cent.

The basal metabolic rate is of great value in the diagnosis of myxedema and hypothyroidism, although it must be remembered that not all cases in which metabolic rates are decreased are due, at least primarily, to thyroid deficiency because low rates are found in hypopituitarism, in inanition and in a condition somewhat simulating these yet probably of different etiology. As yet, the value of the metabolic rate in cretinism is less positive because the normal standards of heat production for infants and children under 14 years of age have not yet been accurately determined.

In the treatment of myxedema, whether idiopathic or postoperative, the basal metabolic rate is also of the utmost value, because the therapeutic aim is to give intravenously or by mouth sufficient thyroxin or thyroid extract to bring the basal metabolic rate to normal and to maintain the patient at the normal level by an appropriate daily dosage. For this purpose, frequently repeated basal metabolic rates are essential until the daily dosage necessary for that patient has been established accurately; thereafter, intervals of months or even a year may elapse between observations.

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[9] Boothby, W. M., and Sandiford, Irene: Basal Metabolic Rate Determinations, Philadelphia, W. B. Saunders Company, 1920.

[10] Aub, J. C., and Du Bois, E. F.: The Basal Metabolism of Old Men, Clinical Calorimetry, Paper XIX, Arch. Int. Med. **19**: 823-831 May) 1917. Benedict, F. G.: Ein Universalrespirationsapparat, eutsch. Arch. f. klin. Med. **107**: 160-200, 1912.

[11] Plummer, H. S.: The Function of the Thyroid, Normal and bnormal, Tr. Assn. Am. Phys. **31**: 128-133, 1916.

[12] Sandiford, Irene: The Effect of the Subcutaneous Injection of Adrenalin Chlorid on the Heat Production, Blood Pressure and Pulse Rate in Man, Am. J. Physiol. **51**: 407-422 (April) 1920.

[13] Tompkins, E. H.; Sturgis, C. C., and Wearn, J. T.: The Effects of Epinephrin on the Basal Metabolism in Soldiers with "Irritable Heart" in Hyperthyroidism and in Normal Men, Arch. Int. Med. **24**: 269-283 (Sept.) 1919.

[14] Sistrunk. W. E.: The Selection of Operation for Exophthalmic Goiter, J. A. M. A. **74**: 306-308 (Jan. 31) 1920.

As stated above, the basal metabolic rate divides diseases into three groups in the same general manner as the body temperature classifies diseases as febrile and afebrile. There is a further similarity between the basal metabolic rate and the temperature, because in neither is there an absolute and unvarying standard of normality. The clinician is accustomed to see, on his daily rounds, variations in the temperature curve between 97.5 and 99 F., to which he pays little or no attention. Changes in the body temperature within this range at different times of the day or on different days in the same patient affect but little the conception of the case, nor do these normal variations serve to subclassify the patients into different groups. In a similar way, basal metabolic rates between + 10 and — 10 have no pathologic significance, while variations beyond these limits have more and more significance, the greater the variation from normal. The range of temperature considered essentially "normal" is between 97.5 and 99.0 F., while the range of temperature between 99 and 105 F. or more indicates a febrile disease; there is thus a normal variation of 1.5 degrees to a pathologic variation of 6 degrees, or as 1 is to 4.7. The range of basal metabolic rates considered essentially "normal" is between — 10 and + 10 per cent., while the range of basal metabolic rates between — 10 and — 45 per cent. and between + 10 and + 125 per cent. or over indicates an abnormal heat production: a normal variation of 20 points to a pathologic variation of 150 points, or as 1 is to 7.5. It is obvious, therefore, that although the normal standard for the basal metabolic rate is not exact, yet its variability in normal persons compared to its pathologic variations is of a distinctly higher order of accuracy than that between the variations of "normal" and "febrile" temperature.

SUMMARY

1. The basal metabolic rate is a measurement of the heat production in a person under standard conditions.
2. Like the temperature, the metabolic rate is a measurement of certain heat phenomena inherent in the living organism.
3. The basal metabolic rate differentiates diseases into three fundamentally distinct groups: those with normal basal metabolic rates (a normal heat production); those with increased basal metabolic rates, and those with decreased basal metabolic rates.
4. The "normal" standard of the basal metabolic rate is not exact, yet the comparatively small "normal" variation, compared to the wide range of pathologic variation, admits of fully as accurate grouping of diseases as does the body temperature.
5. It is to be hoped that the value of basal metabolic rates will not be discredited by carelessness in technic and a failure to appreciate the necessity for carrying out all the technical and physiologic details requisite for obtaining accurate basal metabolic rates.[15]

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[15] In addition to the references already given, the following will be found of interest:
Benedict, F. G., and Collins, W. E.: A Clinical Apparatus for Measuring Basal Metabolism, Boston M. & S. J. **183**: 449-458, 1920.
Benedict, F. G., and Joslin, E. P.: A Study of Metabolism in Severe Diabetes, Pub. 176, Carnegie Inst. of Washington, 1912.
Du Bois, E. F.: Metabolism in Exophthalmic Goiter, Clinical Calorimetry, Paper XIV, Arch. Int. Med. **17**: 915-964 (June) 1916.
Harris, J. A., and Benedict, F. G.: A Biometric Study of Basal Metabolism in Man, Pub. 279, Carnegie Inst. of Washington, 1919.

BASAL METABOLISM DETERMINATIONS

TESTS WITH TWO PORTABLE CLOSED-CIRCUIT RESPIRATION APPARATUS

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There is much interest at present in the determination of the basal metabolism in various disorders, and its value in disturbance of function of the thyroid gland has been proved by numerous investigators. Heretofore, however, the usefulness of the basal metabolism determination has been greatly limited by the technical difficulties of the test, involving the use of a cumbersome, nonportable apparatus, or of the gasometer with the necessity for gas analysis—difficulties which place the test out of reach of the great majority of physicians.

Recently, Benedict[1] and, still more recently, Jones[2] each devised a portable apparatus for metabolism determinations. The basal metabolism determinations reported here were made for the purpose of determining the clinical reliability of these portable closed-circuit apparatus.

In the closed-circuit apparatus, the subject by means of a mask or mouth and nose piece rebreathes air from a closed system in which the carbon dioxid produced is absorbed by an alkali, and the oxygen consumed is measured. The closed-circuit apparatus is so named in contrast to the gasometer, in the use of which the subject breathes outdoor, or less preferably, room air, and by the use of a mask with suitable valves the expired air is collected and analyzed.

The Benedict portable respiration apparatus consists of a closed system including a spirometer into which is run a mixture of oxygen and air, and a bottle of soda lime, which absorbs the carbon dioxid produced, the gas mixture being circulated through the system by means of a fan driven by a small electric motor.

The Jones apparatus is a very portable closed-circuit system into which a known quantity of oxygen is introduced in liter quantities, and the time noted for the consumption of one or more liters of the gas. The carbon dioxid produced is absorbed by passing the expired gases over charcoal moistened with a solution of sodium hydroxid, ingeniously avoiding the use of a motor for circulating the air.

In Table 1 are the results obtained in twenty cases on various services at the Presbyterian Hospital. No attempt was made to select the subjects, and the results obtained are therefore those that may be expected in handling various types of patients. The subjects in all of the determinations went without food from 6 p. m. of the preceding day, with rest in bed the following morning, until the tests were made, between 8 and 10 o'clock. A determination and a duplicate determination were made on each patient with one apparatus and then with the other, making a series of four determinations on each patient. This became somewhat tiresome to very nervous patients who could not always be kept entirely quiet for the time necessary for the four tests, a factor that might change the metabolism rate a few per cent. The two apparatus were run alternately by the operators to avoid any personal factors in the use of either apparatus.

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[1] Benedict, F. G.: A Portable Respiration Apparatus for Clinical Use, Boston M. & S. J. **178**: 667 (May 16) 1918; Notes on the Use of the Portable Respiration Apparatus, ibid. **182**: 243 (March 4) 1920.

[2] Jones, H. M.: A Simple Device for Measuring Basal Metabolism, J. A. M. A. **75**: 538 (Aug. 21) 1920.

In a study and summary of Table 1 it is noted that the greatest variation between check readings for the Benedict apparatus was 9 per cent., and for the Jones, 10 per cent. The average variation between the check readings for the Benedict was 3.5 per cent., and for the Jones, 3.7 per cent. For the last eight cases a modification of the technic in obtaining the beginning and end points in the Jones apparatus was instituted (through a personal communication from Dr. H. M. Jones) which materially reduced the chance for variations and errors in the readings, and for these eight cases the greatest variation on the Jones apparatus was then only 5 per cent., and the average variation, 2.4 per cent. The greatest variation between the average of the two determinations on the one apparatus and the average of the two determinations on the other was 9 per cent., the average difference being 3.9 per cent. It is also of interest to note that in using Du Bois' formula for obtaining the area of body surface, except for the four cases of thyrotoxicosis, only one other case (Case 9) was more than 10 per cent. above or below the normal rate. This patient was a greatly undernourished man, 6 feet 3 inches in height and weighing 151 pounds, with a basal metabolic rate of — 14 per cent.

TABLE 1.—DETERMINATIONS OF BASAL METABOLISM IN TWENTY CASES

Case No.	Name	Diagnosis	Percentage of Normal, Benedict Apparatus: First Determination	Second Determination	Variation in Percentage Between the Two Readings	Percentage of Normal, Jones Apparatus: First Determination	Second Determination	Variation in Percentage Between the Two Readings	Difference Between the Averages for Each Apparatus
1	Mrs. A. R.	Moderately severe thyrotoxicosis	153	155	2	158	162	4	6
2	Mr. E. C. D.	Duodenal ulcer	95	91	4	90	92	2	2
3	Mrs. A. F.	Irritable colon	106	103	3	100	110	10	½
4	Mrs. P. A. K.	Tabes dorsalis	108	112	4	100	106	6	7
5	Mrs. L. M.	Duodenal ulcer	102	95	7	106	108	2	8½
6	Mr. H. G.	Neurasthenia	95	86	9	87	83	4	5½
7	Mr. R. M.	Carcinoma of stomach	95	102	7	98	101	3	1½
8	Mr. A. F.	Constipation	103	102	1	97	106	9	1
9	Mr. W. S.	Malnutrition	85	86	1	88	86	2	1½
10	Miss G. H.	Cholecystitis	104	107	3	103	101	2	3½
11	Miss S. F.	Severe thyrotoxicosis	157	160	3	158	150	8	4½
12	Mr. J. G.	Neurasthenia	104	99	5	96	101	5	3
13	Mr. J. L.	Duodenal ulcer	107	Pt. objected	..	109	Pt. objected	..	2
14	Mr. H. N.	Irritable colon	106	103	3	99	98	1	6
15	Mr. N. A.	Duodenal ulcer	99	102	3	98	99	1	2
16	Miss C. K.	Pseudohypertrophic muscular dystrophy	111	106	5	100	102	2	7½
17	Miss A. H.	Epilepsy	103	105	2	104	107	3	1½
18	Miss N. S.	Severe thyrotoxicosis	162	161	1	173	168	5	9
19	Mr. H. L.	Adolescent struma	103	103	0	101	100	1	2½
20	Miss E. P.	Mild thyrotoxicosis	123	120	3	120	121	1	1
	Greatest variation		...	...	9	...	...	10	9
	Average variation		...	...	3.5	..	...	3.7	3.9
	Average variation in last eight cases		...	...	..	...	...	2.4	

The conclusion is justified, therefore, that the determinations by either apparatus, both in check readings against itself and against the other apparatus, are entirely satisfactory for clinical purposes. Because of its compactness, easy portability, relative simplicity of operation, and ease in calculation of results, the Jones apparatus is very suitable for clinical use. As a further test of its accuracy, the determinations shown in Tables 2 and 3 were made.

TABLE 2.—FIVE SUCCESSIVE DETERMINATIONS ON ONE PATIENT WITH JONES APPARATUS

Miss M. W.	1	2	3	4	5	Greatest Variation
C.c. of oxygen consumed per minute per square meter	132	133	129	134	129	5 c.c.
Percentage of normal	103	104	101	104	101	4— %

In Table 2 are the results obtained in five successive determinations on one patient. The maximum variation in the five determinations is slightly less than 4 per cent. These results show a definite consistency throughout the series. The subject was given no preliminary training in breathing, and no special cooperation was asked.

Table 3 contains the results of readings made on a normal subject, an intern at the hospital. The test with a check determination was made each morning on first awakening for six successive days, except for an unavoidable intermission of one day between the third and fourth days.

TABLE 3.—DETERMINATIONS ON A NORMAL SUBJECT

Dr. P. M. Date	C.c. of Oxygen Consumed per. Sq. Meter per Minute: First Reading	Second Reading	Percentage of Normal: First Reading	Second Reading	Variations: C.c.	Per Cent.	Comment
9/22/20	132	135	97	99	3	2	Subject well awake
9/23/20	131	131	97	97	0	0	
9/24/20	123	125	91	92	2	1	Subject somewhat sleepy
9/26/20	131	129	97	95	2	2	
9/27/20	128	123	94	91	5	3	
9/28/20	129	132	95	97	3	2	
Average variation					2.5	2 —	

These determinations yielded a greatest single variation between check readings of 3 per cent., with an average variation of less than 2 per cent. This subject had no preliminary tests, and no special cooperation as to regularity and amplitude of breathing was asked. These results suggest that with a trained breather as a subject this apparatus might be of much value, not only for clinical uses, but possibly for the more exacting results necessary in experimental nutrition and metabolism studies.

As a further test of the accuracy (as determined by securing suitable duplicate readings) of the apparatus, in cases with pathologic metabolic rates, five subjects with a clinical diagnosis of thyrotoxicosis were used, a 3 liter test being employed, followed in a few minutes by a similar determination. The results are summarized in Table 4.

These patients all had moderate or severe thyrotoxicosis; all were women, very nervous and restless. That the determinations could be made in such subjects without any great difficulty indicates that with proper precautions there is no serious discomfort to the patient which cannot be readily endured for the time necessary for the test. Case 32 was of special interest in that the thyrotoxicosis was associated with a marked myocardial weakness with cardiac decompensation. The patient had a marked edema and a definite dyspnea while lying quiet, yet she withstood the determinations without any special complaint. The greatest single variation in check readings was 8 per cent.; the average variation, 3 per cent. A more extended series of cases might show a slightly higher average variation between check readings, but the readings are entirely comparable for clinical purposes.

TABLE 4.—DETERMINATIONS ON PATIENTS WITH THYROTOXICOSIS

		C.c. of Oxygen Consumed per Sq. Meter per Minute		Percentage of Normal		Variation in Percentage
No.	Name	First	Second	First	Second	
31	Mrs. A. R.	193	195	156	158	2
32	Mrs. A. B.	182	180	154	153	1
33	Miss N. S.	216	219	164	166	2
34	Mrs. F. N.	167	170	136	138	2
35	Miss M. O.	200	211	155	163	8
	Average variation..					3

TECHNICAL FACTORS

Since various factors influence the metabolism to a greater or less degree, it is best to adopt a certain routine procedure in making these determinations. The following regulations are suitable for clinical purposes:

1. The patient should be in the postabsorptive period, since the digestion of food definitely increases the heat production. To meet this condition the subject should abstain from all food, also tea and coffee, after 6 p. m. of the preceding day.
2. The patient should be in a state of muscular repose. This is secured by quiet rest of the patient in the recumbent or semirecumbent position for at least twenty minutes and preferably thirty minutes, before the test is begun. As the raised metabolic rate incident to severe muscular exercise persists over a period of several hours, the subject should go through as little muscular exertion as possible in the morning before being put at rest.
3. As the metabolism is raised by fever, the temperature of the patient should not be above normal. The subject should be comfortably warm.
4. Since there has been noted a probable variation in the metabolic rate, depending on whether it is taken while the subject is sleeping, on first awakening in the morning, or in the evening, it is desirable to make the determinations entirely in the morning.
5. The patient should be lying comfortably, either in a recumbent or semirecumbent position. With the patient sitting erect there may be a slight increase in the metabolic rate, probably due to increased muscular tension.
6. The accuracy of the test depends on the exclusion of any leak whatsoever in the circuit; therefore, the careful application of the nose piece and mouth piece cannot be too strongly emphasized. The mouth piece should be so inserted as to fit comfortably, with the lips well closed around the rubber margin. It is advisable to explain to the patient that there must be no leak at the angles of the mouth. This is most likely to occur during inspiration, but with ordinary care there is no danger of such a leak. A leak through the nose is more readily possible and may be unsuspected. Therefore, after the nose clip has been carefully applied, it should be tested for a possible leak by having the patient attempt to breathe in and out through the nose. After the conclusion of the test it should be similarly tested before the nose clip is removed. With moderate precautions, a leak will not occur.
7. The precautions given in the original description of the use of either apparatus must be carefully observed, and are relatively simple. Worthy of special mention are the changing of the alkali as directed, and also the testing of the apparatus daily for a leak.
8. Preferably, each determination should be from ten to fifteen minutes in length, as any error incidental to obtaining the beginning and end points is mathematically reduced the longer the duration of the test. A duplicate determination should be made in every case.

CONCLUSIONS

The results obtained in this series of cases show the suitable clinical accuracy of either of the two portable closed-circuit respiration apparatus. The Jones apparatus, the most recent addition to the methods now in use for determining basal metabolism, because of its compactness, relative simplicity and accuracy, is especially valuable for clinical use.

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LABORATORY PROBLEMS OF BLOOD TRANSFUSION *

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The laboratory problems of transfusion concern the transfer of whole blood from the circulatory system of one person to that of another. The discussion does not include the process of introducing blood beneath the skin and into the peritoneal cavity or the use of various fluids which have been suggested as temporary substitutes for blood. The operation of transfusion was utilized long before the circulation of the blood had been demonstrated. Nothing of scientific importance was suggested, however, until William Harvey announced his epochal discovery in 1628. Of great importance in the early investigations are the valuable experiments on animals of Richard Lower, in 1667. In the same year Denys published the favorable results which he had obtained by transfusing into man the blood from lambs and calves. The Faculty of Medicine of Paris discussed transfusion of blood, and in 1668 announced an edict forbidding transfusion except by special sanction of the faculty. In succeeding years, reports of animal and human experiments appeared; but it was not until 1818 that Blundell published the results of his experimental work. He found that it was possible by the use of a syringe to transfer blood from one animal to another, and he noted the remarkable results that are to be achieved by transfusion after severe hemorrhage. His experiments on transfusing the blood of one species into that of another were confusing, but he recorded the fact that beneficial results follow the introduction into an animal of a considerably smaller amount of blood than the animal has lost. Other investigators examined this problem with varying results, and in 1874 Hasse described the rigors, fever, suppression of urine or hematuria that follow the injection of the blood of an antagonistic species. Ponfick, in 1875, described the lesion of the kidney in fatal reactions. Previous to Hasse's work, Landois had shown that the serum of

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* Read before the Section on Pathology and Bacteriology of the Buffalo Academy of Medicine, April 28, 1920.

some animals possesses the property of dissolving that of other animals, and indicated the importance of this in transfusion. Hayem, in 1889, described the minute emboli and small infarcts that may follow unsuccessful transfusion.

As a result of this earlier work, it became apparent that the use of animal blood for injection into man is dangerous; that transfusion from man to man is usually a successful procedure; that relatively small amounts of blood are necessary; that the operation may be by direct anastomosis or by intermediation of instruments; that certain cases show reaction, and that fatal cases show embolism, multiple infarction of various organs, and severe tubular lesions of the kidney.

EFFECTS OF ANEMIA

The investigations of later years have concerned themselves in part with the explanation of results, be they good or bad. The clinical indications for transfusion appear to be problems rather of the clinic than of the laboratory, although much light may be thrown on this division of the subject in the future by correlated laboratory and clinical investigations. The experience with transfusion in the World War, in addition to a vast accumulation of evidence in civil practice, has shown the undoubted value of the operation following hemorrhage. Under favorable conditions a relatively small amount of blood will produce the most astounding results, and a patient may be transformed from a comatose, pulseless, moribund individual into a bright, slightly flushed, convalescing patient. There are probably several important influences brought to bear: one on the circulatory balance, one on the metabolism, and another on the production of erythrocytes.

In order to understand the influence of transfusion, it is important to know the exact effects of anemia. The influence of hemorrhage on circulation has been studied by Wiggers and others, and the clinical manifestations are well known. The fall in blood pressure, diminution in pulse pressure and, in severe hemorrhage, the signs of collapse are familiar observations. For a time the ventricular output is maintained, owing to increased contraction of the auricles; but finally the ventricular output is decreased. For a time this is partly compensated by increase in the heart rate. Cardiac nutrition is well maintained, and death is due rather to circulatory depression than to failure of the myocardium. Owing to the reduction of erythrocytes there is anoxemia, and as a result an increase of pulmonary ventilation. That this may wash out carbon dioxid from the blood is to be expected; but apparently this does not overcome the respiratory stimulus of the anoxemia. The beneficial influence of transfusion is immediate and marked, and a smaller bulk of blood is necessary for this result than is lost in the hemorrhage. Circulatory restoration is explained by the fact that the bulk of circulating fluid partly increased by the transfusion is further augmented by withdrawal of fluid from the tissues into the blood vessels; but no such logic satisfactorily explains the improved respiration.

The influence of anemia on metabolism has been studied with variable results. According to Hawk and Gies, as well as Haskins, hemorrhage leads to an increase of nitrogenous metabolism. Tomkins, Brittingham and Drinker have examined the literature carefully as concerns not only the acute anemias following hemorrhage but also the chronic forms, and they conclude that there is "a tendency toward increased metabolism in anemias of all types." This may be due to the increase in cardiac and respiratory rate, to the increased metabolism or young erythrocytes, to the activity of blood-forming centers, to undetermined toxic influences, or to some combination of these factors. These investigators found that in anemia, transfusion produces a decrease of metabolism to the normal. This, however, is followed after several days by a decrease in cardiac and respiratory rate, a drop of temperature in febrile cases, and an increase in hemoglobin and erythrocytes. Thus, the alteration in metabolism is not dependent on any of these factors, and Drinker and his associates suggest that in anemia the increased metabolism may be due to a general increase in stimulation of body cell activity. Harrop has recently studied the oxygen consumption of young erythrocytes, and finds that they consume more oxygen than do the adult cells; the examination of the blood cells of anemic patients, however, detected no notable difference in oxygen consumption from that of normal individuals.

It is well known that transfusion in acute anemias is followed by progressive increase in the number of erythrocytes and the percentage of hemoglobin. As was pointed out by Blundell, the benefits of transfusion are out of proportion to the amount of blood injected, and the question arises as to why this is so. Certainly a loss of blood provides a stimulus to the blood-forming centers. Otherwise, the anemia following hemorrhage would not be compensated. It is to be supposed, however, that in serious hemorrhage this stimulus may be so great as to be inhibitory, or the patient may die before the stimulus can be effective. Does transfusion as a simple measure operate to maintain the individual in the living state until the blood-forming centers can take up their great burden, or does transfusion itself operate as a stimulus? It appears from the investigations of Robertson that in animals with a normal blood content, an increase in total blood content is followed by a depression of blood formation. The index of bone marrow activity is found in the number of reticulated erythrocytes and in the number of blood platelets in the circulating blood; in experimental animals the bone marrow may be observed directly.

The work of Robertson, Lee, Minot and others indicates in a broad way that transfusion probably acts as a stimulus in acute anemias, but it is difficult to determine which is the more important factor, the stimulus of the anemia itself or that of the transfusion, and comparative studies must be made before this question can be answered. From Robertson's work it appears that a delicate balance is maintained between the number of circulating erythrocytes and the productivity of the blood-forming apparatus. As has been mentioned, plethora will reduce blood formation but, if maintained, the bone marrow appears to adjust itself to this condition so that a subsequent reduction of the blood to normal operates on the marrow as does an absolute anemia. Furthermore, continued plethora produced by multiple transfusions in some animals leads to such a depression of blood formation that anemia finally results. A point of considerable practical importance is the fact that patients with chronic anemia may be harmed more than they are helped by large transfusions, apparently because the bone marrow has adjusted itself to the small number of circulating erythrocytes, and the injection of a large bulk of blood may produce a serious depression of the already relatively inactive marrow. In such cases, multiple small transfusions would probably be more desirable than a single large transfusion. The beneficial effects of transfusion in successful cases are therefore but imperfectly understood, and it seems probable that further study may result in modifications of the operation which may simplify it and render the benefits greater and more lasting.

CLASSIFICATION OF HUMAN BLOOD INTO FOUR GROUPS

The unfavorable results of transfusion vary from slight reactions on the part of the patient to more severe reactions, and in some cases death. Of considerable interest in this connection is the fact that some patients fail to show reaction until twelve or eighteen hours have elapsed. The cause of these reactions, even today, is not clearly understood. In spite of the fact that in the vast majority of cases the presence of isohemagglutinins and isohemolysins explains unfavorable results, this is not true of all cases. It has generally been accepted that these two normal immune bodies act interdependently; but recent work by Kolmer appears to indicate that agglutination and hemolysis in this relation are not necessarily interdependent. In our discussion it seems desirable from the standpoint of simplicity to consider these bodies as operating interdependently, and then discuss the possible exceptions to this rule. Isohemagglutinins were discovered independently in 1900 by Landsteiner and by Shattock. Landsteiner classified human blood in three groups, depending on the power of serum to agglutinate the corpuscles. This was confirmed by numerous other workers until Hektoen, in 1907, found that this classification did not satisfy the hemagglutinative activities of all human bloods. Jansky, in 1907, and Moss in 1910, independently discovered that there are in reality four groups. Unfortunately, these workers published their classifications in such a fashion that the numbers designating the groups were transposed, and this has led to considerable confusion. Much of the work that has appeared recently has been based on the Moss classification; since Jansky's work appeared three years earlier, however, and was recognized by Hektoen, Ottenberg and others in important publications, I have adopted the classifications proposed by Jansky. Accordingly, Table 1 represents the reaction of serum and corpuscles of the four groups.

TABLE 1.—REACTION OF SERUM AND CORPUSCLES

Group I.	Serum agglutinates cells of Groups II, III and IV. Cells agglutinated by no serums.
Group II.	Serum agglutinates cells of Groups III and IV. Cells agglutinated by serums of Groups I and III.
Group III.	Serum agglutinates cells of Groups II and IV. Cells agglutinated by serums of Groups I and II.
Group IV.	Serum agglutinates no cells. Cells agglutinated by serums of Groups I, II and III.

This may be tabulated as in Table 2.

TABLE 2.—JANSKY CLASSIFICATION

Cells	Serum I	II	III	IV
I	—	—	—	—
II	+	—	+	—
III	+	+	—	—
IV	+	+	+	—

As the Moss classification has in the past been widely adopted, it may be well to show also the grouping on that basis (Table 3).

TABLE 3.—MOSS CLASSIFICATION

Cells	Serum I	II	III	IV
I	—	+	+	+
II	—	—	+	+
III	—	+	—	+
IV	—	—	—	—

The incidence of the groups in man has been studied by numerous investigators, and the exact figures have been found to vary somewhat. Nevertheless, Groups I and III predominate, and collectively constitute about four fifths of the race. In spite of the large number of tests made, the factor of "random sampling" determines a certain amount of error. On the basis of more than 5,000 tests made by five different investigators, the average incidence, according to the Jansky classification, is that given in Table 4.

TABLE 4.—INCIDENCE OF THE FOUR GROUPS IN MAN

	Per Cent.
Group I	42.84
Group II	10.36
Group III	41.38
Group IV	5.42

The development of these isohemagglutinins has recently been investigated by Happ in 131 individuals from birth to 10½ years of age. He finds that the group characters are established in the corpuscles before they are established in the serum, and that this early acquisition of character in the corpuscles is subject to change until the group of the serum has been established, after which there is no change. Although agglutinins are present in mother's milk identical with those of her blood, they are not transmitted through the milk to the infant, because bottle-fed babies appear to develop iso-agglutinins in the same fashion as breast-fed babies. Von Dungern and Hirschfeld demonstrated that the inheritance of blood groups follows the law of Mendel. So far as has been determined, no very definite physical characters of the blood are associated with the presence or absence of group agglutinins.

AGGLUTINATION

Landsteiner explained the occurrence of interagglutinability of blood on the basis of the Ehrlich hypothesis. His hypothesis is similar to that proposed for the three groups by Hektoen. Landsteiner expressed the belief that human bloods as a class contain two agglutinins, A and B, which are variously distributed in the serums of the four different groups. Similarly, two receptors or agglutinogens for these agglutinins are supposed to be distributed among the corpuscles of the four groups. A serum which agglutinates no corpuscles contains neither agglutinin A nor agglutinin B, whereas a serum which agglutinates the corpuscles of all other groups contains both agglutinins A and B. Conversely, corpuscles that are not agglutinated by any serum contain no receptors or agglutinogens, and corpuscles that are agglutinated by the serums of all other groups contain receptors a and b. The distribution of these agglutinins and agglutinogens is made somewhat clearer by Table 5.

Thus, the serum of Group I, which agglutinates the corpuscles of the other three groups, contains both agglutinins A and B; and the serum of Group IV, which does not agglutinate any corpuscles, contains no agglutinins. The cells of Group I, which are not agglutinable, contain no receptors; and the cells of Group IV, which are agglutinated by the serums of the three other groups, contain both receptors a and b. Since the cells of Groups II, III and IV contain either or both receptors, these cells can be operated on by the serums of Group I, which contains agglutinins for both receptors. Serum of Group II contains agglutinin A, and therefore this serum can agglutinate the cells of Group III and Group IV, both of which contain receptor a, suitable to the activity of agglutinin A. The serum of Group III contains agglutinin B, and therefore can agglutinate the cells of Groups II and IV, both of which contain receptor or agglutinogen b.

Numerous experiments have been performed in connection with the Landsteiner hypothesis, the most recent being those of Koeckert, who has applied the phenomenon of differential absorption to the hypothesis. As an example of this method, it is possible to absorb from the serum of Group I, which contains agglutinins A and B, either of the agglutinins. If it is desired to absorb agglutinin A, the serum is mixed with the corpuscles of Group III, and after proper exposure the cells are removed by centrifugalization. Subsequently, this serum does not show the characters of the serum of Group I, but exhibits those of Group III, and instead of agglutinating Groups II, III and IV, it will agglutinate only corpuscles of Groups II and IV. By reference to the table it can be seen that the serum has therefore taken on the character of a Group III serum rather than a Group I serum.

TABLE 5.—DISTRIBUTION OF AGGLUTININS AND AGGLUTINOGENS

	Agglutinin (Serum)		Agglutinogen (Cells)	
Group I..................	A	B	—	—
Group II.................	A	—	—	b
Group III................	—	B	a	—
Group IV.................	—	—	a	b

The same principle is applied to the serum of the other groups, and the hypothesis of Landsteiner supported. Karsner and Koeckert, however, have shown that desiccation of human serum leads not only to deterioration of the agglutinins, but after a time the serums acquire the power of nonspecific agglutination so that each of the serums can agglutinate the cells of all the groups. Karsner and Collins have pointed out the fact that during desiccation the buffer value of the serum changes with an increase in hydrogen-ion concentration, and it seems probable that other physical chemical changes may occur. Gay was of the opinion that the interagglutinability of human blood is governed by physicochemical laws. For the present, it may be said that the Hektoen-Landsteiner hypothesis offers an excellent working basis for the explanation of the phenomenon; but it seems possible that the further investigation of the problems of immunity on the basis of the laws of colloidal reactions and those of physical chemistry may offer a more satisfactory explanation.

It would be expected that if interagglutination appears in the test tube, transfusion with such bloods would always result unfavorably; but as a matter of practical experience, it has been noted that individuals of Group I may serve as donors for that group or any other group. In other words, it appears to be safe to transfuse the blood of a donor whose serum in vitro agglutinates the recipient's corpuscles. Conversely, it is dangerous to inject a blood whose corpuscles are agglutinated by the recipient's serum. Group I cells are not agglutinable, and it is considered possible, therefore, to regard individuals of this group as "universal donors." In my experience, very rare reactions have resulted from following this rule; but for all practical purposes it appears to be reasonably safe. The report of the Interallied Surgical Congress[1] states that fatal accidents have been observed in some cases in which the cells of the donor are agglutinated by the plasma of the recipient, but that these grave accidents are rare. If a choice is possible, the safety of the operation is probably somewhat enhanced by the use of a donor from the same group as that of the recipient. The explanation of the usefulness of Group I as a universal donor presents one of the most interesting of the laboratory problems. In this connection it must be remembered that a small bulk of blood is introduced in proportion to the bulk of blood in the recipient's body, even though he may be severely anemic.

The agglutinating power of human serum is never strong as compared with the potency of artificially prepared immune serums; hence the dilution of the blood of the donor as it enters the circulation of the recipient may be sufficient to nullify the action of the agglutinin contained in the donor's serum. The titer of human agglutinins is usually 1 : 16 to 1 : 32. The bulk of blood injected in the course of transfusion is from 500 to 1,000 c.c., of which approximately one half is plasma. Thus, between 250 and 500 c.c. of plasma is introduced into the circulation, which even after severe hemorrhage contains sufficient fluid to dilute this bulk ten or more times. If, however, the agglutinin titer of the donor's serum is unusually strong, the dilution may not be sufficient to protect the recipient, and this may possibly explain the occasional accidents following the use of a donor whose serum agglutinates in a test tube the corpuscles of the recipient. It has been suggested that the protection of patients against the agglutination of serum may be due to the presence in the blood of weak antiagglutinins; but in a large series of experiments, Koeckert and I have failed to demonstrate any such protective substance. Another explanation offered for the protection of the recipient is that agglutinin in the donor's serum is distributed through such a large bulk of corpuscles that it cannot operate to clump these cells. In other words, when the serum is introduced, each corpuscle of the many millions in circulation takes up an equal share of the agglutinin, so that the amount absorbed by each corpuscle is too small to result in agglutination. Even were there some irregularity in the absorption by individual corpuscles and small clumps of agglutinated cells formed, these would probably be of such small size as to be of no significance.

The influence of agglutination is emphasized rather than that of hemolysis because it seems unlikely that the amount of hemoglobin produced in the course of hemolysis would operate deleteriously. Naturally, if the cells that are introduced are hemolyzed, they probably do no good; and conversely, if the patient's cells are hemolyzed, the operation may do harm in that it may reduce the number and quality of the patient's corpuscles. It might be supposed that if the introduction of cells has a definite effect on bone marrow, hemoglobin may have the same effect; but Robertson has shown that hemoglobin does not stimulate the bone marrow. On the basis of earlier studies, it has been accepted that the agglutinin and the hemolysin in a serum operate in sequence; that the two bodies are interdependent and, so far as practical purposes are concerned, essentially the same. Kolmer has recently studied this matter, and finds that human serum taken as a class contains two agglutinins and two hemolysins which are separable by heat; and he further shows that hemolysis is not necessarily preceded by agglutination, as has previously been believed. This being the case, it might seem advisable to test the blood for the presence of hemolysins as well as for the presence of hemagglutinins. It hardly seems necessary, however, to recommend the routine examination of blood for the presence of hemolysins because of the fact that hemolysis apparently does little if any harm. If it occurs, however, the transfusion is useless and it cannot be stated with certainty that it is entirely harmless. Boidin recently reported a case in which extremely severe shock and hemolysis occurred in a transfusion with perfectly matched bloods. An analysis of the case appears to indicate that the hemolysis was of only secondary importance and that the reaction was of the nature of protein shock. Bordet finds that corpuscles saturated with antibodies are toxic for guinea-pigs, and classifies the toxic material as anaphylatoxin. Karsner and Aub found that injection of agglutinating and hemolytic serum into cats leads to a necrosis of the liver, more extensive than can be explained by the mere blocking of the liver sinusoids and therefore probably due to some toxic body. Although by no means proved, it seems possible that even though hemolysis itself does no harm there may be formed in the process a toxic substance that can lead to serious disturbance.

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[1] Presse méd. **26**: 193, 1918.

TESTING BLOOD FOR COMPATIBILITY

Experience has shown that the use of blood for transfusion which has been properly tested and grouped removes much of the danger of the operation. Occasional reactions, however, are noted, some of which appear immediately and some of which are delayed for several hours. Before commenting further on the reason for reactions with tested bloods in transfusion, it is well to discuss the preliminary tests. Formerly, the blood of the patient was treated against the bloods of several prospective donors to determine both agglutination and hemolysis; but the more recent methods save time by considering only the agglutinative activity. The method pursued in testing depends in large part on whether or not a laboratory possesses standard serums. If these are not to be had, the agglutinability of the patient's blood against that of the donor's may best be determined by the methods described by Rous and Turner. This method utilizes small quantities of plasma and corpuscles, and determines the reaction with two different strengths of plasma. The method is accurate and rapid. If standard serums are available, it is customary to determine the group of the patient and of the donor by ascertaining how the corpuscles of these bloods react to standard I and II serums. For this purpose the blood to be examined is collected by allowing a drop of blood obtained from a pin prick to flow into about 0.5 c.c. of salt solution in a small test tube. The suspension is slightly opaque, and if clotting occurs, the corpuscles may be satisfactorily resuspended by vigorous shaking. On a microscope slide are placed a drop of serum II and a drop of serum III, into each of which is emulsified a drop of the corpuscle suspension by means of a platinum loop. Agglutination occurs usually within five or ten minutes, but may be delayed as much as half an hour. The result may be observed with the microscope, a 16 mm. lens being used, or by means of a hand lens with a magnification of 6 to 10 diameters. The clumps are usually visible to the naked eye, but it is considered safer to make the observation by means of magnification. We find the result somewhat more simple to observe if the slide is inverted after the mixture has been made and the drops observed as hanging drops. If no agglutination occurs, the cells belong to Group I. If agglutination occurs in both drops, they belong to Group IV. If agglutination occurs in serum III and not in serum II, the cells are those of Group II, and if the converse is true the cells are of Group III. Controls may be instituted by the use in addition of a Group IV serum or by the use of corpuscles of Group I. Table 6 illustrates the identification of the group (Jansky's classification).

TABLE 6.—DETERMINATION OF GROUP

Cells	II	III
I	—	—
II	—	+
III	+	—
IV	+	+

As has been stated, it is of the utmost importance to determine that the serum of the recipient shall not agglutinate the cells of the donor. In fact, this seems to be the one important reaction to avoid. Accordingly, it has been suggested that a drop of the recipient's serum may be mixed on a slide with a drop of the prospective donor's corpuscles. If no reaction appears, the transfusion may be proceeded with. I have seen two serious reactions accompanying transfusions made on the basis of this method. The patients were affected with chronic anemia and it was subsequently found that the agglutinin titer of their serums was so extremely low as not to produce agglutination on the slide; nevertheless, their cells were agglutinated by standard serums and were found to belong to groups antagonistic to those of the donors. The method, then, is subject to error if the agglutinative titer of the patients' serums is low. By the use of standard serums this error is avoided because corpuscles exhibit little difference in agglutinability, and the standard serums are selected because of comparatively high agglutinin titer.

In connection with testing by the use of standard serums, the question of preservation of serums over a long period of time has been examined. Sanford maintains that the serums may be dried on perfectly clean slides wrapped in paper, kept in the refrigerator, and thereby satisfactorily preserved. Hartman has suggested the use of serums dried on filter paper. I attempted preservation by drying in air in the moist climate of France, and found that deterioration resulted in the course of five or six days. This question has been investigated by Karsner and Koeckert, who found that desiccation results in definite deterioration in from two to three weeks, and that an entire loss of group specificity appears in from three to five weeks. Kolmer and Trist have confirmed the loss of group specificity, and suggest that a preservative (0.2 per cent. tricresol) added before desiccation leads to better preservation. In our hands, preservation with 0.5 per cent. phenol (carbolic acid) made no difference in the loss of specificity. I have pointed out the value of preserving the serums for individual tests in drawn out glass tubes similar to those used for vaccine virus. The addition of 0.5 per cent, phenol or 0.2 per cent. tricresol is recommended if absolute sterility is not obtainable. By this method serums retain their agglutinating strength for periods of more than three months.

A method of this sort obviates the necessity for opening a large ampule each time a test is performed. Were it possible to prepare in animals immune serums specific for each of the four groups, considerable amounts of high titer serums could be collected and used for testing. Kolmer and Trist attempted to immunize sets of animals by repeated injections into each set of animals of blood cells from each of the four groups. The resulting serums were highly agglutinative for human blood as a class, and in a few instances the agglutinins were present in slightly higher titer against the group cell used for injection than against cells of the other groups. The difference was slight, and absorption of agglutinin by means of the cells of any group removed agglutinins for all the groups. The factors which determine the distribution of groups in man are not of sufficient prominence to produce specific results following animal inoculations. This is in conformity with the general rule that the specificity of artificial immunity has to do with a species as a whole rather than with a group of individuals, a single individual or an organ or tissue.

It has been of interest to calculate the favorable chances of transfusion in case blood is not tested. On the basis of figures similar to those given above for the incidence of groups, I estimated that 64.9 per cent. approximates the chance of favorable results. Dr. W. B. Rogers, in a field hospital in France, was obliged to perform a considerable number of transfusions with untested blood. In thirty-six of his cases, which could be used for determining presence or absence of reactions, 73 per cent. showed no reaction. Crile has summarized the results of transfusion previous to the time of testing the blood, and quotes Jennings as showing that 39.1 per cent. failed to be benefited in one series of figures, and 34.5 per cent. in other series. These correspond closely to the theoretical figures estimated above.

Experience in the World War made it seem apparent to some of the operators that soldiers who received transfusions in the advanced hospitals, before testing had been established, showed fewer reactions than those who were transfused at the base hospitals. Patients at the base hospitals who required transfusion were frequently the victims of long-standing suppuration. The question naturally arose then as to whether or not the presence of disease influences the amount of agglutinin present in the recipient's serum. I have not been able to investigate this question in any detail, but the examination of the serum of a few cases of pernicious anemia shows that the titer of the agglutinin in their serums has been extremely low. It is too early to make any definite statement in this connection.

In regard to the compatibility of bloods, it is of interest to note the attempts that have been made to preserve blood corpuscles for subsequent use in transfusion. Undoubtedly, the animal body can replace the loss of fluid with considerable rapidity; and therefore, in the case at least of acute hemorrhage, the important element of success lies in the corpuscles. Two outstanding methods for preservation have been described. The older of these is the use of formaldehyd for preservation; this has been used by Burmeister for transfusion in cases of poisoning by illuminating gas. More recently, Rous and Turner have described a method that utilizes blood, sodium citrate, saccharose and water. Experimentally, they found that cells could be preserved for fourteen days and still be used. Robertson utilized a similar method for preservation of corpuscles for transfusion in France, and obtained excellent results.

Undoubtedly, the testing of blood for agglutination has placed the operation of transfusion in a much more satisfactory position than was previously the case. Nevertheless, even with the most careful matching of bloods, reports occasionally appear in which reactions of variable severity have been noted. It would seem, therefore, that in certain instances there are elements other than hemagglutination and hemolysis which lead to reaction. At the present time it seems that these elements may be discussed in three categories, namely: the foreign character of blood and protein; the influence of clotting, and the influence of anticoagulants.

It is well known that the injection of foreign protein into an animal may lead to reactions of greater or less severity, and that there is considerable individual variation within any given species. In certain instances, as for example the injection of eel serum into guinea-pigs, fatal reactions may follow the introduction of extremely small amounts of the foreign protein. It is rare, however, that any individual shows reaction to a native protein from another individual of the same species; but such a possibility cannot be entirely excluded. In other words, it is to be considered possible that the protein of one man may be toxic for another man. Such a reaction would be considered an evidence of natural hypersensitiveness. Reports have appeared which indicate that the use of a blood for transfusion may artificially render the patient hypersensitive to a subsequent transfusion, thus presenting the picture of artificially induced anaphylaxis. Such a type of anaphylaxis, however, has never been observed in the case of other animals, and most students of the subject consider that anaphylaxis within a species has yet to be demonstrated. It may be that the primary transfusion produces an immune body which, on interaction with the cells introduced in a subsequent injection, leads to the production of toxic products. This, however, is not the reaction of anaphylaxis according to a strict and narrow definition. Hanzlik and I have referred to this sort of phenomenon as anaphylactoid, and the term "colloid crisis" may also be applied. Ignorance of the variations in colloid constitution of protein solutions within the species prevents further hypothesis along this line; but it may be that future investigation will provide detailed information.

METHODS OF TRANSFUSION

The older method of transfusion, whereby blood vessels of one individual were directly anastomosed with those of another, was found to be objectionable because of the difficulty of measuring the amount of blood transfused. Accordingly, there have been developed numerous methods whereby the blood is transferred from one to another by the mediation of some instrument. Clotting of the blood is to be regarded as a process which begins to act as soon as the blood is outside the vessel. Even the use of anticoagulants does not entirely or immediately inhibit the process. The possibility that toxic materials can be produced even before the clot has formed has been recognized by Satterlee and Hooker, by Minot and Lee, and by Robertson, and is indicated by the studies of DeKruif and of Janeway, Richardson and Park. What these toxic bodies may be is still problematic. For a variety of practical reasons it has seemed desirable to use anticoagulants during the period that the blood is out of the body; and of these, sodium citrate appears to offer the smallest possibility of danger to the recipient. Nevertheless, even under the most carefully controlled conditions, it appears that the use of citrated blood leads to a greater percentage of reaction than does careful transfusion by other methods. Drinker and Brittingham have studied the influence of sodium citrate and find that the reaction bears no constant relation to the method of citration or to the particular sample of citrate employed. They have noted, further, that the citrated plasma is not toxic but that the cells, even though thoroughly washed, are toxic even if injected into the individual from whom they were taken. Apparently the removal of the platelets and leukocytes by defibrination reduces the toxicity of the cell mass; but this toxicity is increased by the subsequent addition of citrate. It is possible, then, that the action of citrate on the cells may have a toxic influence or that, by failing to remove the platelets and the leukocytes, the toxic influence of these is not removed. They conclude that "while the totals of the different types of transfusions which have been employed are not large, it appears that three elements make up the final total of reaction in citrate transfusion: (*a*) very rare gross incompatibilities which escape in vitro detection; (*b*) changes in the plates, part of the process of coagulation; (*c*) direct action of the sodium citrate on red cells promoting hemolysis."

It is always recommended that a Wassermann test be performed on the blood of the donor in order to avoid the transfer of syphilis. There is, however, considerable difference of opinion among investigators as to the number of spirochetes in the circulating blood in latent syphilis. Certainly in the florid stages of syphilis this is a danger that must be seriously considered; but if the disease is so latent as to give no clinical signs, and if the necessity for transfusion is urgent, the failure to have a negative Wassermann test on the donor's blood should not prevent the operation. It seems unlikely that the disease will be transferred from a patient who gives no clinical evidence of being a victim. Levaditi and Marie have recently recovered the organism from a case of syphilis of fifteen years' duration. Graves found it in the blood of two tabetics. It is unlikely that such cases are encountered frequently. The danger, however, is real, and may be disregarded only under the most urgent circumstances.

A transfer of other septicemias is virtually out of the question because victims of this type of disease are obviously ill and are not selected as donors. Certain reports have appeared favoring the use of transfusions for patients suffering with chronic infections of pyogenic nature, and it has further been advised that in these cases the use of the blood of donors who have been immunized against the infecting organism would be of value. Transfusion on this basis would introduce into the patient corpuscles to combat the anemia and plasma endowed with immune substances to combat the organism causing the disease. There is at the present time no large amount of clinical observation to support this claim. If immunity can be transferred in this fashion, is it possible that natural hypersusceptibility, such as is indicated in hay-fever, asthma, eczema and similar conditions, can be transferred by transfusion? Ramirez has reported the case of a person who became hypersensitive to horse protein after having received the blood of a donor who was naturally susceptible to horse protein. This single instance illustrates the fact that the possibility of transfer of natural hypersensitiveness is not to be entirely neglected.

We may conclude that the study of isohemaglutination and isohemolysis has done much toward making the operation of transfusion relatively safe; but the problem of reaction is by no means completely solved. Extensive and intensive study of immunologic problems from the point of view not simply of immune substances as we understand them today, but from the broader view of physical chemistry, are necessary before we can place the operation on a thoroughly satisfactory basis.

EXARTICULATION OF THE HIP JOINT

WITH PRELIMINARY LIGATION OF THE COMMON ILIAC ARTERY *

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Amputation through the hip joint is generally considered a formidable operation associated with a high rate of operative mortality. The greatest difficulty encountered in the operative procedure is the control of hemorrhage.

Various methods for the control of bleeding during hip joint exarticulation, such as Senn's clamp, Wyeth's pins, and compression of the abdominal aorta, are described in the various surgical textbooks. The disadvantage of any tourniquet method is that the tourniquet is inconvenient and insecure during the operation if an attempt is made to amputate the soft parts very near the pelvic girdle. The disadvantages of relying on compression of the abdominal aorta for the control of hemorrhage is obvious.

McBurney [1] reported three successful cases of hip joint amputations in which the common iliac artery was temporarily compressed during the period of division and ligation of the vessels in the amputation wound. The compression of the artery was made by an assistant's fingers introduced through an abdominal incision. This method of control of hemorrhage during hip joint exarticulation has been used successfully by other operator's since McBurney's report.

Halsted [2] reviews thirty instances in which the common iliac artery has been permanently occluded without amputation of the extremity, and he states that uncomplicated permanent ligation of the common iliac artery is not likely to be followed by gangrene of the extremity.

It would seem, therefore, that if permanent ligation of the common iliac artery was not likely to produce gangrene in the entire extremity, it might be permanently ligated preliminary to hip joint exarticulation without fear of gangrene in the amputation flaps. That permanent occlusion of the artery would make the operation of amputation much easier and less bloody than temporary occlusion is obvious. The following is a brief abstract of a case in which this operative procedure was carried out.

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* From the Department of Surgery, Washington University School of Medicine.

[1] McBurney: Ann. Surg. **25**: 610, 1897.

[2] Halsted: Bull. Johns Hopkins Hosp. **23**: 191, 1912.

REPORT OF CASE

History.—A widower, aged 54, laborer, admitted to Barnes Hospital, June 1, 1920, and discharged, July 25, whose family and past history were unimportant with relation to the present illness, was making his way through a barbed wire fence, Feb. 14, 1920, when his foot slipped and he fell. The family physician diagnosed the injury as a fracture of the femur, and treated the patient by the application of splints. Three weeks previous to admission the patient consulted another physician, who had roentgenograms made, which showed extensive destruction of the shaft of the femur. The patient was then referred to the Barnes Hospital by Dr. Marsden of Jerseyville, Ill.

On admission the patient was poorly nourished, and seemed much older than the age given. The left thigh was tremendously swollen. The skin was shiny and tense. On palpation there was a sensation of deep fluctuation. There was no union of the fractured femur. Very little tenderness and little pain was felt on movement of the extremity. A roentgenogram revealed extensive destruction of the middle third of the shaft of the femur. The temperature was 101, the pulse, 120. The white blood cells numbered 11,600.

The diagnosis made was osteomyelitis or neoplasm. An exploratory incision was made into the thigh, and uncontrollable hemorrhage was encountered. A tourniquet was applied and a midthigh amputation performed. During this operation the patient's pulse rate rose to 160, and his general condition became alarmingly grave. It was clear that the amputation was made through tumor tissue. The patient recovered from the operation slowly. Microscopic examination of the tumor identified it as a spindle cell sarcoma.

June 28, twenty-six days after the midthigh amputation, a transfusion of 550 c.c. of citrated blood was administered, following which the patient's hemoglobin rose from 50 to 65 per cent. and there was very marked improvement in his general condition.

July 2, the patient was made aware of the incomplete removal of the malignant tumor of the thigh, and hip joint exarticulation was advised with the idea in mind of saving him, if possible, from the experience of an ulcerating sarcoma of the thigh stump.

Operation and Result.—An abdominal incision was made at the medial border of the left rectus at the level of the umbilicus. The left common iliac artery was easily exposed through a small incision in the posterior peritoneum, and was tied tightly with a double strand of braided silk. The ligature was placed half-way between the bifurcation of the aorta and the origin of the hypogastric artery. The abdomen was closed.

The stump of the thigh was flexed and abducted. The anterior and posterior flaps of the skin were cut. The femoral artery and vein were isolated, clamped, divided and tied. The incision was carried through all the soft tissue down to the neck of the femur. The capsule of the hip joint was incised. The head of the femur was exarticulated. In cutting through the soft parts we observed bleeding from the sacral and obturator arteries. The bleeding was with some considerable force. The blood was bright red. The streams did not pulsate. All soft tissues bled, but no more than half a dozen hemostats were applied, as the bleeding everywhere, except from the largest arteries, quickly ceased.

The amputation wound was closed with the exception of a small cigaret drain at the lateral end of the closure. The patient's general condition was not noticeably changed during the course of the entire operative procedure. The pulse rate remained constantly at 120, which was the rate at the time of the abdominal incision.

The postoperative course was uneventful. The drain was removed from the amputation wound in forty-eight hours. There was very little drainage from the wound. The flaps healed by first intention, and there was no discoloration of the skin.

COMMENT

The operative procedure carried out in this case has been previously used by Trendelenburg[3] in one instance, and by Schonborn[4] in three hip joint exarticulations. In one of Schonborn's cases there was a small area of necrosis of the skin along the margin of one of the amputation flaps.

Preliminary ligation of the common iliac artery has been practiced by Jaboulay[5] and others for the control of hemorrhage during interilio-abdominal amputation.

In the instance reported in this paper, preliminary ligature of the common iliac artery resulted in the easy performance of a high hip joint amputation with little loss of blood. The patient's general condition was not disturbed by the operation, and the anemia of the tissue was not severe enough to influence the kindly healing of the operation wound.

The bleeding from the tissues divided in the amputation was of particular interest. Unfortunately, bleeding from the femoral artery was not observed, as this vessel was ligated before it was divided. Popert,[6] however, in reporting a case in which he had ligated the common iliac artery and divided the vessel distal to the ligature, states that the distal stump of the vessel bled. The sacral and obturator arteries in our case bleed freely. The streams of blood had considerable force, although there was no visible pulsation in the streams for the brief time they were observed. The tissues everywhere bled, but the bleeding so quickly ceased that hemostats were necessary in only a few instances. The fact that active bleeding from the larger arteries was observed is of interest in connection with McBurney's statement that compression of the common iliac artery resulted in complete absence of blood current beyond the point of compression, and Halsted's conclusion that permanent uncomplicated ligature of the common iliac artery is not likely to be followed by gangrene of the extremity.

In this instance it was certain that the complete occlusion of the common iliac artery did not completely arrest the blood stream in the sacral and obturator arteries. It is, of course, idle to speculate on the question of the efficiency of the amount of blood current present to preserve the vitality of the entire lower extremity had it not been removed. From some experimental work now in progress it has been astonishing to find how little blood stream to an extremity may be sufficient to preserve its complete vitality.

It may be stated that hip joint amputation in this instance was performed more with the object of saving the patient from the experience of an ulcerating tumor of the thigh stump than of curing him of the malignant tumor. But if preliminary ligature of the common iliac artery always resulted in the diminution of the blood stream, as in this instance, it might be possible to make amputations much more complete without serious operative risk. This point is worth consideration since malignant tumors of the sort found in this instance are likely to extend throughout the entire length of each muscle invaded. It would seem, therefore, that with such a tumor of the thigh there would be a better chance of complete removal of the tumor if especially those muscles which are invaded by the neoplasm were removed in toto. For example, in this instance, nodules of tumor were found in the adductor muscles near the level at which they were divided. And could it have been foreseen that the operation of amputation was to be so free from hemorrhage and shock, I feel sure that this patient's chances of freedom from recurrence of the tumor would have been greatly improved, and the danger of operation mortality not materially increased, if these muscles had been removed *en bloc* from their points of origin on the pelvic girdle.

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[3] Trendelenburg: Arch. f. klin. Chir., 1881.

[4] Schonborn, cited by von Berckel: Ueber neue Methoden der Exartikulations im Huftgelenk, dissertation, 1884.

[5] Jaboulay, cited by Gayet: Province médicale, 1895.

[6] Popert: Deutsch. med. Wchnschr., 1889, No. 29.

At present, four months after operation, the patient weighs 25 pounds more than at the time of the fracture of his thigh, and shows no evidence of recurrence of the disease.

Another point worthy of mention is that in the case reported in this paper, the hip joint exarticulation was a reamputation thirty days after a midthigh amputation. Cooper,[7] in referring to an instance in which Sir Astley Cooper had successfully exarticulated the hip joint after a midthigh amputation, remarked that, as the patient had formerly suffered a midthigh amputation, the operation of the hip joint exarticulation was certainly unlike the sudden removal of nearly a quarter of him. The opinion that hip joint exarticulation performed after a midthigh amputation was much less likely to be fatal was also expressed by Gross,[8] Van Buren,[9] Packard[10] and Otis.[11] It would seem, however, that the evidence supporting this belief was not convincing, since it is based for the most part on observations of primary hip joint amputations and reamputations through the hip joint after severe wounds of the thigh.

PROPHYLACTIC INOCULATION AGAINST YELLOW FEVER *

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Sufficient grounds for the possibility of establishing a prophylactic vaccination against yellow fever are furnished by the facts that (1) a person acquires a state of complete immunity enduring for a period of years after recovery from an attack of yellow fever, and (2) the serum of such a person, and also of guinea-pigs once inoculated with the blood of yellow fever patients, contains varying amounts of antibodies against *Leptospira icteroides*.[1] That such vaccination is a distinct possibility is shown in these experiments:

VACCINATION IN GUINEA-PIGS

In the first series of experiments, carried out in Ecuador, thirty guinea-pigs ranging in weight from 280 to 320 gm., and recently received from mountainous districts, were divided into three equal groups and inoculated subcutaneously with the killed culture of *Leptospira icteroides* (heated at 60 C. for fifteen minutes in a water bath) containing about 500,000 organisms per cubic centimeter, the first group receiving 1 c.c., the second 0.3 c.c., and the third, 0.1 c.c. All were kept under careful observation, daily records being made of the temperature and other reactions. Two weeks after inoculation they were tested for resistance to a virulent *Leptospira* culture of the Guayaquil strain No. 1, applied to the scarified surface of the skin. As controls, eight uninoculated guinea-pigs of similar weights were given the same culture in the same manner and at the same time. The culture employed was 10 days old and killed guinea-pigs within eight days in a dose of 1 c.c. of a 1:10,000 dilution by intraperitoneal injection. The results are recorded in Table 1.

As the table shows, the injection of the vaccine produced neither febrile nor local reactions in the guinea-pig.

By the use of a sufficient amount of killed culture of *Leptospira icteroides*, guinea-pigs were made resistant to a subsequent inoculation which invariably produced typical symptoms and lesions and death in normal guinea-pigs. A smaller amount (0.1 c.c. in the present series) conferred imperfect protection, although four of six animals remained well, and one recovered after a mild attack of the infection.

TABLE 1.—RESULTS OF VACCINATION OF GUINEA-PIGS AGAINST LEPTOSPIRA ICTEROIDES

Number of Guinea-Pig	Amount of Vaccine, C.c.	Local or Febrile Reaction	Subsequent Infection, After	Result of Infection	Pfeiffer Phenomenon After 4 Weeks
601	1	None	14 days	Well	Positive
602	1	None	14 days	Well	Positive
604	1	None	14 days	Well	Positive
605	1	None	14 days	Well	Positive
607	1	None	14 days	Death in 10 days without jaundice	
609	1	None	14 days	Well	Not done
610	1	None	14 days	Well	Not done
611	0.3	None	14 days	Well	Positive
613	0.3	None	14 days	Well	Positive
614	0.3	None	14 days	Well	Positive
615	0.3	None	14 days	Well	Positive
618	0.3	None	14 days	Well	Positive
620	0.3	None	14 days	Well	Not done
622	0.1	None	14 days	Death in 12 days; typical	
623	0.1	None	14 days	Well	Positive
624	0.1	None	14 days	Slight icterus after 9 days; recovered	Positive
625	0.1	None	14 days	Well	Positive
627	0.1	None	14 days	Well	Positive
629	0.1	None	14 days	Well	Positive
Controls					
631	Death in 9 days; symptoms and lesions typical				
532	Death in 9 days; symptoms and lesions typical				
633	Death in 11 days; symptoms and lesions typical				
634	Death in 9 days; symptoms and lesions typical				
635	Death in 13 days; symptoms and lesions typical				
636	Death in 3 days through an intercurrent infection				
637	Death in 10 days; symptoms and lesions typical				
638	Death in 11 days; symptoms and lesions typical				

Other series of experiments have been carried out by one of us (Noguchi) at the Rockefeller Institute with guinea-pigs of American stock. The results were similar to the foregoing and will be published in detail later.

EFFECTS OF VACCINATION IN MAN

The almost total absence of any constitutional or local reaction except the development of a subsequent definite immunity following the injection of a killed culture of *Leptospira icteroides* into guinea-pigs furnished a basis for applying this procedure to nonimmune persons for the purpose of protection. There is great need of a prophylactic measure in countries in which yellow fever still prevails and in which a nonimmune population may become exposed to the disease. The nonimmune population, of course, avoids visiting the yellow fever foci through dread of the disease, and the supply of labor and other commercial and industrial relations is thereby seriously affected. Yellow fever in such countries becomes an important national economic issue.

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[7] Cooper, Samuel, quoted by Otis (Footnote 11).

[8] Gross: A System of Surgery, Ed. 3, Philadelphia **2**: 1046, 1864.

[9] Van Buren: Contributions to Practical Surgery, Philadelphia, 1865, p. 10.

[10] Packard: New York M. J. **2**: 161.

[11] Otis: A Report of Amputations at the Hip Joint in Military Surgery, Circular 7, U. S. War Department, Surgeon-General's Office, 1867.

* From the Laboratories of the Rockefeller Institute for Medical Research, New York, and the Yellow Fever Hospital, Guayaquil.

[1] Noguchi, Hideyo: J. Exper. Med. **30**: 1, 9 (July) 1919.

The trial of prophylactic vaccination against yellow fever in Ecuador was precipitated by the occasion of the national celebration that was to take place during the first part of October, 1918, in Gauyaquil. A battalion known as the "Vincedores," consisting chiefly of nonimmune soldiers from the highlands, was ordered to participate in the ceremony, and Governor Pareja of Guayaquil suggested the possibility of trying the anti-yellow fever vaccination on these soldiers. His suggestion was accepted by the military authorities and sanctioned by President Baquerizo. At the barracks in Guayaquil to which the battalion was ordered, approximately 300 soldiers are stationed regularly. During the period of six months from January to June, 1918, there had been fifty-eight cases of yellow fever with twenty-nine deaths in these barracks, which was an unusual outbreak. The introduction of sanitary measures (isolation of suspected cases by mosquito nets, the closing and frequent cleaning of drinking water tanks, etc.) had checked the epidemic, and only one officer died of yellow fever there between July and October, 1918.

A journey was made to Quito (9,000 feet above sea level), Sept. 18, 1918, and on September 20, eleven persons were inoculated in order that we might observe the effect of the vaccination. The histories and physical examinations of these men were made by Dr. Pareja, who excluded any one who was suspected to be immune or had any sign of ill health. Samples of the blood were taken from the median basilic vein before vaccination for tests of immune bodies for the leptospira and for comparison with serum drawn from the same individuals after the vaccination.[2]

The vaccine consisted of a rich killed culture of the Guayaquil strain No. 1 containing about 2,000,000 leptospiras per cubic centimeter, heated in a water bath at 60 C. for fifteen minutes, and used ninety-six hours after killing; no antiseptics were added. The heated organisms were fragmented, tortuous and granular, the original forms being no longer recognizable; the liquid was slightly grayish, but limpid. Inoculations were made subcutaneously, usually on the left upper arm, and different doses were used, four persons receiving 1 c.c.; four, 0.3 c.c., and three, 0.1 c.c.

The local reactions comprised a slight reddening (a few centimeters square, without induration) of the injected area, which persisted about twenty-four hours; in only one instance was it somewhat more extensive; it endured forty-eight hours, but was not more painful than might have been expected from the mechanical effect of the injection. Subjectively, some experienced a slight dulness in the head, but all slept well, and the appetite was unaffected. In one instance there were slight pains in the shoulders which disappeared within forty-eight hours. There were slight brachycardia and hypothermia, which began after about ten hours and lasted from twenty-four to forty-eight hours; in one instance the pulse rate went down to 50, and in several to 56. At the same time the temperature was about 1 to 2 degrees C. below normal. These objective effects were by no means proportional to the amount of vaccine injected. Within seventy-two hours all symptoms had disappeared.

A second inoculation of the same doses was made, Sept. 24, 1918, in three individuals of the 1 c.c. group, one of the 0.3 c.c. group, and two of the 0.1 c.c. group. No local or constitutional reactions followed. September 26, blood was drawn from all the inoculated persons for the purpose of determining the leptospiricidal properties of the serum.

The serums taken before and after vaccination were examined, September 30, for the Pfeiffer phenomenon. To 2 c.c. of the serum was added 1 c.c. of a rich, actively motile culture of the No. 1 strain, and the mixture was introduced into the peritoneal cavity of a normal guinea-pig. After from thirty minutes to one hour the fluid was pipetted from the peritoneal cavity and examined under the dark field microscope. The results of this examination in ten soldiers, and the subsequent fate of the animals used, are recorded in Table 2.

TABLE 2.—RESULTS OF VACCINATION AGAINST LEPTOSPIRA ICTEROIDES IN TEN HUMAN BEINGS

			Serum Taken Before Vaccination		Serum Taken After Vaccination	
Soldier No.	Dose, C.c.	Number of Vaccinations	Pfeiffer Phenomenon	Fate of Animals	Pfeiffer Phenomenon	Fate of Animals
1	1	2	—	Death in 5 days	+	Survived
2	1	2	—	Death in 6 days	+	Death in 9 days
3	1	2	—	Death in 6 days	+	Survived
4	0.3	2	—	Death in 6 days	+	Survived
5	0.3	1	—	Death in 6 days	+	Death in 9 days
6	0.3	1	—	Death in 5 days	+	Death in 7 days
7	0.3	1	—	Death in 4 days	+	Death in 8 days
8	0.1	2	—	Death in 6 days	+	Death in 8 days
9	0.1	1	—	Death in 5 days	+	Death in 7 days
10	0.1	1	—	Death in 6 days	+	Death in 8 days
Saline control.............			—	Death in 5 days		

The serums of the ten soldiers taken previous to vaccination had no action on the organisms either in respect to the Pfeiffer tests or the subsequent course of the infection in the guinea-pigs injected with them, while the serums taken after vaccination gave a positive Pfeiffer reaction even when the amount of the killed culture inoculated had been as small as 0.1 c.c. The final infection, however, was not prevented in most instances, the animals receiving the serums from persons vaccinated with a single dose of 0.3 c.c. and single or double doses of 0.1 c.c. all developing typical symptoms and dying after a period involving delays of from two to four days, as compared with those receiving the normal serums. In the case of the four animals that received serum from soldiers inoculated twice with 1 c.c. and 0.3 c.c., however, there were three that survived. Hence it may be concluded that, given a sufficient amount of the killed culture, not only the Pfeiffer phenomenon but also the protection of the animal against the infection with a large amount of the virus may be brought about in human serum. The results from the serum of soldiers receiving smaller amounts of the killed culture, in which the animals finally succumbed to infection notwithstanding a positive Pfeiffer reaction, were to have been expected, in view of the enormous quantity of culture used in the tests; moreover, it does not follow that the soldiers yielding these serums were not protected against a natural leptospira infection, since under natural circumstances infection of man is never induced by such large numbers of the organism. Indeed, it may be assumed that the number of leptospiras introduced into the human body by the mosquito is small and probably readily taken care of in persons whose serum contains antibodies enough to give a positive Pfeiffer reaction. It will, of course, be advisable to adopt double or triple injections of the vaccine for prophylactic inoculation, when possible.

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[2] We are indebted for these specimens to Dr. Carlos A. Mino, assistant director of the department of health at Quito, to Dr. E. Salgado V., also of the department of health, and to Dr. Victor M. Bayas, surgeon of the "Bolivar" Regiment.

September 24, 149 soldiers of the battalion mentioned were inoculated in Quito with the same vaccine, 120 being given 1 c.c. and the remainder 2 c.c. The same brief effects, namely, brachycardia and a drop in temperature, were noted. In only one instance were marked headache, loss of appetite and muscular pains complained of. In this officer a mild urticaria, which disappeared in about nine days, developed around the site of injection. A boy soldier of 14 years had a pulse rate as low as 44 on the day following the vaccination, but had no subjective symptoms.

October 8, the day after their arrival at Guayaquil, the remainder of the battalion Vincedores and their families, including women and children (176 persons), were inoculated with a vaccine killed with 0.5 per cent. phenol.[3] At this period the culture material on hand had been nearly exhausted; a culture much inferior to the first was utilized, and the number of vaccinations to be carried out necessitated diluting the small amount of material available; hence the resulting vaccine preparation (Vaccine B) was only one-fifth the strength of that previously used in Quito (Vaccine A).

Of the 149 soldiers who were vaccinated in Quito, three who had received 1 c.c. of vaccine (Vaccine A) later contracted yellow fever in Guayaquil 35, 93 and 99 days, respectively, after vaccination; the first case was fatal (Table 3).

TABLE 3.—YELLOW FEVER INCIDENCE AMONG VACCINATED PERSONS

Name	Age, Years	Vaccine Preparation Employed	Amount Injected, C.c.	Date of Vaccination	Date of Onset of Yellow Fever	Time Between Vaccination and Onset, Days	Result
M. M.	34	Vaccine A	1	9/24/18	10/29/18	35	Died 7th day
M. B.	22	Vaccine A	1	9/24/18	10/29/18	93	Recovered
E. M.	28	Vaccine A	1	9/24/18	1/ 4/19	99	Recovered
B. R.	40	Vaccine B	1	10/ 8/18	10/14/18	6*	Died 5th day
J. M. C.	10	Vaccine B	1	10/ 8/18	10/28/18	20	Died 9th day
M. P. V.	19	Vaccine B	1	10/ 8/18	11/ 6/18	29	Recovered

* An instance in which the patient had contracted yellow fever before the vaccination had conferred any immunity.

Of the 176 soldiers and their families vaccinated after their arrival in Guayaquil, one, who had received 1 c.c. of Vaccine B, developed yellow fever six days after vaccination and died on the fifth day of illness. This case may be regarded as a control, since the vaccination could not have conferred any protection within this short period. Two more cases, occurring among the persons vaccinated in Guayaquil with Vaccine B, one twenty days (fatal) and the other twenty-nine days (recovered) after the vaccination, demonstrate either that the amount of vaccine given was insufficient, or that these individuals were unusually susceptible to the leptospira infection—a phenomenon observed also among vaccinated animals.

It may be noted that among the persons receiving 2 c.c. of Vaccine A, none contracted yellow fever, and that of the three persons who developed yellow fever notwithstanding the injection of 1 c.c. of Vaccine A, two recovered. The incidence of yellow fever among the vaccinated and that among the unvaccinated nonimmune population of Guayaquil may be roughly compared by referring to the yellow fever statistics published by the Department of Health of Guayaquil for 1918-1919[3] (Table 4). During the months of October, November and December, 1918, and January, February and March, 1919, 386 cases of yellow fever occurred in Guayaquil, with 217 deaths (56 per cent.). The nonimmune population of the city, which is not accurately known, must have been comparatively small; hence the yellow fever incidence among the vaccinated (five cases among a total of 427) was strikingly low in comparison with that among the unvaccinated nonimmune population, and the mortality was also low (33 per cent. of the Vaccine A group, and 40 per cent. among both groups).

TABLE 4.—YELLOW FEVER INCIDENCE AT GUAYAQUIL IN 1918-1919

Year	Month	Number of Cases Occurring	Deaths	
			Number	Percentage
1918	October	72	41	57
	November	81	43	52
	December	88	46	52
1919	January	85	51	60
	February	43	22	52
	March	17	14	80

Following the inauguration of a rigorous antistegomyia campaign (December, 1918) throughout Ecuador under the department of health (Dr. Becerra) with the cooperation of the International Health Board (Dr. M. E. Connor), the yellow fever incidence became gradually so reduced that in May, 1919, only a single case occurred, and since that date the country has remained free from the disease[4]; hence the prophylactic value of the vaccination could no longer be tested in Ecuador.

During 1919-1920, the northern districts of Peru, the countries of Central America, and certain localities in Mexico have been invaded by yellow fever, and the vaccination has been practiced on a large scale by several sanitary experts (5,000 vaccinations in Salvador and Guatemala by Dr. T. C. Lyster, Dr. C. A. Bailey, and Dr. E. I. Vaughn in 1920 of the International Health Board), who will no doubt publish their findings in time.

The concentration of the vaccine now prepared at the Rockefeller Institute is such that 1 c.c. contains about 2,000,000,000 organisms. About 0.2 per cent. agar is being used in the culture medium, and the culture is diluted with twice or more its volume of saline solution at the time of making the vaccine. The presence of agar in the vaccine is objectionable, as it may rarely remain unabsorbed, leading to sterile abscess formation; notwithstanding repeated efforts, however, we have not yet succeeded in growing *Leptospira icteroides* abundantly in a liquid medium; but by careful massage at the site of inoculation, the absorption of the agar is facilitated and the abscess formation prevented. Dr. Lyster and his associates, in their series of 5,000 vaccinations, have observed only six instances of sterile abscess, which occurred two weeks ofter inoculation.

SUMMARY

From the results of vaccination in guinea-pigs, it may be concluded that when sufficient quantities of the killed culture are given, these animals are usually rendered resistant to a subsequent infection with *Leptospira.* The degree of protection, however, is not strictly proportional to the amounts of the vaccine inoculated.

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[3] Subsequently 102 additional vaccinations were carried out (with more concentrated vaccine), making the total number of vaccinations in Ecuador 427. See the Boletin Trimestral de la Oficina de Censo, Estadistica, y Despacho, Municipal de Guayaquil **1**, Nos. 1 and 2, 1919.

[4] Comercio Internacional, Guayaquil, January, 1920, page 53. Connor, M. E.: Yellow Fever Control in Ecuador, J. A. M. A. **74**: 650 (March 6) 1920; **75**: 1184 (Oct. 30) 1920.

As regards the vaccination of human beings, thus far the results are distinctly encouraging; but we realize that many more observations will be needed before a final decision of its value can be arrived at.

BLACK SPIDER POISONING

REPORT OF FOUR CASES

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The black spider is common in Mexico and is extremely poisonous. It looks like an ordinary spider, but it is black, with a few white spots on the body. The legs are of the same length as those of an ordinary spider of comparable size. The body is half an inch long and a quarter of an inch wide.

Three or four hours after a person has been bitten, a pustular eruption develops, with three or four pustules containing a watery fluid. The pustules increase in size and sometimes become as large as peas. The affected area becomes swollen and edematous. The edema of the skin resembles that of renal or cardiac dropsy. If the bite is on the hand, this hand will appear twice as large as the unaffected hand; the neighboring glands become enlarged, and there will be enlargement of the glands of the whole arm, and some of the glands of the neck and maxillary region. There is nausea and vomiting, and the patient feels ill and slightly feverish. The skin over the affected area is warm; the patient is restless and nervous. The pain becomes severe, traveling upward along the nerve, and the arm becomes so heavy that the patient is compelled to hold it with his unaffected hand.

Treatment consists in applying gauze wet with a saturated solution of magnesium sulphate to the affected area, with internal administration of 4 minim doses of iodin.

REPORT OF CASES

CASE 1.—F. R., a man, aged 31, retired at 9:30 p. m., Sept. 10, 1920, in his usual good health. About 4 o'clock next morning he was awakened by severe pains over the fifth metacarpal bone of the left hand. The hand was swollen, and by 7 o'clock was nearly twice the size of the right hand. At 9, when he came to the clinic, he was restless and looked toxic. On the affected area were three pustular eruptions containing a watery fluid. I painted the area with iodin and gave calomel and magnesium sulphate. At 4 p. m., when he returned to the clinic, he was feeling worse; the whole arm was swollen and a streak appeared, traveling upward. The patient looked so toxic that I feared he would die in spite of all I could do. I painted the area again with iodin. September 11, at 9 a. m., the patient complained of headache and his temperature was 101 F. I wet a piece of gauze with saturated solution of magnesium sulphate and covered the hand and part of the arm with it. At 5 p. m., there was some improvement. I gave the patient a pint of the solution and directed him to keep the gauze saturated with it. Next morning the swelling was almost entirely gone. He had slept well, applying the solution four times during the night. On the fourth day the swelling had virtually disappeared, and on the seventh day the patient resumed work, entirely well. I gave him internally iodin, calomel and magnesium sulphate.

CASE 2.—C. H., a man, aged 32, who had always had good health, woke up during the night of September 18 with severe pain in the testicles. September 19, at 10 a. m., when I saw him, they were palpable and of normal size, and the condition looked like hydrocele. The penis measured 4½ inches in length, about 2 inches in diameter, was twisted and edematous, and resembled a heavy, twisted rope. I applied gauze saturated with magnesium sulphate to the genitals and gave iodin, calomel and magnesium sulphate internally. On the fifth day the patient was well. He remained in bed. On the tenth day he resumed work.

CASE 3.—A. D., a woman, aged 28, woke on the morning of October 3 with pain and heat in the right cheek. Next morning, when I saw her, the right side of the face was red, hot and swollen, and the condition resembled erysipelas. The eye was swollen, and the patient could hardly open the mouth. I thought at first that she had toothache, but discovered that she had been bitten by a black spider. She said she had headache and had vomited before coming to see me. This patient was treated with saturated solution of magnesium sulphate, and on the fifth day was entirely well.

CASE 4.—S. G., a man, aged 32, who had previously enjoyed good health, awoke, October 12, with pain and swelling of the right leg below the knee joint. He consulted me, October 13, appearing to have cardiac or renal dropsy, but stated that he had been bitten by a spider. I had the patient put to bed, elevated the foot of the bed, applied saturated solution of magnesium sulphate, and administered iodin internally, with calomel and magnesium sulphate for catharsis. In this case there were enlargement of the femoral glands and red streaks up the thigh. The patient was restless so that I administered bromids, but he was well by the tenth day and went to work as usual.

COMMENT

The magnesium sulphate apparently relieves the pain, reduces the swelling and prevents the progress of the disease. In none of the cases were bacteria found in blood or serum, and examination of the urine was negative. Blod counts revealed a slight increase in leukocytes, about 8,000 or 9,000.

NEW ROENTGENOTHERAPY IN CANCER *

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On my visit to Germany last summer, I had occasion to learn of the marked advances in roentgenotherapy during the last year and a half. The technic has undergone great changes; in particular, accurate measurements have been established, thus making possible exact dosage in carcinoma, sarcoma and benign tumors. These improvements are obviously due to the construction of more powerful roentgen-ray apparatus, and with it new tubes to accept a high tension voltage. It is hardly worth while to dwell at length on the former shortcomings except for comparisons: With the older machines it was impossible to obtain sufficient radiation to penetrate farther than from 3 to 5 cm. to an appreciable extent, while the new type of inductor or transformer develops hard rays capable of penetrating the entire body. Formerly, the greatest intensity obtainable from the older type apparatus and that in use here ranged from 80,000 to 140,000 volts, whereas the modern roentgen machine operates with an intensity of from 180,000 to 220,000 volts. It should be borne in mind that 3 mm. of lead was sufficient to absorb all the rays from the former roentgen-ray apparatus, compared with the 25 mm. of lead necessary to absorb the hard rays of the modern type.

EFFECTIVE RADIATION

The need of more powerful roentgen-ray intensity made it apparent that the construction of tubes tol-

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* Read before the New York Physician's Association, Nov. 23, 1920.

erating this high tension voltage offered the most difficult problem. As a result of the most painstaking labor by the ablest physicists, three standard types of tubes are now in use. They are the Lilienfeld tube, a vacuum tube used with the Radio-Silex machine, the Müller Siede-röhre, a gas tube with hot water circulation and a self-regulating device for hardening, and lastly the Furstenau-Coolidge tube, a larger and much improved Coolidge tube. All three give equally good results. These tubes are capable of operating with a 16 to 18 inch spark gap, compared to the 9 or 10 inch spark gap of the older type, and of running constantly from eight to ten hours a day. The quality of rays is necessarily better and the quantity greater, containing larger amounts of hard rays and consequently greater penetration.

The improvement of apparatus and tube in turn led to the study of accurate measurements of dosage and ray absorption in the deeper tissues. It was found, for instance, that the bundle of rays emitted from a roentgen-ray target at a certain point of filtration effects an even and homogeneous radiation, and cannot be altered qualitatively by further filtration. This point is called the homogeneous point. In other words, rays filtered from this point on possess the same quality of hardness no matter how much more filter is used, and these are the rays now used in the technic of modern roentgenotherapy.

DOSAGE

The next advance was the determination of the exact dosage, dispersion and absorption coefficient. This was made possible by means of delicate instruments of precision, as the electroscope of Wulf, and the ionizing chamber of the new iontoquantimeter of Szillard. For instance, it is possible with a 220,000 volt energy from the new apparatus to obtain 30 per cent. of homogeneous ray at a depth of 10 cm.; and if to this is added the scattered and secondary ray, it amounts to nearly 40 per cent. of a skin erythema dose. This amount of penetration has enabled a cancer of the uterus, for instance, situated from 7 to 10 cm. under the surface, to receive 40 per cent. of a lethal dose directed from the abdomen. Another 40 per cent. can be administered from the back and, if necessary, from 10 to 15 per cent. from each side, making a total of 100 to 110 per cent. of a skin erythema dose. Biologically and experimentally, it has been established that from 85 to 90 per cent. of a skin erythema dose will destroy cancer tissue, so that it is easily possible to administer a sufficient and effective amount with this technic. If, however, the full cancer dose has not reached the center of the tumor mass, then the desired dose can be realized by placing a small amount of radium in the uterus.

After all, the important feature to keep in mind is that it is absolutely necessary that every part of a cancer of the uterus, for instance, receives a full and lethal cancer dose to bring about the desired result. On the other hand, if any part of the tumor has not received the full dose, a recurrence is sure to follow. If the total amount absorbed by the tumor is 40 per cent. of a skin erythema dose or less, it will stimulate the tumor growth instead of destroying it. The lack of accurate measurements and the inability to obtain a sufficient amount of hard and penetrating ray in the affected parts has been responsible for previous failures.

It will be evident to every one that an exact clinical knowledge of the location of the tumor is requisite, in order to calculate the correct dosage: the size of the tumor, the depth of the tumor beneath the skin, and also the involvement of the parametrium, etc., must be determined. All parts of the tumor must receive the same homogeneous radiation, and preferably in one treatment. There is a definite reason for this, as one dose properly administered is more effective than smaller doses given repeatedly. With a small dose the radiated tissue has time to recuperate, and every repeated dose requires a larger amount of radiation, and with it more strain on the overlying skin.

Another factor of great moment is the preservation of the connective tissue, which is so essential in the recession of a tumor. Along with this it is important to conserve the adjacent normal tissue, and not to subject the bladder, rectum and colon to irreparable damage. Fortunately, the bladder and rectum tolerate a dose a trifle higher than the skin; and since the dose for carcinoma is 85 and that for the skin 100, the correct radiation dose allows enough free play to prevent damage to the bladder and rectum. Injury to these organs and rectovesical fistula resulted formerly simply because a cross-fire radiation was directed to the tumor, and the overlying or underlying tissue received twice the dose of the tumor.

METHODS OF TREATMENT

From these preliminaries it is easily conceivable that an intelligent administration of roentgenotherapy requires more than a mere knowledge of the roentgen ray; for clinical exactness and therapeutic skill as to dosage and absorption are just as essential to the radiotherapist as surgical judgment plus surgical technic is to the surgeon. It must be evident, therefore, that it is difficult to set down a hard and fast rule for the treatment of every case of cancer.

In Bumm's clinic in Berlin, for instance, cancer of the uterus is radiated in four fields: one large field over the abdomen, one directed from the back, and one from each side. The distance of the tube from the skin is 30 cm., and 0.8 mm. of copper is used as a filter. As a general rule the intensity of 190,000 to 200,000 volts with a 16 inch spark gap is used, and it requires ninety minutes with this high tension voltage to obtain an erythema dose. In all, four fields are radiated at ninety minutes each, 360 minutes—six hours'—treatment. This dose is administered at one sitting, and after the treatment a transfusion of blood is given intravenously and the patient is put to bed for a few days' rest, as there is considerable damage to the blood.

At Seitz and Wintz's clinic in Erlangen, six or seven fields are radiated, three in front, two from the back, and one into the vagina. The focal distance is 23 cm. with a 16 inch spark gap, and 0.5 mm. copper or zinc filter. With their technic, each erythema dose requires thirty-five minutes, or from three and one half to four hours in all. This procedure is repeated twice at intervals of six weeks, one treatment for each parametrium. To many therapists this seems objectionable, as too much time elapses before a complete knockout dose is given, and if the cancer is a very malignant one, the spread may be too rapid to allow this time interval Besides, it seems an unwarranted strain to subject the skin to three times an erythema dose.

In the gynecologic clinic of Opitz in Freiburg, the focal distance used is 50 cm., and four fields are radiated at 120 minutes each at one sitting of eight hours. The results are astoundingly favorable; for instance, in Freiburg no cancer of the uterus has been operated on since Jan. 1, 1919. In a private communication, Opitz presented me with his figures of sixty-three cases of cancer of the uterus since that date, forty-one cases of cancer of the cervix, and twenty-one of the body of the uterus. Of the forty-one cervix cases, twenty-two had receded, ten were not influenced, and nine patients died. Of his twenty-one cases of cancer of the body of the uterus, seventeen, or 80 per cent., receded, two were not influenced, and two patients died.

Wintz reported to me that he had radiated about 3,000 cases of cancer of the uterus in the last seven years. In about 70 per cent. of the cases of cancer of the body of the uterus, the disease was arrested over a period of four years, and in the cervix cases, 45 per cent. of the patients were alive after four years. These figures are perfectly astounding, but will be better understood when it is taken into consideration that in 1919, 7,000 radiation doses were administered in this clinic, in a small town of 27,000 inhabitants. There are eight roentgen apparatus of the latest type in use there for from eight to ten hours daily.

Carcinoma of the breast in their clinic is treated with an entirely new technic. Here, especially, has roentgen therapy undergone considerable change. Cancer of the breast does not adapt itself to the same method of radiation as that of the uterus. In one, the tumor is situated virtually in the midplane of the pelvis; half of a cancer dose can be administered from the abdomen, and an equal dose from the back, so that both sides furnish the full carcinoma dose. In the breast, however, the malignant growth is situated from 3 to 5 cm. beneath. Fortunately, this has been accomplished in the following manner: The tube is put at a distance of from 70 to 90 cm. from the skin; thus, only the hardest and most penetrating rays are used through a filter of 0.8 mm. of copper. By increasing the focal distance, the time of obtaining an erythema dose is also greatly increased (since the intensity of the ray diminishes inversely as the square of the distance). With 70 cm. distance, 320 minutes are necessary; but with 90 cm., 535 minutes, or nearly nine hours, are required. In this manner from 85 to 90 per cent. of a skin erythema dose penetrates from 3 to 5 cm. under the surface of the skin, and in the majority of cases the tumor is generally not deeper. If the patient is restless, morphin or scopolamin is ordered. At the cancer institute in Berlin, four fields are used in breast cancers, one over the breast, one over the back, one in the axilla, and one over the supraclavicular region, each field for 120 minutes, or a total of eight hours. I have seen report for observation there in one day thirty-five patients with cancer of the breast which had been radiated two, three or four years previously, nearly all of them with gratifying results. Whenever there is axillary glandular involvement they prefer roentgenotherapy rather than the knife.

This brings me to another interesting phase of radiation, bearing especially on cancer of the breast. Throughout virtually all Europe, notably in England, it is the rule to administer a preoperative roentgen-ray dose to the operative field. It has been shown experimentally that radiated cancer cells do not grow on transplantation. This has been taken advantage of by the surgeon, reducing to a minimum the risk of transplanting cancer cells during the surgical removal of carcinoma of the breast. Of course, this also applies to cancer situated elsewhere.

Carcinoma of the prostate is treated like a carcinoma of the uterus; the same method of raying is adopted with the addition of radium applied by rectum. It is asserted that the results are equal to those in cancer of the uterus.

The sarcoma dose as a rule is smaller than that of carcinoma, namely, from 60 to 70 per cent. that of a skin erythema dose. As a general rule, sarcomas are favorably influenced by roentgenotherapy, especially lymphosarcoma in the early stage.

Cases of osteosarcoma in the young responded to intelligent radiation, provided no general sarcomatosis was present. Osteomyelitis sinuses and fistula, and tuberculous joints were treated with the same technic, with gratifying results. Multiple bone fistulas of several years' duration were shown to me completely healed.

In uterine myomas a special technic has been adopted. Formerly, three or four series at three weeks' interval were administered. This protracted the establishment of amenorrhea over two or three months or longer. Nowadays the entire treatment is effected in one session of from one and one-half to two hours. At Opitz's and also Bumms' clinic, only two large fields are taken, one in front and one in the back. Each field is radiated for forty minutes, in all eighty minutes. During the treatment, exact measurements are read from the iontoquantimeter in the vagina.

In Erlangen, four fields are radiated for thirty minutes each, by means of a compression tubus. This compression appliance brings the surface of the body nearer to the tumor, and a greater amount of ray absorption can thus be obtained. The biologic dose for atrophy of the ovary is from 25 to 30 per cent. of a skin erythema dose.

According to Seitz and Wintz, and other observers, 85 per cent. of fibroids either shrink or disappear entirely, and in virtually all cases castration results. Moreover, they assert, malignant degeneration of fibroids offers no contraindication to radiation, since radiation here is just as applicable as to any other cancer of the uterus.

SUMMARY

In the light of what has been said, we can thus summarize the progress in roentgenotherapy and technic:

1. There have been constructed powerful high tension transformers, and induction apparatus, with tubes to accept from 200,000 to 220,000 volts.
2. The determination of the homogeneous point and correct filtration through copper or zinc has brought about effective radiation.
3. Exact dosage for carcinoma tissue, 90 per cent. of a skin erythema dose, for sarcoma 70 per cent., and for the ovary 25 per cent., has been established.
4. By the preoperative application of radiation, the danger of transplanting cancer cells during operation is minimized.
5. Fibromyomas respond to one treatment of from one and one-fourth to two hours, resulting in complete castration.
6. It is most important that all parts of the tumor receive an even and homogeneous radiation sufficient to destroy all the cancer tissue, and thus prevent recurrence.
7. Clinical knowledge as to the location of the tumor and its biology must accompany the skill of the roentgenotherapist that he may intelligently select or combine surgery, radium and the roentgen ray.
8. My own experience with this new technic since my return coincides at present with the work reported abroad, and I hope to be able to give more detailed reports in the future.

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THE URINE IN SYPHILIS

REPORT OF LABORATORY STUDIES, INCLUDING THE WASSERMANN REACTION, IN SIXTY CASES *

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Our purpose here is to review the knowledge that has been acquired concerning the laboratory aspects of the urine in syphilitic infection, and to report laboratory studies in this subject.

THE URINE IN ACUTE SYPHILIS

Attention has frequently been called to the occurrence of albumin and casts in urine during the acute stage of syphilis. We examined the urine in forty-three cases of untreated primary syphilis, the duration of which was from a few days up to the time of cutaneous manifestation. The urine showed abnormalities in three cases; the remaining forty were entirely negative. In forty-six cases of untreated secondary syphilis, the urine was abnormal in four and entirely negative in the remaining forty-two. Of the seven positive cases, all showed albumin and granular casts, excepting two in which casts were absent. In two cases red blood cells were additional findings. The albumin present was a trace except in two of the secondary cases, when it consisted of a light cloud, with many granular casts and in one, red blood cells. Neither case showed clinical evidence of nephritis. The urinary findings in the seven positive cases disappeared promptly after treatment with arsphenamin and mercury.

The albuminuria which we have observed as occasionally present in the acute stage of syphilis is spoken of, and justifiably so, as "transient albuminuria." The exact nature of the underlying pathology is not definitely known. It has been compared to the albuminuria in other acute infectious diseases and similarly regarded as due to the excretion of the metabolic products—toxins, induced by the organisms, the cause of the acute infection. The nephritis is accordingly called toxic. The same explanation is given by all writers for the transient albuminuria in acute syphilis, rather than that it is due to the direct effect of the syphilitic virus in the kidney tissue.

It is not known which explanation is correct. It appears to us that the term "syphilotoxin" is too loosely used. Our knowledge concerning the toxins produced by *Spirochaeta pallida* is nil. We do know that the spirochete has a proclivity for invasion and localization of the viscera in the acute stage of syphilis. It therefore appears that the albuminuria in secondary syphilis is in all probability due to an acute invasion of the kidney by the spirochete. The variable amount of albumin from a trace to a heavy cloud, which latter is characteristic of what is generally known as acute syphilitic nephritis, is no doubt an index of the degree of involvement of the same pathologic process, namely, syphilitic nephritis.

In some of the eighty-nine cases of acute syphilis we performed a functional renal test with phenolsulphonephthalein and estimated the amount of urea in grams per liter of blood. Our findings in all cases examined were within normal limits.

THE URINE IN ACUTE SYPHILITIC NEPHRITIS

Early in syphilitic infection there occurs at times clinical evidence of an acute nephritis with rather characteristic urinary abnormalities. This condition is generally called acute syphilitic nephritis, in contrast to the transient albuminuria as described above. Although many such cases have been reported, yet, in view of the prevalence of syphilis, its occurrence is relatively rare. This condition has been studied and cases reported notably by Rayer,[1] Mauriac,[2] Fournier,[3] and more recently by Audrey,[4] Munk,[5] Stengel and Austin,[6] Stokes,[7] Fowler,[8] Cole [9] and Thompson.[10] Cases have been reported occurring in the primary period of syphilis and at variable periods up to two and three years after infection. The majority, however, become manifest a few months after infection. Clinically, there occurs evidence of nephritis, particularly edema, which is characterized by its rapid onset and marked degree. Uremia may or may not occur. The urinary findings are characterized by the enormous amount of albumin. Cases have been reported in which the amount was as high as 53 gm. per liter. Casts of various types are present which are proportionately less than the amount of albumin. Red blood cells are frequently seen. The nephritis is further characterized by the marked improvement following treatment with mercury or arsphenamin, particularly the latter drug.

An important urinary aspect of acute syphilitic nephritis has been shown by Munk.[5] He demonstrated that the urine in these cases is always characterized by the presence of doubly refractile lipoids, and only occasionally present in the urine of patients with severe nephritis due to other causes. These lipoids, through the ordinary microscope, appear as fat globules. Through the Nichols polariscope they show as a dark central cross separating four bright peripheral quadrants.

In chemical composition, these bodies are in all probability cholesterin esters and, like similarly constituted doubly refractile globules, may lose their characteristic optical properties by changes in physical conditions, such as heating, drying or freezing. The explanation of their constant presence in the urine of patients with syphilitic nephritis is not known.

Stengel and Austin [6] examined the urine with a polariscope in forty-six cases. Of this number, twenty-three showed nephritis with an abundance of albumin and casts in the urine. Of these twenty-three cases, there were positive Wassermann reactions in six, strong presumptive evidence of syphilis but not positive Wassermann reactions in three, and no evidence of syphilis in fourteen. The six cases with positive Wassermann reactions all showed lipoids in the urine, whereas of the fourteen nonsyphilitic cases only five showed lipoids in the urine. The remaining twenty-three cases composed nephritic cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine and a few hyaline and granular casts, some with syphilis and some without, syphilitic cases with no nephritis, and control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. These writers state that similar lipoid globules may be found in severe acute or chronic parenchymatous nephritis of other etiology, but only in a minority of cases. They further noted the absence of these lipoids in the urine of experimental uranium and chromate nephritis. It would therefore appear that the presence of doubly refractile lipoids in the urine of severe nephritis is not pathognomonic, but highly suggestive of syphilis as the cause.

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* From the Dermatological Research Institute.

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[8] Fowler, H. A.: Syphilis of the Kidney, Medicine and Surgery, **2**: 54-70, 1918.

[9] Cole, H. N.: Acute Syphilis of the Kidney, Am. J. Syph. **4**: 46-49 (Jan.) 1920.

[10] Thompson, Loyd: Syphilis of the Kidney, J. A. M. A. **75**: 17 (July 3) 1920.

K. P. A. and S. P. Taylor [11] examined the urine of fifty syphilitic patients in the early stage of the disease, for the presence of doubly refractile lipoids. The majority of the patients examined had been treated previously with arsphenamin or mercury. The examination was negative in all.

ABSENCE OF HOMOPRECIPITINS IN THE SERUM AND URINE OF SYPHILITIC PATIENTS

Owing to the large number of precipitin and coagulating reactions described in syphilis, we have thought it worth while to mix clear blood serum and urine from the same person for the presence of precipitin or precipitinogens in serum or urine; the serums and urines of twenty acute untreated secondary cases were tested in this manner with negative results in all. Either the antibody is absent in the serum, or the antigen from the urine or both may be absent as indicated by these results.

INFLUENCE OF ANTISYPHILITIC THERAPY ON THE URINE

It is well known that mercury causes considerably more kidney irritation than does arsphenamin or neo-arsphenamin. Urinary abnormalities are therefore more likely to appear after therapy with mercury than with the arsenical preparations. In our experience we observed urinary abnormalities consisting of albumin and casts, principally granular, appear after a variable amount of mercury, which was administered in different ways.

No definite statement can be made regarding the amount of mercurial treatment required to produce renal irritation, except that its occurrence is rather frequent and more likely after intramuscular injections of the soluble salts of mercury, and less likely after oral administration of the drug. We have had no experience in this regard with intravenous or inhalation mercurial therapy. On the other hand, we have observed slight, and in some cases, no urinary evidence of renal irritation after intensive treatment with neo-arsphenamin. However, arsphenamin is more irritating to the kidneys than neo-arsphenamin. Consistent with these observations is the statement of Wechselmann [12] that "according to all experience up to the present time, one is warranted in accepting the conclusion that a normal kidney is never functionally damaged by salvarsan, but that, on the contrary, disturbances of salvarsan elimination take place only with already diseased kidneys." Following intensive treatment with this drug we have observed in some cases one or more symptoms of chronic arsenic poisoning, yet the urine remained negative. These symptoms of arsenic poisoning were languor, papular, vesicular and erythematous skin eruptions, conjunctivitis, pigmentation, paresthesia of the fingers and lower extremities, and erythema of the soles of the feet.

These clinical observations are consistent with the pathology of acute and chronic mercurial and arsenic poisoning. In the former condition the kidneys, and to a less extent the gastro-intestinal tract, are the predominating organs involved. On the other hand, in arsenic poisoning the gastro-intestinal tract and to a less extent the kidneys are the predominating organs involved.

Mercury is eliminated by almost all the excretory organs, but largely by the kidneys and the intestine, the former organ at first playing the most important rôle and later the intestine. After mercurial administration the greatest amount can be found in the kidney and liver.

Arsenic is eliminated after arsphenamin and neo-arsphenamin administration, chiefly through the kidney and intestine. In the feces the amount excreted is greater or equal to that excreted by the kidneys. The liver is the chief storehouse of arsenic after administration of arsphenamin or neo-arsphenamin.

Nichols [13] compared, experimentally, the tolerated and spirocheticidal dose of mercuric chlorid and mercuric salicylate when administered intravenously. He observed that the tolerated dose for mercuric chlorid was 0.001 gm. per kilogram, but no definite spirocheticidal action was present with this dose; if, however, the dose was increased to 0.003 gm., the spirochetes were destroyed in forty-eight hours; but the animal eventually died of nephritis. The tolerated dose of mercuric salicylate was 0.005 gm. per kilogram, which had no curative effect. A dose of 0.0075 or 0.01 gm. destroyed the parasites promptly, although the animal later died of nephritis. Nichols states that the margin between the parasitotropic action of mercury and the organotropic action is not nearly so great as it is with arsphenamin.

One of us (J. A. K.), in collaboration with Schamberg and Raiziss,[14] has shown in an experimental study of the comparative toxicity of the various preparations of mercury that this drug is powerfully nephrotropic and that the kidney is the first organ to show damage from the toxic effect of the drug. It was also shown that the experimental nephritis produced by mercury is primarily tubular in character. Capsular glomerulonephritis of the exudative (hemorrhagic) variety is frequent and virtually always accompanies severe tubular nephritis. Calcification of the degenerative tubular cells has been found within forty-eight hours after the administration of mercury, and occurs in severe mercury nephritis irrespective of the salt administered or the route of injection. It was further observed that the toxicity of the mercurial salts is more or less directly proportionate to the amount of mercury administered.

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[11] Taylor, K. P. A., and Taylor, S. P.: A Study of the Urine of a Group of Syphilitics for Doubly Refractive Bodies, read before the Pathological Society of Philadelphia, Oct. 14, 1920.

[12] Wechselmann, W.: The Pathogenesis of Salvarsan Fatalities, Trans. by Clarence Martin, Fleming-Smith Company, 1913, pp. 105-108.

[13] Nichols, H. J.: Further Observations on Certain Features of Experimental Syphilis and Yaws in the Rabbit, J. Exper. Med. **14**: 196-216, 1911.

[14] Schamberg, J. F.: Kolmer, J. A., and Raiziss, G. W.: A Study of the Comparative Toxicity of the Various Preparations of Mercury, J. Cutan. Dis. **33**: 819-839, 1915.

Experimentally, arsphenamin is considerably less nephrotropic, as shown in an extensive series of experiments by Kolmer and Lucke.[15]

In accordance with our knowledge of the nephrotropic action of mercury is the view expressed by Wechselmann,[12] that mercury may render the kidneys more susceptible to the toxic effect of arsphenamin when used in combination. He therefore advises against the conjoined administration of these drugs. It is logical to assume that after intensive treatment with mercury and arsphenamin administration, the kidney may be sufficiently damaged to retard the elimination of arsenic, and in this way untoward reactions of arsphenamin may develop. It is conservative not to administer conjointly these drugs in the intensive treatment of syphilis.

It is apparent from the foregoing consideration how important it is to examine the urine frequently in the treatment of syphilis, particularly when mercury is administered.

THE WASSERMANN REACTION WITH URINE

Complement fixation tests with urine are exceedingly liable to yield falsely positive results, owing to the highly anticomplementary activity of urine. A constant and uniform amount cannot be used, as the anticomplementary activity varies with individual specimens. Heating in a water bath at 56 C. for thirty minutes removes only a slight amount of these anticomplementary substances, and tends to destroy any syphilis antibody that may be present. Age of the urine, that is, the time elapsing from voiding to the performance of the tests, greatly influences the anticomplementary activity; likewise, the temperature at which the urine is kept. When bacteria have developed and salts have been deposited in urine, the anticomplementary and hemolytic activities are augmented, and unless these are carefully studied in each specimen preliminary to the complement fixation test, may lead to error.

We have tested the urines of sixty cases of syphilis in the different stages of the disease, many presenting acute symptoms and being untreated. Every patient yielded a positive blood Wassermann reaction, the majority of the reactions being strongly positive with three different antigens.

Of the sixty cases, the urines of but two yielded positive reactions under technical conditions which we considered acceptable. These two cases were in the tertiary stage and free of symptoms.

As previously stated, the highly anticomplementary activity of urine may readily yield falsely positive results, especially if urine is used in the main tests in an amount just under the anticomplementary unit. Under these conditions the control may show complete hemolysis but the antigen tube slight inhibition of hemolysis, which may be interpreted as weakly positive fixation due to the presence of syphilis antibody. Exactly the same results may occur, however, with the urines of healthy nonsyphilitic persons, owing to the summation of the anticomplementary activities of antigen and urine in the antigen tube. To avoid this error we have titrated each urine unheated for its anticomplementary unit, and have used one-half this amount in the conduct of the complement fixation test. This appears to be the largest amount that may be safely employed; but even under these conditions a conservative attitude must be maintained in the interpretation of results. With many specimens the preliminary titrations and complement fixation tests were repeated after heating the urines in a water bath at 56 C. for half an hour.

Two methods were used: The first employed 1 c.c. of 1:20 guinea-pig complement in an antisheep hemolytic system and three antigens, including a cholesterolized alcoholic extract of heart, an alcoholic extract of syphilitic liver, and an exract of acetone-insoluble lipoids. Primary incubation was conducted in a water bath for one hour, the technic being that of our regular Wassermann test.[16]

A number of specimens were also tested with a technic using two units of complement and a primary incubation of eighteen hours at 6 to 8 C.[17]

The accompanying table summarizes the results observed with eight of a series of twenty-four specimens examined with this technic.

ANTICOMPLEMENTARY AND HEMOLYTIC ACTIVITY OF UNHEATED URINES OF SYPHILITIC PERSONS AND RESULTS OF WASSERMANN TESTS

Blood Tests *			Urine Tests	
C. B. H.	S	A	Hemolytic	Anticomplementary
++++	++++	++++	0.4	0.5
++++	++++	++++	0.5	more than 0.5
++++	++++	++++	more than 1.0	more than 0.5
0	0	0	more than 1.0	0.2
++++	+++	++	0.4	0.4
++++	++++	++++	1.0	more than 0.5
+	—	—	more than 1.0	more than 0.5
++++	++++	++++	more than 1.0	more than 0.5

* C. B. H. indicates cholesterolized antigen; S, alcoholic extract of syphilitic liver; A, acetone-insoluble lipoids. Complement fixation tests were negative throughout.

In the main tests each urine was used in graded amounts as high as 0.4 c.c. unless anticomplementary or hemolytic in lesser amounts, in which cases the maximum amount was about one-half the anticomplementary unit. In every instance the complement fixation tests were negative; when positive reactions occurred in this series of twenty-four cases we believed that inhibition of hemolysis was due to excessive amounts of urine and nonspecific factors, and not to the fixation of complement by syphilis antibody and lipoidal extracts.

Others, however, believe that the urine of syphilitics may yield true positive Wassermann reactions; Blumenthal and Wile[18] reported in 1908 their results of the Wassermann reaction with urine in forty-one cases of syphilis in various stages. Of this number, thirty-one gave a positive reaction in the blood and urine; in six cases the reaction was negative in the blood and urine; in three cases the reaction was positive in the blood and negative in the urine. In performing the

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15. Kolmer, J. A., and Lucke, Baldwin: Summary of Experimental Studies on the Histopathologic Changes Produced by Arsphenamin and Neo-Arsphenamin, Arch. Dermat. & Syph. **2**: 289-291 (Sept.) 1920.

16. Kolmer, J. A.: Infection, Immunity and Specific Therapy, Ed. 2, Philadelphia, W. B. Saunders Company, pp. 465-467.

17. Kolmer, J. A.: Technic of a Standardized Complement Fixation Test in Syphilis, Am. J. Syph., to be published.

18. Blumenthal, F., and Wile, U. J.: Komplementbindende Stoffe im Harn syphilitischer, Berl. klin. Wchnschr. **50**: 1050-1051, 1908.

Wassermann test they used an alcoholic extract of syphilitic liver as antigen; the urine was used in amounts of 1 and 0.5 c.c., and the serum, 0.2 c.c.

Simon [19] more recently reported that he obtained a rather high percentage of positive Wassermann reactions in the urine of syphilitics. In some cases he obtained a positive reaction in the urine and negative reaction in the blood of the same patient. He is of the opinion that antisyphilitic treatment should be pursued until the urine gives a negative Wassermann reaction. He considers this just as important as the obtaining of a negative Wassermann reaction of the spinal fluid and the blood. In a second communication [20] he gives the method employed in performing the Wassermann reaction with urine. A syphilitic liver antigen and an antisheep hemolytic system was used. The amounts of the different reagents used were measured in drops. The amount of urine employed in performing the Wassermann test was 10 drops. No mention is made whether the specimen was heated or unheated. Simon points out that larger amounts than 10 drops are often anticomplementary, and that it is desirable to determine the anticomplementary dose of urine when used in performing the Wassermann reaction.

It is difficult for us to reconcile our results with these; but unless special precautions are taken against nonspecific complement fixation, it is exceedingly easy to misinterpret the results. We believe that it is the exception rather than the rule for the urines of syphilitic individuals to yield true positive Wassermann reactions.

THE URINE IN SYPHILITIC PAROXYSMAL HEMOGLOBINURIA

The occurrence of this condition in regions other than the tropics is due to or associated with congenital syphilis in the majority of cases.

In the syphilitic cases there is no differential feature in the urine to distinguish it from the cases arising from other causes. The condition is characterized by the appearance of hemoglobinuria usually following exposure to cold. In our case, in addition to this exciting cause, hemoglobinuria appeared after the administration of mercury and arsphenamin.

SPIROCHAETA PALLIDA IN SYPHILITIC URINE

Cases have been reported in which the presence of spirochetes was demonstrated in the urine. Dreyer and Toepfel [21] demonstrated the presence of the organism in the urine from a case of secondary syphilitic nephritis. In one of their examinations the urine was withdrawn by a catheter and the identification of the spirochete was confirmed by Schaudinn. A similar finding in the urine from a case of acute syphilitic nephritis has been reported by Hoffmann.[22]

Levy and Guile [23] examined the urine for the presence of *Spirochaeta pallida* of twenty-four men shortly before or after the beginning of the secondary stage of syphilis. The organism was found in the urine of only one of the men, and this only at the end of the first month after the development of the chancre.

DIAGNOSIS OF SYPHILIS FROM THE URINE

There is no urinary test by which a reliable diagnosis of syphilis can be made. Gray [24] reports results with this technic:

> To 6 c.c. of urine is added 1 c.c. of a solution of 1 gm. of iodin in chloroform or carbon tetrachlorid, and the mixture is thoroughly shaken. The chloroform settles to the bottom, and assumes either a pearly white color (negative reaction), or becomes pink or purple, which is probably a positive reaction. One c.c. of a 10 per cent. solution of phosphoric acid is then added, and the tube is again shaken. If the chloroform is cleared, the test is to be considered negative.[25]

In the performance of this test the urine must be a fresh specimen, and must be acid, with a specific gravity greater than 1.016. The sugar reaction must be negative, as the presence of sugar renders the reaction positive, even in the absence of syphilis. Recent ingestion of alcohol interferes with the result, as does polyuria from the use of diuretics, or excessive intake of water to allay prolonged thirst.

With this test Gray examined the urine of 200 patients, syphilitic and nonsyphilitic. Positive results were obtained in fifty-two cases which were known to be syphilitic. Five of these cases were in the primary stage. Five cases of glycosuria, five cases of polyuria of nervous origin, and ten cases of polyuria due to diuretics also gave positive reactions. Another series of thirty-five cases of definite or suspicious syphilis were examined. All of these cases were controlled by the blood Wassermann test, which was positive in twenty-four of the cases, while the urine test was positive in thirty-two. All cases were justly suspicious. In no case in which the Wassermann reaction was positive was the urine test negative.

The basis of this test, the substance in the urine which causes discoloration of the iodin, is not known.

SUMMARY

The urine was examined in forty-three cases of untreated primary syphilis, the duration of which was from a few days up to the time of cutaneous manifestations. Urinary abnormalities were present in three cases. The urine was examined in forty-six cases of untreated secondary syphilis. Urinary abnormalities were present in four cases. The positive cases all showed albumin and granular casts, excepting two in which casts were absent. In two cases, red blood cells were present. The albumin consisted of a trace, except that in two of the secondary cases a light cloud was present with many granular casts, and in one red blood cells. The urinary abnormalities disappeared after treatment with arsphenamin and mercury.

The urinary abnormalities in secondary syphilis are regarded as due in all probability to an invasion of the kidney by *Spirochaeta pallida* rather than due to syphilotoxins—which is the explanation usually given.

The clear blood serum and the urine, from the same patient, were mixed for the presence of precipitin or precipitogens in serum or urine.

The serums and urine of twenty acute untreated secondary cases were tested in this manner. The results were negative in all. Either the antibody is absent in the serum, or the antigen from the urine or both may be absent, as indicated by the results.

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[19] Simon, C.: Note sur la recherche comparative de la réaction de Bordet-Wassermann dans le sang et dans les urines, Bull. de l'Acad. de méd. **83**: 73 (Jan. 20) 1920.

[20] Simon, C., and Lebert, Marguerite: Technique de la réaction de Wassermann dans les urines, Bull. de la Soc. franç. de dermat. et de syph., 1920, pp. 117-119.

[21] Dreyer and Toepfel: Spirochaete pallida im Urin bei Syphilitischer Nephritis, Dermat. Centralbl. **9**: 172-173, 1906.

[22] Hoffmann, E.: Ueber akute syphilitische Nierenentzündung in der Frühperiode, Deutsch. med. Wchnschr. **39**: 353-356, 1913.

[23] Levy and Guile: Spirochetes in the Urine in Syphilis, Bull. Soc. Méd. d. hôp. de Paris, **43**: 48, 1919.

[24] Gray, C. D.: Urinary Test for Syphilis and Its Comparison with the Wassermann Reaction, Med. Rec. **89**: 821 (May 6) 1916.

[25] The two solutions used in the commercial preparation known as the "Uri-na Test" for syphilis are apparently the same as these reagents—an iodin solution of chloroform and a dilute phosphoric acid solution. The discoloration constituting a positive or negative reaction in the "Uri-na Test" is of the same nature as is described above. This so-called "Uri-na Test" for syphilis proved unreliable in our experience.

Clinical and experimental observations show that mercury is considerably more nephrotropic than arsphenamin or neo-arsphenamin. In the conjoined intensive treatment of mercury and the arsenicals, the nephrotropic action of mercury may retard the elimination of arsenic and in this way cause untoward effects of arsenic. In view of this possibility, conjoined intensive treatment with mercury and the arsenical preparations is not advised.

The Wassermann reaction was performed with the urine of sixty patients with syphilis in the different stages of the disease, many presenting acute symptoms and being untreated. Every patient yielded a positive blood Wassermann reaction, the majority of reactions being strongly positive with three different antigens. Of the sixty cases, the urines in but two yielded positive reactions.

Complement fixation tests with urine are exceedingly liable to yield falsely positive results, owing to the highly anticomplementary activity of the urine. Anticomplementary activity varies with individual specimens. It is greater in old specimens than in fresh ones. Heating in a water bath at 56 C. for thirty minutes removes only a slight amount of the anticomplementary substances.

Falsely positive results with urine are particularly likely if the amount used in the main tests is just under the anticomplementary unit. Under these conditions the control may show complete hemolysis but the antigen tube slight inhibition of hemolysis, which may be interpreted as weakly positive fixation due to the presence of syphilis antibody.

Similar results may occur with the urine of healthy nonsyphilitic persons, owing to the summation of the anticomplementary activities of antigen and urine in the antigen tube.

In performing the Wassermann reaction with urine, each specimen unheated was titrated for its anticomplementary unit and one-half this amount used.

Two methods were used: The first employed 1 c.c. of 1 : 20 guinea-pig complement in an antisheep hemolytic system, and three antigens including a cholesterolized alcoholic extract of heart, an alcoholic extract of syphilitic liver and an extract of acetone-insoluble lipoids. Primary incubation was conducted in a water bath for one hour, the technic being that of our regular Wassermann test.

A number of specimens were alsto tested with a technic employing two units of complement and a primary incubation of eighteen hours at from 6 to 8 C.

Spirochaeta pallida may be found in the urine of syphilitics in the acute stage of the disease.

There is no characteristic feature in the urine of paroxysmal hemoglobinuria of syphilitic origin which serves to differentiate it from the same condition due to other causes.

Results with urinary tests for syphilis were of no value as a means to the diagnosis of syphilis.

To Render Filtrable Viruses Visible.—A Fontana and G. Sangiorgi, professors at the University of Turin, announce that by treating the virus with some substance which clumps the infinitesimal particles, and then staining them with the Fontana-Tribondeau ammonia-silver nitrate method they show up well under the microscope. They thus obtained excellent views of granular bodies in vaccine virus and in rabies virus, according to a review in the *Riforma Medica* of their publication in *Pathologica* **11**:257, 1919.

Clinical Notes, Suggestions, and New Instruments

CASE OF PYLORIC ULCER COMPLICATED BY TAENIA SAGINATA, WHICH WAS VOMITED, AND BY TAENIA SOLIUM AND STRONGYLOIDES INTESTINALIS

R. Allyn Moser, A.B., M.D., Omaha

History.—K. C. K., a man, aged 37, Korean, photographer, admitted to the service of Dr. W. O. Bridges at the Nebraska Methodist Hospital, Oct. 18, 1916, came to the United States nine years before from Korea. Previous to coming to Nebraska he had spent about five years on the Pacific Coast. He did not know what childhood diseases he had had, excepting smallpox when a boy. He denied all venereal infection. In 1912 he began having spells of general abdominal distress, with belching, frequent nausea and occasional vomiting. He stated that when his stomach was empty the distress was more severe and was always relieved by eating. No particular food caused distress, and he had never been jaundiced. These symptoms continued until 1914, when the distress became more constant and he sought relief. At this time a colectomy was performed by a competent surgeon. After he recovered from the operation his bowels moved frequently, generally four or five times daily, and the distress was not relieved. Constant abdominal distress with distention and belching had been present ever since the operation, more severe immediately after eating, and always relieved by bowel movements. Discomfort was so severe at times that he had been given morphin hypodermically.

October 9, the patient began vomiting. He was unable to hold anything, and had lost 10 pounds in the eight days before entering the hospital. The bowels moved four or five times daily. He had never noticed blood or mucus in the stools. He had no urinary disturbance or circulatory irregularities.

Physical Examination.—The patient was rather emaciated. On the abdomen was a long median scar from the operation; distention and marked tenderness on pressure were general. The muscles were soft and flabby; the skin, dry and smooth. Other findings were normal.

Gastric analysis revealed: free hydrochloric acid, 22; total acidity, 38; some mucus. There was no occult blood. Blood court revealed: hemoglobin, 80 per cent.; red blood cells, 4,400,000; white blood cells, 6,800; polymorphonuclears, 46 per cent.; small lymphocytes, 26 per cent.; largely lymphocytes, 20 per cent.; eosinophils, 8 per cent. The stool was foul, semisolid and greenish. There was no occult blood. There were many larvae of *Strongyloides intestinalis.*

Treatment and Results.—The patient was put on a soft and liquid diet, and was given hot abdominal packs after each meal. For two days he felt better, and was taking care of his food. Next day he was seized with intense epigastric pain, which lasted for several hours, when he vomited 11 feet of *Taenia saginata.* He was then given a course of treatment for *Taenia,* after which segments in various lengths and two distinct heads were found, those of *T. saginata* and *T. solium.*

After this he felt well and apparently was quickly recovering from all his symptoms, when on October 31 he again had severe epigastric pains after a light breakfast. An Ewald test meal revealed free hydrochloric acid 20, and a total acidity of 80, with no occult blood. The stools still contained larvae of *Strongyloides intestinalis.* The gastric distress continued and was relieved only by gastric lavage, when large amounts of retained fluids were aspirated. A diagnosis of pyloric ulcer was then made, and for several days all feeding by mouth was discontinued. November 4, the patient was put on a modified Sippy treatment, which gave the patient only slight and temporary relief, for as soon as more solid food was added to his diet the distress returned. A gastro-enterostomy was then advised. The surgeon's report was pyloric spasm, gastric distention, pyloric ulcer and gastro-intestinal adhesions. He made an excellent recovery from the operation, and went home, Dec. 11, 1916.

May 4, 1920, he returned to the office. He was feeling fairly well and had gained weight, but was complaining of some distress in the left upper abdominal quadrant. No definite points of tenderness were found except over the operative abdominal scars. Gastric analysis was: free hydrochloric acid, absent; total acidity, 15; lactic acid, absent. A roentgenogram of the stomach and duodenum revealed the stomach empty in six hours; peristalsis, active; the greater curve 1½ inches below the umbilicus, and no evidence of ulcer or carcinoma. Food was passing through the pylorus and the gastro-enterostomy opening, more through the pylorus. A specimen of stool still contained larvae of *Strongyloides intestinalis.*

COMMENT

This case has several points of interest. What relation had *Taenia saginata* to the pyloric ulcer? Evidently, since the worm was vomited it had taken up its position near the pylorus, and was at least partially the cause of the first pyloric spasm. The fact that there was improvement after the expulsion of the worms; and then again a pyloric spasm would seem to indicate that the worms were an exciting factor of the ulcer. After a short latent period the ulcer irritation began again, this time being the result of increased feedings. Vomiting of *Taenia* is as rare as is a double infestation of the worm.

A REFINEMENT IN THE RADICAL OPERATION FOR TRIGEMINAL NEURALGIA

Charles H. Frazier, M.D., Sc.D., Philadelphia

In every respect the results of the radical operation for trigeminal neuralgia are most satisfactory. Since Spiller, in 1901, first proposed section of the sensory root as a substitute for excision of the gasserian ganglion, his operation has gradually become the accepted procedure. One of the advantages claimed for his operation—a reduction in the mortality—has also been realized. In 1895 the mortality as recorded in Tiffany's tables was 22.5 per cent.; in 1909, in a series of 200 cases that I compiled from four surgeons with the largest experience in trigeminal operations, the mortality rate was 3.5 per cent. Today the mortality is approaching the zero mark. With the exception of one death from apoplexy of a patient in the convalescent stage, there have been none in my clinic in the last 157 operations (0.6 per cent.). The risk of the operation may be said to be a negligible factor, and the complete relief from pain may be offered in full justification of the sensory root operation.

These are the major considerations. Of minor consideration is the "cosmetics." In times past the motor root has been sacrificed with the sensory root, and there followed inevitably atrophy of the temporal, masseter and pterygoid muscles. So far as it affected movements of the jaw it was a matter of inconvenience; but the atrophy of the temporal muscle left a depression above the zygoma that was quite noticeable and prevented what otherwise might have been regarded as a perfect cosmetic result, since the incision was well concealed within the hair line. To meet this objection some surgeons went so far as to resect the zygoma.

A year ago I took up this motor root problem and found a solution.[1] In the past the motor root was often sacrificed because the surgeon was afraid he might be leaving a fasciculus of the sensory root with all its unforunate possibilities. But with the use of the electrode the motor root when exposed can positively be identified as motor by observing the temporal muscle contact.

When the sensory root is adequately exposed, in the course of the operation, it is elevated from its bed with a blunt instrument. Usually the motor root may be seen in contact with the skull, traversing the space behind the root and disappearing behind the ganglion. If recognized or suspected, the electrode is applied; and should it prove to be the motor root, the fibers of the temporal muscle, exposed to view in the wound, will contract. Sometimes at this preliminary inspection the motor root will not be seen because, cleaving to the sensory root, it has been lifted up by the instrument with the sensory root. Under these circumstances I make segmental sections of the sensory root, beginning with the outer fasciculi, and search for the motor root after each section. Usually when half of the sensory root has been divided, one can recognize the motor root as it passes behind the ganglion. But to confirm the observation, the electrode is used. If these directions are followed, the motor root may be conserved in the majority of instances. It has escaped me occasionally, but with continued effort and experience, I believe it will be possible to save the root in every instance.

With this refinement in technic the radical operation might be said to be beyond criticism. Symmetry of the face is conserved, as there is no atrophy of the temporal muscle; there is no deviation of the jaw, since the pterygoid muscles are intact; and mastication is in no way interfered with.

1724 Spruce Street.

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[1] The use of the electrode was suggested to me during the war by Dr. C. C. Coleman.

A CASE OF TORSION OF THE OMENTUM

C. E. Hawkes, A.B., M.D., Providence, R. I.

History.—T. R., a French-Canadian, aged 53, blacksmith, entered the Rhode Island Hospital, June 15, 1920, because of pain in the abdomen, especially the right lower quadrant. The family history was negative. The patient had had a right inguinal hernia for seventeen years. He had always been able to reduce it, and it had never given him any trouble. He was taken acutely ill, June 12, while walking. The pain was located in the right lower quadrant of the abdomen, and it seemed to be independent of the old rupture, for the patient was able to push the latter back. He had been in bed since the evening of his attack, and had vomited several times during the preceding two days. He took a laxative with good result, but had taken no nourishment since the onset of his trouble.

Physical Examination.—The patient was well developed and well nourished. He appeared acutely ill and toxic. He was rational. The head and neck were negative, the lungs resonant and vesicular throughout. The heart, not enlarged, was regular in rhythm and clear, with no murmurs. The abdomen was slightly distended, with fairly firm wall all over, with definite rigidity over the lower right rectus muscle. There was marked tenderness in the lower right quadrant, with a palpable tumor mass, dull on percussion. There was a small right inguinal hernia, easily reducible and apparently made up of omentum. The extremities were negative. The patient was operated on about one hour after admission to the hospital.

Operation and Result.—A lower right rectus incision was made. A slight amount of free, turbid fluid escaped when the peritoneum was opened. The mass in the lower quadrant proved to be omentum, adherent to the inguinal canal and hernial sac. On this portion as an axis, the omentum had taken several turns, until a constriction had occurred 6 or 8 inches proximal to the abdominal ring. The distal part, about the size of two fists, had become gangrenous, and most of it was adherent to the floor of the pelvis, posterior to the bladder. Its dark color, friability and nodular appearance were very suggestive, at first glance, of a soft malignant growth. On further examination, it was found to be part of the rest of the omentum. The gangrenous mass was carefully dissected from the pelvis, and that portion anchored to the inguinal canal was tied and cut away. After being thus freed from its attachments it was all excised just back of the constricted ring. A search was now made for the appendix, and a small stub about 1 inch long was found adherent to the cecum. It had apparently been amputated at its middle by bands of omentum. It was excised, close to the cecum, and the stump turned in. A cigaret drain was inserted to the pelvis. The abdominal wound was closed in layers. The patient made a good recovery from the ether, with very little vomiting. The pelvis drain was removed at the end of forty-eight hours. There was virtually no drainage.

June 23, the stitches were removed.

June 29, the patient was placed on back rest.

July 3, the patient was walking about the ward. He refused to have the hernia repaired. He was discharged from the hospital.

355 Thayer Street.

Special Articles

BIOLOGIC THERAPY *

(Continued from page 37)

IV. SERUM TREATMENT OF BACILLARY DYSENTERY †

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Bacillary dysentery occurs in all countries, but it is more frequent in tropical than in temperate climates and prevails little or much according to the state of sanitation of the region. The dysenteric bacilli are taken into the stomach with food or drink to which they have gained access, directly or indirectly, from the feces of cases of bacillary dysentery or from carriers—convalescent or healthy—of the bacilli. In mode of communication, bacillary dysentery resembles typhoid fever; but it is not preventable by vaccination as is the latter disease, because of the severe local reaction that the injection of killed cultures of dysenteric bacilli sets up.

VARIETIES

Two groups of dysenteric bacilli exist. The first was discovered by Shiga in Japan and bears his name, the second by Flexner in Manila. All Shiga bacilli are identical, but there are several kinds of Flexner bacilli, distinguished from one another by minor cultural and immunity reactions. The distinction between the Shiga and Flexner groups of bacilli is, however, far greater; thus, while all the Flexner group react immunologically more or less to a serum prepared from one of its members, this immune serum has little effect on Shiga bacilli, and vice versa. In one essential respect all the dysenteric bacilli agree, namely, in inducing in man the symptoms and intestinal lesions of dysentery, which sometimes are mild and sometimes severe. Both groups of bacilli are alike in this action, but infection on the whole with the Shiga bacilli tends to be more serious than infection with the Flexner group of bacilli.

TOXINS

The Shiga bacilli yield two toxins: one soluble, which is quickly passed into the surrounding medium, so-called exotoxin, and one more closely fixed to the cell protoplasm, so-called endotoxin. When both toxins are injected into the rabbit, the first attacks the central nervous system and the second attacks the intestinal tract. The Flexner bacilli yield only an endotoxin.

ANTISERUMS

When animals are injected with cultures of the Shiga bacillus, an antiserum is obtained which contains antibodies both for the exotoxin and for the endotoxin. This antiserum is neutralizing for the poisons of the Shiga bacilli, and protective against infection with the living bacilli. When animals are injected with cultures of the Flexner group of bacilli, an antiserum is obtained neutralizing to the endotoxins and protective against infection with the bacilli themselves.

The horse is subject to immunization both with the Shiga and with the Flexner group of bacilli and the serum yielded constitutes the therapeutic antidysentery serum. Because of the differences existing between the Shiga and Flexner bacilli, it is usual to immunize horses separately to the two kinds. The serum obtained may be applied separately in the treatment of dysenteries induced by the Shiga or Flexner bacilli, respectively, as determined by precise bacteriologic examination, or after mixing together in cases of bacillary dysentery in which the particular infecting bacillus has not been thus determined. Such a mixed serum yields the so-called polyvalent antidysentery serum which, if potent, should contain antibodies for all the toxins contained in the Shiga and Flexner groups of bacilli.

SERUM TREATMENT

Many reports of the serum treatment of bacillary dysentery have now been made, and they are remarkably concordant in attesting its value. Like all other acute infectious diseases subject to serum treatment, the earlier the antidysentery serum has been applied in the course of the attack, the more striking and convincing the result. The precautions to be observed in the administration of the serum are identical with those practiced with other antiserums, and consist of cleanliness of operator and patient, sterility of syringe and other apparatus employed, and protection against hypersensibility (anaphylactic reaction).

The antiserum is, as a rule, injected subcutaneously, but may be injected intravenously when indicated in very severe cases. The dose varies with the age of the patient and the severity of the symptoms. The average dose for an adult is 20 c.c., for a young child 10 c.c. But in very severe cases the dose, given intravenously, ranges from 50 to 100 c.c.

In cases of ordinary severity, a single subcutaneous dose may be followed by such marked alleviation of the symptoms as not to call for repetition. In other and severer cases, the dose may need to be repeated in from twelve to twenty-four hours, and again in forty-eight hours.

The effects of the injection of the serum tend to appear promptly. They consist first in the amelioration, often within a few hours, of the nervous symptoms and the general prostration. Usually within twenty-four hours the tenesmus and colic disappear and the stools become markedly reduced in number. Along with this improvement there goes diminution in the blood and mucus content of the discharges, coincident with which there is a return of their feculent character. According to the severity of the attack, the stools return to normal in from two to five days.

Acute cases of bacillary dysentery are especially subject to the serum treatment, but cases in their second to third week may still be favorably influenced, as may also relapses in the course of convalescence from acute attacks. On the other hand, chronic cases and the recrudescences in the course of chronic dysentery, even if originally induced by the dysentery bacilli, do not as a rule respond to the serum.

It should be added that the employment of the serum does not contraindicate the usual eliminative and dietetic forms of treatment.

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* This is the second instalment of a series of articles dealing with serums, vaccines and nonspecific therapy.

† From the Laboratories of the Rockefeller Institute for Medical Research.

MORTALITY

The mortality from bacillary dysentery varies widely. As already stated, the Shiga bacillus infections tend to be severer than the Flexner group infections, but this relation may be reversed. Different outbreaks and epidemics show fatalities ranging from 5 to 50 per cent. Certain comparisons have been instituted between serum treatment cases and cases not so treated. In general, it may be stated that mild outbreaks in which the ordinary mortality is from 10 to 15 per cent. may give a fatality of from 1 to 2 per cent. under the serum treatment, and the severer epidemics in which ordinarily the mortality range is wider, reaching even 50 per cent., may under the serum treatment fall to about 10 per cent.

SERUM PROPHYLAXIS

The polyvalent antidysentery serum may be used to prevent infection with dysenteric bacilli. Perhaps the especial circumstances under which this mode of use is indicated is in institutional outbreaks of the disease. The usual prophylactic dose is 5 c.c., injected subcutaneously. It is important, however, to bear in mind that the protection thus afforded endures only twelve to fourteen days.

SERUM DISEASE

The administration of antidysentery serum, as of all other serums prepared in the horse, may be followed by the symptoms of serum disease. These symptoms, while sometimes producing discomfort, are not serious and are to be combated in the manner followed in other and more familiar instances (as diphtheria) in which they arise.

V. THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA

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NEW YORK

Antitoxin as used is prepared by a precipitation of he antitoxin and "soluble" globulin from the serums of immunized horses. By this process a considerable portion of the serum proteins are eliminated, while the antitoxin properties are retained.

The local lesions and the constitutional effects of uncomplicated diphtheria are almost wholly due to the action of the specific diphtheria toxin. It is true that here are also endotoxins; but these are much less poisonous and probably do slight damage except when he lungs are invaded. The complications of diphheria, for example, pneumonia, are frequently due o other bacteria, such as the pneumococci and strepococci.

The treatment of early uncomplicated diphtheria is herefore largely directed to the neutralization of the oxin by antitoxin. When the disease has existed for ome days or when complications, such as pneumonia due to other micro-organisms, have arisen, the use of ntitoxin, while still indispensable, is no longer equally ffective, as it has no power whatever to neutralize ther poisons or beneficially to affect cells already injured. Fortunately, the diphtheria toxin requires onsiderable time to penetrate the deeper tissues and ass by the lymph stream to the blood and from the apillaries to the tissues of the body.

In uncomplicated diphtheria the patient recovers, if the toxin is neutralized by the antitoxin before it has caused irreparable injury. The proper administration of antitoxin requires, therefore, that it be given so as to reach the toxin in sufficient amount at the earliest practical moment.

Antitoxin, unlike most remedies, is slowly absorbed into the general blood stream from the tissues when given subcutaneously. This characteristic influences the methods used in administering it. Thus, if a child weighing 25 pounds receives 10,000 units subcutaneously, there will be a gradual accumulation of antitoxin in the blood which will reach about 1.5 units in each cubic centimeter at the end of twelve hours. An intramuscular injection is absorbed about three times as rapidly. An intravenous injection makes the whole amount of antitoxin immediately available. The potency of the blood would amount to about twelve units per cubic centimeter. As it is necessary for antitoxin to enter the blood stream before it passes to the tissues that are in contact with the toxin, it is evident that the intravenous method has an immense advantage. The dosage of antitoxin in a patient cannot be determined as in a test tube by the amount of toxin present. In no case is sufficient toxin elaborated to require more than 100 units of antitoxin to bind it completely. Immensely larger doses are properly given so as to reach the free toxin everywhere quickly and in adequate amount. Antitoxin remains in the body for several days. When given intramuscularly or subcutaneously, the blood has its highest antitoxin value from twenty-four to seventy-two hours after the antitoxin globulin has been injected into the tissues. When given intravenously, the blood's greatest antitoxin content is at the moment of injection. Thus, in the case of the child of 25 pounds, the blood would contain at the end of forty-eight hours, if given a single dose of 10,000 units subcutaneously or intramuscularly, about four units per cubic centimeter, and if given intravenously, about eight units. This persistence of the antitoxin in the blood for a number of days is not grasped by most physicians. On this misunderstanding is due the use of the multiple dose. Observations extending over years in the hospitals of New York City have added clinical to experimental evidence that a single dose of sufficient quantity is all that is required in any case. If the first dose is sufficient, later injections, though not harmful, are useless. An insufficient first dose, however, cannot be wholly compensated for by later injections. Founded on the foregoing considerations,

AMOUNT OF ANTITOXIN IN THE TREATMENT OF A CASE

	Mild Cases Units	Early Moderate Units	Late Moderate and Early Severe* Units	Severe and Malignant* Units
Infants, 10 to 30 lbs. in weight, under 2 yrs..	2,000 to 3,000	3,000 to 5,000	5,000 to 10,000	7,500 to 10,000
Children, 30 to 90 lbs. in weight, under 15 yrs..	3,000 to 4,000	4,000 to 10,000	10,000 to 15,000	10,000 to 20,000
Adults, 90 lbs. and over in weight	3,000 to 5,000	5,000 to 10,000	10,000 to 20,000	20,000 to 50,000
Method of administration advised	Intramuscular	Intramuscular	Intravenous	Intravenous

* When given intravenously, the smaller amounts stated.

the directions for the use of antitoxin may be condensed as in the accompanying table.

Cases of laryngeal diphtheria, moderate cases still active and seen late at the time of the first injection, and moderate cases of diphtheria occurring as a complication of the exanthems should be classified and treated as "severe" cases.

In all cases a single dose of the proper amount, as indicated in the schedule, is recommended.

Before the remedy is administered, the skin should be sterilized at the point of injection with tincture of iodin or other disinfectant. The syringe should be thoroughly sterilized. It is better not to employ massage over the point of injection, when the antitoxin is given intramuscularly or subcutaneously.

In cases of any severity in which diphtheria is suspected, and in cases of croup, it is far better to administer the remedy at once, making a culture at the same time, than to delay the treatment until a diagnosis has been verified by bacteriologic examination. One large dose given early is far more efficacious than the same amount in divided doses. Antitoxin for intravenous injection should be highly potent and show no turbidity. It must be warmed to the body temperature and given very gradually. One minute should be allowed for the injection of each cubic centimeter.

IMMUNIZATION

When children or adults have been exposed to diphtheria, they may be protected from the disease by the subcutaneous administration of from 500 to 1,000 units, the smaller dose being sufficient for infants and young children. The protection does not last longer than from two to four weeks. The injection should be repeated if danger of infection persists longer than three weeks. Before immunizing members of a household exposed to diphtheria, it is often advisable to determine by the Schick test whether they have natural immunity and are therefore not in danger of contracting the disease. Three toxin-antitoxin injections produce permanent immunity in about 90 per cent. of the nonimmunes.

DELETERIOUS EFFECTS OF ANTITOXIN GLOBULIN

Deleterious effects of antitoxin globulin are probably not due to the antitoxin as such but to the accompanying globulin. An intravenous injection may be followed by a chill and an accompanying rise of temperature which lasts for about two hours. Rather frequently, from two to seven days after the antitoxin injection an urticarial rash develops, and with this there may be a slight rise in temperature. Much more rarely, scarlatiniform or other types of rashes with a rise of several degrees of temperature and other constitutional disturbances occurs. Complete recovery always ensues. Entirely distinct from these slight effects are occasional severe disturbances. A few minutes after an injection about one in every thousand persons develops a rapid and feeble pulse, nausea and a feeling of suffocation. With stimulation and, if necessary, artificial respiration, recovery soon ensues. Those who frequently suffer from attacks of asthma are liable to an attack after an antitoxin injection. There have also been recorded a few deaths. These have occurred chiefly and perhaps wholly in cases of status lymphaticus. About one death has occurred for every 70,000 persons injected, and these deaths, with possibly two exceptions, have followed the first serum injection. The fear of repeating a serum injection because of having sensitized the patient is almost wholly groundless. There need be no fear in giving a second intramuscular or subcutaneous injection to any person who has not suffered severely from the first. The only difference in the effects of the two injections will be that the serum reaction will follow almost immediately the second injection. If the second injection is given intravenously after a considerable lapse of time, it should be given even more slowly than the first. If it is necessary to give antitoxin to persons who are liable to attacks of asthma, it is well to give it in divided doses. One-tenth c.c. of serum every fifteen minutes will usually be borne without disagreeable effects.

VI. THE SERUM TREATMENT OF ACUTE POLIOMYELITIS *

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A definite and enduring immunity is established by an acute attack of poliomyelitis both in the human being and in the experimentally infected monkey, and in both instances the convalescent serum contains substances neutralizing the poliomyelitic virus. Flexner and Lewis [1] were able by the intraspinal injection of convalescent serum both from monkey and from man to delay and in some cases prevent altogether the onset of the disease in monkeys which had received intracerebral injections of the virus. Netter and his associates [2] have used human convalescent serum injected intraspinally in the treatment of human cases, with some degree of success. More recently, Amoss and Chesney [3] employed combined intraspinal and intravenous injections of relatively large amounts of the convalescent serum with still more promising results.

THE SERUM

Attempts to produce an immune serum for the virus of poliomyelitis in animals other than the monkey have thus far not been successful. At present persons who have recovered from an acute attack of poliomyelitis constitute the only available source of serum for treatment. The collection and testing of serum require considerable time, so that they should be undertaken as early as possible after the appearance of epidemic poliomyelitis in a region. The treatment is scarcely adapted to the sporadic disease.

Netter has used as a source of the therapeutic serum persons who have had an attack as remote as thirty years, although he states that the best results were obtained with serum from persons who had passed through an attack of the disease more recently—from six weeks to two years previously. If the serum is

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, J. A. M. A. **54**: 1780 (May 28) 1910; **55**: 662 (Aug. 20) 1910.

[2] Netter, A.: Bull. de l'Acad. de méd., Series 3, **74**: 403, 1915. Netter, A., and Salanier, M.: Bull. et mém. Soc. méd. d. hôp. de Paris, Series 3, **40**: 299, 1916.

[3] Amoss, H. L., and Chesney, A. M.: J. Exper. Med. **25**: 581 (April) 1917.

obtained from a patient who has passed the febrile stage and is in good physical condition, there appears to be no danger of transfer of the virus.

COLLECTION OF THE SERUM

Before blood is taken for the collection of serum, the donor is given a physical examination, and a Wassermann test is made with the blood. The amount of blood which may be withdrawn varies with the body weight and condition of health, and is in general from 500 to 700 c.c. in the case of an adult, and from 200 to 250 c.c. with the average child of 10 years. The serum separated from the clotted blood is inactivated at 55 C. for one hour and tested for sterility, then transferred to small sterile bottles. For general use outside the hospital it is preserved with 0.2 per cent. tricresol. The bottled serum, which should be free of hemoglobin, fat or particulate matter, is kept in the icebox until used. Serum from different individuals may be mixed, or "pooled."

DOSAGE AND INTRASPINAL ADMINISTRATION

The administration of serum after the febrile period has passed is of doubtful value; hence it is desirable to make the diagnosis early in the attack; in some instances this can be done before the onset of any paralysis. During epidemics a microscope should be carried to the bedside, and while the needle is still in place during lumbar puncture the fluid is examined for cells and globulin. If the diagnosis of poliomyelitis is regarded as positive, the intraspinal injection of serum may be given immediately through the same needle, without a second lumbar puncture. The amount injected varies according to the amount of spinal fluid withdrawn and the estimated pressure. With the patient in the horizontal position, the fluid is withdrawn until only four or five drops per minute continue to escape. The amount of fluid in cubic centimeters less 10 is the amount of serum to be injected by the gravity method; however, if the pressure of the fluid is very great at the moment of lumbar puncture, correspondingly less should be given. The serum should be warmed to 38 C. before injection.

INTRAVENOUS INJECTION

After the intraspinal injection is accomplished, warmed serum (38 C.) is injected into one of the arm veins or, in small children, into the jugular vein. The amount to be given ranges from 40 c.c. in children up to 2 years to correspondingly larger amounts in older children; a child of average weight at 9 years should receive from 80 to 100 c.c. While it is inadvisable to use serum even slightly tinged with hemoglobin intraspinally or intravenously, it may be given subcutaneously. Deeply colored serum should be discarded.

The intraspinal and intravenous injections may be repeated after twenty-four hours if the temperature has not approached normal.

SUMMARY

Such definitely promising therapeutic results as have been obtained with serum in monkeys suffering from experimental poliomyelitis and in man suffering from the epidemic disease are limited strictly to the employment of convalescent serum, in man from recovered human patients, administered either intraspinally alone, or, as seems better, both intraspinally and intravenously at the same time, early in the course of the disease and during the febrile period.

VII. ANTIPNEUMOCOCCUS SERUM

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Pneumococci have been divided on the basis of their immunologic reactions into four types. All of the pneumococci of each of the three types, named Types I, II and III, have immunologic properties very specific for each type. An immune serum that will protect mice against lethal doses of any strain of pneumococcus of one of these types will protect mice against all other strains of the same type, but it will not protect mice against lethal doses of any strain of any other type. Consequently, in any case of pneumonia due to pneumococci of one of these types an immune serum can have therapeutic value only if the serum has been prepared by the immunization of horses against the particular type of pneumococcus which is the inciting agent in that case. The various strains of pneumococci of Type IV possess a high degree of individual specificity, so that it would not be practical to prepare or employ in treatment an immune serum effective against pneumococci of this type. For certain reasons it is not probable that an immune serum against Type III pneumococci would be therapeutically effective in man. So far as Type II serum is concerned, clinical studies have shown that it is not possible at present to obtain sufficiently favorable results to justify the routine employment of this serum. On the other hand, we now have evidence that the serum of horses immunized to Type I pneumococci is of great value in the treatment of cases of pneumonia due to Type I pneumococci.

In view of the therapeutic efficacy of Type I serum, it is important that in every case of lobar pneumonia the type of pneumococcus concerned should be determined at once. The so-called mouse method is the best for determining the type.

The serum to be used is prepared by the repeated injection of horses, first with dead, then with living cultures of pneumococci, Type I. The serum should be of such potency that 0.2 c.c. of the serum will regularly protect a mouse against at least 0.1 c.c. of an eighteen hour broth culture of pneumococcus, Type I, of such virulence that 0.000001 c.c. of the culture alone will kill a mouse of 20 gm. weight within forty-eight hours.

In all cases of acute lobar pneumonia due to pneumococcus Type I, immune serum is indicated, and the treatment should be undertaken as early in the disease as possible after the type has been determined. The serum is injected intravenously.

The amount of serum to be injected at the first dose is from 90 to 100 c.c., and this dose should be repeated every eight hours until the fall of temperature and amelioration of symptoms indicate that the infection has been overcome. The serum injected should be at body temperature, and it should be injected very slowly. The total amount required in the average case is from 200 to 300 c.c., though in severe cases, treated late in the disease, it may be necessary to employ much larger amounts, even as much as 1,000 c.c.

The effectiveness of the serum is indicated by the following facts:

1. The blood of the patient becomes sterile following the injection of the serum.
2. The progression of the local lesion in the lung is arrested.
3. The subjective and objective symptoms of the disease are ameliorated.
4. The mortality of the disease is reduced.

The mortality rate in cases of lobar pneumonia due to pneumococci, Type I, not treated with serum has been shown to be from 25 to 30 per cent. or higher. On the other hand, among 195 cases treated with serum in the Hospital of the Rockefeller Institute, only eighteen deaths have occurred, a case mortality rate of but 9.2 per cent. Reports of 300 additional cases treated with serum have been collected from the literature, making a total of 495 cases. The case mortality rate in these 495 cases has been 10.5 per cent.

SERUM REACTIONS

Following the injection of the large amounts of serum, certain untoward effects may occur.

1. *Anaphylactic Reaction.*—This type of reaction may also occur following the injection of foreign serum by any method or for any purpose. It may be guarded against by proper methods.

2. *So-Called Thermal Reaction.*—This may occur from twenty minutes to an hour following the administration of the serum. It is probably identical with the reaction that may occur following the parenteral injection of any kind of foreign protein. It is usually not serious, but is not believed to have any therapeutic value and should be prevented so far as possible.

3. *Serum Disease.*—Mild symptoms of serum disease appear in about half the treated cases, severe attacks only rarely, or in not more than 10 per cent. of the cases.

DESENSITIZATION

Certain individuals are especially subject to anaphylactic reactions; they are asthmatics and patients who have previously received therapeutic or prophylactic injections of serum. In order to determine whether this hypersensitive state exists, it is well to inject intradermally 0.2 c.c. of a 1 : 10 dilution of horse serum with a control injection of an equal amount of physiologic sodium chlorid solution. If sensitiveness is present, usually within five minutes a genuine urticarial wheal develops at the site of injection of the serum, and this increases slowly in size to that of a half dollar; the wheal in turn is surrounded by a larger area of erythema.

In all patients before the administration of therapeutic doses of antipneumococcus serum, it is also well to inject from 0.5 to 1 c.c. of serum subcutaneously a few hours before the intravenous injection. This will serve to overcome slight degrees of hypersensitiveness. If, however, it is found that marked hypersensitiveness exists, it is necessary to resort to slow desensitization. This is effected by injecting small amounts of the serum, at first subcutaneously, beginning with 0.025 c.c. and doubling the dose every half hour until 1 c.c. is given; then injecting 0.1 c.c. intravenously and doubling the dose every half hour until 25 c.c. can be given without untoward reaction. Four hours later, 50 c.c. may be given; and finally after an interval of eight hours, treatment may be continued in the usual manner. Fortunately, it is rarely necessary to resort to this tedious procedure. In all patients it is well to give the first part of the first intravenous injection very slowly; this will serve as a desensitizing measure as well as an added means of detecting hypersensitiveness. In order to combat promptly any severe anaphylactic symptoms, the physician should be prepared to inject 0.6 c.c. (10 minims) of 1 : 1,000 suprarenal extract (epinephrin).

VIII. USE OF TETANUS ANTITOXIN IN PREVENTION AND TREATMENT OF TETANUS

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The fulminating type of tetanus which occurred so frequently during the early months of the World War, when antitoxin for immunization was difficult to obtain, is not so commonly encountered in civil life, in which the symptoms of the disease are likely to develop more gradually and after an incubation period of a week or longer.

It cannot be stated that experience gained during the war has modified to any extent the best medical opinion as to the dosage and methods of administration of antitoxin, but it has emphasized the immense value of antitoxin in the prevention of tetanus and demonstrated the importance of freely cutting away all dead tissue within and about extensively lacerated and contused wounds (*débridement* of the French).

PREVENTIVE TREATMENT

In every case of open wound accompanied by laceration and crushing of tissue; of punctured wounds made by iron nails, knives, sea shells, large splinters, etc., which cannot be thoroughly sterilized; bullet wounds, blank cartridge wounds, or any wound into which city dirt or garden soil has been visibly or probably ground, an immunizing dose of tetanus antitoxin of 1,000 units should be given subcutaneously (500 units in the case of young children), the wound at the same time receiving thorough surgical treatment. In those cases in which the wound continues to slough or show signs of infection, and in gunshot and deep seated wounds in which the condition of the wound tract cannot be definitely determined, the dose should be repeated within a week, and in certain cases again repeated after the same interval.

CURATIVE TREATMENT

The value of antitoxin in the treatment of tetanus depends directly on the promptness and method of administration. Every hour lost after the development of symptoms adds to the gravity of the prognosis. The subcutaneous method of administration is of extremely doubtful value; the intravenous method, even when massive doses are thus given, has proved very disappointing, while the value of the intraspinal method has been demonstrated beyond question.[1]

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[1] Nicoll, Matthias, Jr.: Intraspinal Administration of Antitoxin in Tetanus, J. A. M. A. **64**: 1982 (June 12) 1915. Park, W. H., and Nicoll, Matthias, Jr.: Experiments on the Curative Value of the Intraspinal Administration of Tetanus Antitoxin, J. A. M. A. **63**: 235 (July 18) 1914.

Every patient, especially with the history of a wound, however slight, but also without any such obtainable history, who presents the symptoms of a stiff jaw, coming on suddenly with tenseness of the masseter muscles on attempting to open the mouth, or with tonic spasm of the abdominal muscles causing a boardlike resistance to the touch, unless such symptoms can be definitely accounted for otherwise than by tetanus infection, should receive as soon as possible an intraspinal dose of tetanus antitoxin of not less than 10,000 units, this dose to be repeated within twelve hours, and again repeated in twenty-four hours if symptoms continue. With the first intraspinal dose it is advisable to give an intravenous dose of 5,000 or 10,000 units, with the object of immediately neutralizing any toxin present in the blood. Further use of antitoxin is of doubtful value.

METHOD OF ADMINISTRATION

The technic of administering an intraspinal dose of tetanus antitoxin is identical with that of the administration of antimeningitis serum. On theoretical grounds, in order to facilitate the thorough dissemination of the antitoxin throughout the spinal canal, it is advised to dilute the antitoxin with sterile physiologic sodium chlorid solution up to an amount of from 15 to 30 c.c.—the former in the case of young children. The use of general anesthesia is necessary when opisthotonos is so marked as to render impossible the introduction of the needle between the spinous processes, or if convulsions are continuous and easily incited.

Serum should never be forced into the canal, but should flow in slowly by gravity. The operation of administering antitoxin intraspinally is not a difficult one, but should never be undertaken by the inexperienced. In the event of no one of experience being obtainable, an intravenous dose of 10,000 units should be given at once rather than delay. In addition to the specific treatment the patient should be freed from every possible source of irritation, from noise, bright light, and fussy attention. The use of sedatives is usually indicated, but conservatism in the administration of depressing sedatives is extremely advisable.

SERUM COMPLICATIONS

The administration of serum intraspinally, when properly performed, is subject to the same but no greater risk than the administration of serum intravenously.

Anaphylactic symptoms occasionally occur after an ntraspinal dose of serum, and almost as rapidly as when the serum is introduced into the blood. If there s a reason to suppose that a patient is sensitized to horse serum, it is well to introduce the intraspinal dose unusually slowly and to stop the flow of serum immediately if the symptoms are very threatening; or a few drops of serum may be introduced into a vein to test but the presence of sensitization before an intraspinal does is administered. However, in view of the fact that severe anaphylaxis has rarely been reported, and of the extremely bad prognosis in acute tetanus, the possible dangers attendant on the administration of tetanus antitoxin should be minimized and the risk incurred.

(Series to be continued next week)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NEOCINCHOPHEN.—Ethyl 6-methyl-2-phenyl-quinolin-4-carboxylate, the ethyl ester of methyl-phenyl-quinolin-carboxylic acid.—$CH_3.C_9H_4N.C_6H_5COOC_2H_5$, 6:2:4.

Actions and Uses.—The same as those of Cinchophen [Phenylcinchoninic Acid and Phenylcinchoninic Acid Derivative (New and Nonofficial Remedies, 1920, p. 224)].

Dosage.—Same as that of cinchophen. Neocinchophen is practically tasteless.

Neocinchophen is a pale yellow, crystalline powder; odorless and tasteless; permanent in the air.

Neocinchophen is nearly insoluble in water and in dilute alkalis; soluble in hot alcohol and in strong acids; very soluble in ether and chloroform.

The melting point of neocinchophen is not below 75 C.

Boil 0.1 Gm. of neocinchophen with 0.5 Cc. of sodium hydroxide solution and add 5 Cc. of iodine test solution. The odor of iodoform is apparent.

Dissolve 0.1 Gm. of neocinchophen in 1 Cc. of sulphuric acid and add bromine water test solution drop by drop until an excess has been added. A yellow precipitate results.

Boil 0.1 Gm. of neocinchophen with 1 Cc. of hydrochloric acid, filter while hot and add a few drops of platinic chloride test solution. A yellow, crystalline precipitate results.

Add a few drops of ferric chloride test solution to an alcoholic solution of neocinchophen (1-100). A yellow color is produced (*distinction from cinchophen,* which produces a reddish brown color).

Warm about 0.5 Gm. of neocinchophen in 10 Cc. of ammonia water. The substance does not dissolve (*distinction from cinchophen*).

Incinerate about 0.5 Gm. of neocinchophen, accurately weighed. Not more than 0.1 per cent. of residue remains.

Tolysin.—A brand of neocinchophen complying with the N. N. R. standards. Manufactured by the Calco Chemical Company, Newark, N. J. U. S. Patent No. 1,045,759 (Nov. 26, 1912; expires 1920), under license from the Chemical Foundation, Inc. U. S. Trademark No. 133,369.

Tolysin Tablets 5 grains.—Each tablet contains Tolysin, 5 grains.

SALIGENIN.—Salicyl Alcohol.—*o*-Hydroxybenzyl Alcohol.—1:2-Phenolmethylol.—$C_6H_4(OH).CH_2OH$.

Actions and Uses.—Saligenin is a local anesthetic similar in action to procaine. It is said to be as effective as procaine but much less toxic; also the anesthesia produced lasts longer and for this reason the addition of epinephrine is not necessary. Weak solutions are relatively ineffective when applied to intact mucous membranes, but strong solutions (12 per cent.) exert a definite numbing effect.

Dosage.—The same as procaine, which see.

Saligenin was first described by Piria (*Ann. Chem. Pharm.* **56:** 37, 1845) who obtained it by action of emulsin on salicin. The pharmacologic properties and therapeutic applications of saligenin were investigated by Hirschfelder and his collaborators (*J. Pharmacol. & Exper. Therap.* **15:** 261, 1920), who reported that it was many times less toxic than the other local anesthetics studied, and that it was well suited for use in practical surgery.

Saligenin occurs in white, rhombohedral plates or as a white, crystalline powder; odor faintly aromatic; taste slightly burning, followed by a sense of numbness. Permanent in the air.

Saligenin is soluble in water and chloroform; freely soluble in alcohol and ether; also soluble in the fixed and volatile oils.

The aqueous solution of saligenin (1:25) is neutral to litmus paper.

The aqueous solution of saligenin is not precipitated by the usual alkaloidal reagents, but it is instantly decomposed by potassium permanganate test solution.

Saligenin melts at from 85 to 86 C.

Add a few drops of sulphuric acid to about 0.01 gm. of saligenin. The particles instantly become cherry-red while the acid is but slightly colored (*distinction from other local anesthetics*).

Add a few drops of ferric chloride test solution to about 0.01 Gm. of saligenin. A grass green color is produced which is persistent. On dilution with water the solution becomes bluish-violet.

Moisten a piece of filter paper with a few drops of water. Place about 0.5 Gm. of saligenin on the moistened paper and move the crystals about with a spatula. Allow the paper to dry in a place protected from dust and remove most of the crystals by gently shaking. The paper should not be stained (*absence of dyes*).

Incinerate about 1 Gm. of saligenin accurately weighed. The ash does not exceed 0.1 per cent.

Salicaine.—A brand of saligenin complying with the N. N. R. standards.

Manufactured by The Calco Chemical Co., Bound Brook, N. J. No U. S. patent. U. S. trademark applied for.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Six dollars per annum in advance

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SATURDAY, JANUARY 8, 1921

HEMATINEMIA

Decomposition of the blood pigment, hemoglobin, undoubtedly occurs in the body under a variety of pathologic conditions. Some of its derivatives which arise in this way are familiar as excretory products, and their presence is always an indication of the existence of abnormal processes somewhere in the body. Thus, methemoglobin in the blood and hematoporphyrin in the urine promptly suggest the possibility of intoxication; they are indexes, so to speak, of poisoning with chemical compounds like nitrites, chlorates, sulphonal, trional and quinin. To what extent the same hemoglobin derivative may arise out of more direct anomalies of pigment metabolism is not yet clear.

Judging from recent observations made by several investigators in the hospitals of Hamburg, too little attention has been paid in the past to the appearance of hematin as a pathologic pigment in the blood. By the application of refined methods of spectroscopic examination, this more immediate derivative of hemoglobin, representing as it does the nonprotein, pigmentary part of the red blood cell component, has already been found in a variety of disorders. The latter were in most cases such as in some way involved an abnormal disintegration of erythrocytes. Schumm,[1] who has called attention to the new importance of this subject, states that pronounced tests have been observed thus far most commonly in pernicious anemia, certain types of eclampsia, and infections with *B. emphysematosus,* as well as in various intoxications. The earliest observations of the latter referred to poisoning with chromium salts. Subsequently, Feigl [2] emphasized the appearance of hematin as the consequence of intoxication with chlorates. In malaria, in which the appearance of hematin might be predicted on general principles, it is usually present, though the amount in the circulation may be so small as to escape detection except by careful search. A pronounced hematin content in the blood may speedily disappear under favorable circumstances.

The close chemical resemblance between bile and blood pigments is familiar to physiologic chemists. Schumm has maintained that the possible relationships between methemoglobin, hematin and bilirubin in the blood are by no means yet cleared up. Sometimes all of these compounds make their appearance together. Like bilirubin, hematin may at times appear in the urine. Furthermore, in a few of the carefully studied cases of hematinemia a peculiar brownish-yellow coloration of the skin, recalling the cutaneous appearances of true icterus, has been reported. A further possible confusion in the diagnosis of such jaundice has been suggested by the discovery of carotinemia,[3] with its abnormal skin-color manifestations. Evidently the time has come when the careful discrimination of the varied types of icterus-like pigmentation phenomena in man will need to be better appreciated.

THE PROPOSED AMENDMENT TO THE HARRISON NARCOTIC LAW

A bill has been introduced into each house of Congress at the present session to amend the Harrison Narcotic Law in several important particulars. The bill is designed to relieve the United States from the odium of participation in the extension of the narcotic menace in other countries, as well as to afford a better protection for our own citizens. This amendment includes provisions so that (1) no narcotics may be imported into the United States, except such as are actually needed here for the treatment of disease, for scientific investigation, or for other legitimate purposes; (2) no narcotics may be exported from the United States, and (3) foreign owned narcotics may not be shipped in bond through the territory of the United States. Subcommittees from both houses of Congress have held hearings on the proposed amendment and a great amount of evidence has been submitted. Social workers and reformers, clergymen, physicians, travelers, ex-ambassadors, educators, members of Congress and public spirited citizens from all walks of life have appeared or offered documentary evidence in support of the measure. Manufacturers and the interests which have profited by the traffic have protested and are protesting against any change in the Harrison law.

Following a world awakened public consciousness of the dangers from the use of narcotic drugs, an international opium commission met at Shanghai in 1909 to consider the situation. This was followed by the International Opium Conference which met at The Hague in 1911. This conference adopted measures aimed to prevent the smuggling into China of narcotics and other interdicted substances. As one of the signatories to this convention, the United States is morally bound to maintain its good faith by aiding in carrying out this provision. Early in 1914, the Harrison Narcotic Law was passed. Under this law and its regulations no narcotics may be imported into the United States without a license, and the amounts imported must be reported to the governmental authorities. In turn, no narcotics may be sold or otherwise distributed except through an order form furnished by the government. By this system, supposedly, every grain of narcotic legitimately imported or manufactured may be followed to the consumer. However, provisions are made for the exportation of narcotics, and therein lies one of the weak points in the law. Permits to export narcotics may be obtained, provided the ultimate destination of the drug be declared and the shipment be not contrary to the laws of the receiving country. If the receiving dealer is unscrupulous, he may smuggle the drug into forbidden territory or otherwise dispose of it surreptitiously. In any event, the United States has no further control over it. According to the evidence before Congress, the greater portions of the narcotics imported into the United States are not used here but, after refining, are exported to Canada and Japan. The narcotics going to Canada are alleged for the most part to be smuggled back into this country and eventually, by underground channels, to reach the drug habitués. In this way a vast amount of damage is done to certain of our citizens which our present laws appear powerless to prevent. Likewise, the narcotics sent to Japan are said not to be used there, at least to any great extent, but to be smuggled into China. In other words, while our own and the Chinese laws prevent the entrance of American narcotics into China, the laws are evaded by shipping the drugs to Japan, thus leaving the infringement of the Chinese laws to the conscience of the Japanese. For American manufacturers this practice is technically legal, but morally it is reprehensible in the extreme. In addition, under our present laws, foreign owned narcotics may pass in bond through the territory of the United States without disturbance. Under this privilege, it is alleged, vast quantities of narcotics, shipped to Japan but in reality destined for China, pass across our continent every year.

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[1] Schumm, O.: Ztschr. f. physiol. Chem. **80**: 1, 1912; **87**: 171, 1913; **97**: 32, 1916.

[2] Feigl, J.: Ueber das Auftreten von Hämatin im Blute bei Vergiftung mit Chloraten, Biochem. Ztschr. **74**: 394 (May 18) 1916.

[3] Carotinemia, editorial, J. A. M. A. **74**: 32 Jan. 3, 1920.

For centuries the Chinese nation has realized the demoralizing influence of the opium habit on its people. Three generations ago it fought the opium war against Great Britain in an unsuccessful attempt to prevent the importation of opium from India. Although, by the terms of peace at the close of that war, China was forced to permit the importation of opium, it has struggled steadfastly through the decades since that time against opium and all of its preparations. Later, because of the exorbitant price of the imported article, China itself began to produce opium; but public opinion was always opposed to this. Then in 1906 the Empire of China entered into an agreement with the British government by which the importation of opium into China from India and the production of opium in China should cease within ten years. Each nation has kept its part of the agreement faithfully, and today no opium or its derivatives may be imported lawfully into China and no opium is produced there. About two years ago the last opium not contraband remaining in China was purchased by the Chinese Republic and publicly destroyed, at a loss, it is alleged, of about $30,000,000.

The evidence before Congress justifies the opinion that if exportation of all narcotics from the United States is forbidden and the "in transit" shipping privileges withdrawn, as is proposed by this amendment, a great proportion of the alleged smuggling of narcotic drugs into this country along the Canadian border will be prevented. Further, America will be cleared from any part in the crime of narcotizing the citizens of the Chinese Republic. Certainly, it would seem to be the duty of the United States both to protect its own citizens and to aid China in its fight against the narcotic evil.

SERUMS AND VACCINES IN THERAPY

The acceptance of a remedy in legitimate therapeusis should depend on the presentation of scientific data and on dependable evidence of its effectiveness in relief or cure of disease. While it is true that some important remedies, as mercury in syphilis and quinin in malaria, have been discovered through clinical observation unaided by preliminary laboratory studies, the discovery of many others, as arsphenamin, has been possible only through long and careful scientific investigation, followed by clinical confirmation of anticipated therapeutic properties. In the development of serums and vaccines, scientific investigation and experimentation have, of necessity, preceded clinical tests of those products which have proved of permanent worth. Whenever the clinical use of serums and vaccines has proceeded beyond well established facts determined by laboratory research, the result has usually been disappointing, and it has been necessary to discard work that has cost enormously in hours of labor. Clinical investigation of the action of a remedy in any disease in which the natural outcome is variable and affected by many remote factors requires many observations with suitable controls, in order that reliable conclusions may be drawn, and, compared with laboratory methods of investigation, in which the unknown factors can be largely eliminated, is more expensive in time and uncertain in results. Scientific investigation and clinical observation must go hand in hand, each acting as a control on the other; but to submit a serum or vaccine for clinical trial without successful preliminary laboratory investigation of its probable worth is an imposition on the profession.

The serum treatment of disease dates from the discovery and application of diphtheria antitoxin by Behring and Roux, and the use of vaccines from the application of antityphoid vaccination in man by

Wright. The success of both these remedies has not only established them firmly and pointed the way to the development of similar methods of curative or preventive treatment in other diseases, but also has served to prejudice the profession and public in favor of vaccines and serums to such an extent that they are willing to accept a new serum or vaccine merely because it is a serum or vaccine, without inquiring critically into its claims of efficacy in the cure of the disease for which it is proposed. As Flexner[1] has pointed out in his introduction to the series of articles now being published in The Journal, "when diphtheria antitoxin was found to have a high therapeutic value in the treatment of diphtheria, the hope was entertained that, as the bacterial incitants of disease or causes of the various infectious diseases came to be known, each in turn could be made to yield a corresponding antiserum, and thus a high degree of therapeutic control of these diseases would quickly be secured. As a matter of fact, this millenial hope has been realized in only a few instances, and expanding knowledge of the nature of the processes of infection, as well as the properties of the different bacterial agents causing disease, is gradually supplying the reasons for success, on the one hand, and failure, on the other."

The history of antipneumococcus serum affords a striking example of the difficulties and unforeseen pitfalls that are encountered in the development of remedies of this class. Soon after the demonstration of the causal relation of the pneumococcus to lobar pneumonia, an antiserum was made by the immunization of animals, and was shown to protect other animals against infection by pneumococci. This result was confirmed by some observers, but failed of confirmation by others. The antiserum was at once introduced into the clinic, and soon clinical reports appeared, some favorable, and some, more critically compiled, doubtful or unfavorable. The clinical use of this serum continued for years, until the weight of clinical opinion caused its abandonment as of no value in pneumonia. In 1910 it was discovered that the pneumococcus group consists of several types which differ immunologically, and further research has shown that a serum effective against one type of pneumococcus is not effective against other types. Thus far only one therapeutically active serum, Type I, has been developed, and this serum is not effective against infections by other types of pneumococci. The reasons for the conflicting laboratory results and the clinical failure of the antipneumococcic serums of previous years are thus evident. And yet, with these facts readily ascertainable, we are today being offered for clinical use "polyvalent" antipneumococcic serums, recommended by the makers for use in all types of pneumococcus infection. The futility and wastefulness of time and material of trying to determine by clinical observation whether or not a polyvalent serum is of value, when scientific laboratory evidence indicates in advance that a favorable action is not to be anticipated, should need no emphasis. Antiserums for other infections have been developed, some of which are therapeutically active, and others inactive. The reasons for these successes and failures are in many instances well understood; in others the determining factors are more obscure, but in any case we have the results of laboratory investigation as a guide, which can save us fruitless efforts in undefined clinical fields.

As may be seen, the entire subject of the therapeutic action of serums and vaccines needs critical review, in order that the facts in relation to each disease may be made available for the information of the profession. It is hoped that the present series of articles may be of assistance in establishing the proper relation of serums and vaccines to other methods of therapy in infectious disease.

Current Comment

SOME ASPECTS OF INHALATION THERAPY

Inhalation is not unknown as a method of securing the introduction of potent drugs into the organism, even in cases other than those of the volatile anesthetics commonly administered by way of the respiratory tract. The possibility of effecting absorption of many substances through this channel is beyond question. Mercury, for example, has been administered by inhalation. The difficulties that attend such a procedure relate in particular to the uncertainties of accurate dosage. For highly potent substances the possibility of introducing too much of the active agent is always to be reckoned with, and the excess cannot invariably be removed so easily by respiration as it is in the case of volatilized anesthetics. This has heretofore mitigated against the widespread use of the inhalation method. Recent physiologic investigations have indicated in an increasing degree that the mucosa of the respiratory tract represents a membrane through which absorption goes on with surprising ease. Winternitz and Smith[1] of Yale University have pointed out, for example, that the lungs of dogs can be entirely flooded with salt solution and the process of irrigation continued for at least two hours with the introduction of 30,000 c.c. of fluid without causing any evident harmful signs in bodily well being or any subsequent serious microscopic lesions in the lung tissue. Salt solution given to dogs by insufflation is rapidly absorbed from the lungs. Heubner and Rona[2] have lately demonstrated that calcium chlorid solutions can be "nebulized" for inhalation so that the salt is actually absorbed from the respiratory tract. As there seem to be occasions, uncertain though they are, when a calcium therapy is indicated, and since absorption by the alimentary tract is slow, indefinite and undependable, while subcutaneous or intravenous introduction is objectionable or impracticable or both, attention becomes directed to the possibilities of inhalation. Zuelzer,[3] in fact, proposed this procedure several years ago. Since considerable doses of calcium salts are needed to increase the available amount of the element in the body, Heubner and Rona, while admitting absorption from the respiratory tract without noticeable local damage, have come to the conclusion that the inhalation method does not offer any promising outlook for therapeutic application in man. Small quantities are of dubious value; larger amounts presented through inhalation are liable to exceed the limits of advisable concentration in the blood without any suitable mode of regulation. This warning may be timely at a period when therapeutic novelties are likely to be proposed in increasing numbers.

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[1] Flexner, Simon: Biologic Therapy: General Considerations Regarding Serum and Vaccine Therapy, J. A. M. A. **76**: 33 (Jan. 1) 1921.

[1] Winternitz, M. C., and Smith, G. H.: Intrapulmonary Irrigation, Proc. Soc. Exper. Biol. & Med. **16**: 55, 1919.

[2] Heubner, W., and Rona, P.: Ueber den Kalkgehalt des Blutes kalkbehandelter Katzen, Biochem. Ztschr. **93**: 187 (Feb.) 1919.

THE PASSING OF THE INTERDEPARTMENTAL SOCIAL HYGIENE BOARD

As reported elsewhere,[4] the House Committee on Appropriations has cut out of the Sundry Civil Bill the appropriation of $2,246,924 for the Interdepartmental Social Hygiene Board. It is to be hoped that the Senate will concur in this decision. Such action will practically abolish this organization. The Interdepartmental Hygiene Board was created to meet a war time emergency. It is one of the few war bodies that has refused to demobilize. Instead, it has sought to establish itself as a permanent peace time organization. It has endeavored to extend its activities and to secure increased appropriations. In developing its program, it has shown an inability to distinguish between measures for the proper regulation of public health and those intended for the control of public and individual morals. It is clearly duplicating the work of the Division on Venereal Diseases of the United States Public Health Service. Its policy requires a growing personnel, a bureaucratic system of centralized administration, the distribution of federal money for state and local activities, and the control or dictation from Washington of state and local policies. Any one of these reasons is ample justification for the elimination of this organization, the need for which has long since disappeared.

DIREFUL FACTS FOR THE ANTI-VACCINATION CULT

We who live amid the personal safety that vaccination against smallpox has brought are likely to fail to realize its blessings. It is true that now and then, as recently occurred in California, intelligent, public spirited citizens, following the leadership of the medical profession, are compelled to come to the defense of vaccination as a public health measure against the bigotry of misdirected effort. In general, however, the institution of vaccination no longer needs a champion. If smallpox were permitted to become a pandemic raging over the entire world, as it certainly would if the disease were not held in check by compulsory vaccination, it would still the fears, as Councilman once naively remarked, of those who dread an excess of population. The expected mortality from smallpox can be computed with reasonable approximation on the basis of available data. The probable morbidity is not so easily estimated. The statistics of smallpox are like those of the incidence of starvation. A student of the subject humorously remarked that in countries in which smallpox and famine occur there are no statistics; in places where statistics are found, smallpox and famine are missing. However, Kisskalt and Stoppenbrink[1] of Kiel have succeeded in collecting data of the occurrence of disease in the city of Königsberg from 1773 to 1803, before the days of vaccination. Although the individual years showed great differences in the numbers of cases of smallpox, freedom from its presence was never attained. The danger to the patient was in general greatest during the second year of life. The astounding outcome of the statistical investigation is that out of every hundred children born during those eventful years, an average of eleven (and sometimes as many as fifteen) were destined to die of smallpox before they reached their tenth birthday. We recommend these facts to those cults and persons who still dare to threaten a return to comparable conditions of the neglect of public health.

WHY PERFORM THE STATE'S FUNCTIONS?—A PERTINENT QUESTION

As mentioned in the news department, the American Medical Association's headquarters were visited a few days ago by a group of noted men, most of them physicians, representing the ministry of public health and physical education of Czechoslovakia. These distinguished guests seemed greatly impressed with the educational activities of the Association. Especially were they astonished at the work of the Council on Pharmacy and Chemistry, that of the Propaganda department of The Journal, that of the A. M. A. Chemical Laboratory, and that of medical education and licensure. At every turn they raised the question, "But why is such work not done by the state?" The question comes logically and naturally from those who are not thoroughly familiar with American institutions and governmental functionings. In Utopia much of the work now done by the American Medical Association would not be done by, or expected of, a scientific organization. But we do not live in Utopia and the work *is* done because at present public health activities that run counter to vast vested interests—such as the nostrum trade—are touched but lightly and gingerly by governmental agencies. Recognizing the need of such work, the medical profession, through its organization the American Medical Association, has assumed the burden of carrying it on. Contrary to the jibes of those whose financial interests are threatened by all educational work in the interest of the public health, the medical profession has no selfish cause to further by such work. That which makes for health may and does redound to the credit of the medical profession, but obviously it cannot financially benefit that profession.

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[3] Zuelzer: Berl. klin. Wchnschr., 1911, p. 285.
[4] See Government Services, p. 123, this issue.

[1] Kisskalt, K., and Stoppenbrink, Clara: Die Alterssterblichkeit an Pocken vor Einführung der Impfung, Ztschr. f. Hyg. **90**: 478 (June) 1920.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Personal.—Dr. Burr Ferguson, Birmingham, formerly surgeon of the Tennessee Coal, Iron and Railroad Hospital, has left for Holland, where he will serve as medical inspector of immigration at Rotterdam, under the direction of the U. S. Public Health Service.

New Health Officer.—Dr. Edward Helwig, Indianapolis, has been appointed health officer of Montgomery city and county to succeed Dr. Frederick W. Dershimer, resigned. It is understood that Dr. Dershimer will resume his position as director of sanitation of the state board of health.

ARIZONA

Additions to Public Health Service Hospital.—Work will be started immediately on the addition to the Public Health Service hospital for tuberculous patients at Tucson. An allotment of $250,000 has been made for alterations and improvements.

CALIFORNIA

New Hospital.—Dr. George Scott Martin has opened a new hospital, known as the Riverside Hospital, at Susanville. The hospital has a capacity of fifty beds, and is designed to care for local industrial and private cases.

License Revocation Affirmed.—It is reported that the right of the State Board of Medical Examiners to revoke a license for unprofessional conduct in methods of advertising such as are likely to deceive the public and impose on credulous persons was upheld in a recent decision by the district court of appeals at Los Angeles: The decision was made in the case of Dr. Thomas F. Glass, Los Angeles, whose license had been revoked for such alleged unprofessional conduct; the action of the state board was affirmed.

Stolen Diploma Returned.—In 1902, a man bearing on successive occasions the names of Zangwell and Thompson stole from Dr. Galen R. Hickok, Satanta, Kan., his medical diploma and several state licenses. Zangwell, or Thompson, then assumed the name of Galen R. Hickok and under that name has been practicing in California since 1909. He had repeatedly been arrested charged with the performance of criminal operations but through various technicalities had been released. He was again arrested, Aug. 31, 1920, and this time it is reported that he has been convicted and sentenced to prison for a term of from two to five years. The original Dr. Galen R. Hickok reports that his diploma has been returned to him.

CONNECTICUT

New Hospital at Bridgeport.—A new hospital, known as the Columbus Hospital, has been established at 586 Washington Ave., Bridgeport, by Dr. Pasquale Romeo. The hospital has accommodations for forty patients.

Supervision of Infants.—The Bridgeport Department of Health has planned to inaugurate a system whereby every newly born infant will be carefully supervised and periodically visited by a district nurse appointed for that special purpose. The period of observation will extend over the first year of the child's life.

DISTRICT OF COLUMBIA

Personal.—Dr. Daniel L. Borden has been appointed a member of the board of fire and police surgeons to fill a vacancy caused by the resignation of Dr. Howard Hume.

Memorial Exercises for General Gorgas.—Services in memory of the late Major-Gen. William C. Gorgas will be held in the Hall of the Americas of the Pan-American Building, January 16, under the auspices of the Southern Society of Washington. The Secretary of War, Secretary of the Navy, Secretary of State, Adjt.-Gen. Peter C. Harris, Sir Auckland Geddes, and diplomatic representatives of Cuba, Panama, and South American countries will deliver memorial addresses.

FLORIDA

County Offered Hospital Fund.—Lee County has been offered a donation of $5,000 in cash and property valued at $12,000 on McGregor Boulevard, a short distance beyond the city of Fort Myers, on condition that the citizens raise an additional $5,000 for the erection of a hospital. The offer is made by Mr. and Mrs. Med R. Kellum, and it is stipulated that it must be accepted before Jan. 1, 1922, and that the hospital shall be completed within five years. The Robert E. Lee Memorial Hospital, at Victoria Avenue and Heitman Street, Fort Myers, is inadequate to meet the needs of the community.

ILLINOIS

Smallpox at Oak Park.—The discovery of a number of cases of smallpox among schoolchildren of Oak Park led to a closing of the schools in advance of the regular holiday schedule. Upward of 7,000 children were sent home with orders not to return to school until they could furnish a certificate testifying that they had been successfully vaccinated.

Chicago

Meeting of Nurses' Association.—The thirty-first annual meeting of the Visiting Nurse Association of Chicago, will be held at the Blackstone Hotel, January 11, at 3 p. m.

Club Discusses Industrial Relations.—The Physicians' Club of Chicago gave a banquet, January 4, at the Auditorium Hotel, at which the subject of "Industrial Relations" was the chief topic of discussion.

Medical Society Program.—At the first meeting of the year of the Chicago Medical Society, to be held Wednesday evening, January 12, Dr. Mark White, Minneapolis, will review his researches on digitalis, and Dr. Arthur Dean Bevan will read a paper on "Tumors of the Breast."

Hotel Employees Vaccinated.—Physicians of the health department of Chicago were assigned to vaccinate about 150 employees of a large hotel in the business district following the removal to the Isolation Hospital of a chambermaid afflicted with smallpox in the seventh day of development.

Health Department Extends Activities.—Health Commissioner John D. Robertson has announced the formation in the health department of a bureau of hospitals and social and industrial hygiene under the charge of Dr. Lee Alexander Stone. In addition to taking over the work of the old hospital bureau the new bureau will have charge of the enforcement of ordinances relating to safety appliances, ventilation and sanitation. A bureau of water control, under the supervision of Dr. Herman N. Bundeson, epidemiologist, has been authorized by the finance committee of the city council.

INDIANA

County Hospital Offered Fund.—It has been announced that Wayne County has been offered $50,000 in Liberty bonds if the county will appropriate an additional $50,000 for the work of equipping a hospital. A site was recently donated by Mr. and Mrs. David Esteb.

New Clinics at Indianapolis.—A new tuberculosis clinic was recently opened at 27 West Morris Street, Indianapolis, under the supervision of Dr. Reuben A. Solomon. The clinic will be open on Monday, Wednesday and Saturday mornings from 8 to 10. A new night clinic has been established at 102 North Senate Avenue and will be open Tuesday and Friday evenings. Dr. Edward M. Amos has been appointed clinician.

Smallpox Outbreak.—An extensive epidemic of smallpox has impelled the board of health of East Chicago to take strenuous restrictive measures. The entire south side of the town, in which the majority of the cases were discovered, has been subjected to rigid quarantine. An appropriation of $50,000 has been requested from the city council to combat the disease, more than 100 cases of which were reported up to January 4. The disease is of a moderately mild type.

KANSAS

State Asylum Burns.—Fire at the Kansas State Hospital at Topeka on Christmas Day caused a loss estimated at $10,000. Forty patients in the building were removed safely, many of them having been carried out through the flames and smoke by Dr. Middleton A. Perry, superintendent, and attendants. Five inmates of the asylum escaped from custody.

LOUISIANA

New Sanitary Officer.—Dr. Edmund L. Leckert has been appointed secretary-treasurer and sanitary officer of the New Orleans Board of Health to succeed Dr. Frank R. Gomilla.

Narcotic Clinic Taken Over.—At a meeting of the Caddo Parish Board of Health, Shreveport, an ordinance was adopted to take over the narcotic clinic hitherto conducted at the Schumpert Sanatorium by Dr. Willis P. Butler.

Orleans Parish Society Officers.—Dr. Stephen M. Blackshear was elected president of the Orleans Parish Medical Society at the annual meeting of the society. Other officers were elected as follows: vice presidents, Drs. William H. Block, William H. Harris and Frank R. Gomilla; secretary, Dr. Elizabeth Bass, and treasurer, Dr. John A. Lanford.

Hospital Staff Appointments.—At the meeting of the board of the Shreveport State Charity Hospital, Dr. Warren P. Morrill was appointed superintendent, and the following physicians were elected members of the advisory board and chiefs of departments: Dr. Joseph E. Knighton, medicine; Dr. Archibald B. Nelson, surgery; Dr. John L. Scales, eye, ear, nose and throat; Dr. Milton F. Smith, obstetrics; Dr. Michael S. Picard, pediatrics; Dr. Isadore B. Rougon, genito-urinary and skin diseases, and Dr. Clifford P. Rutledge. Dr. Morrill was elected secretary-treasurer of the board of directors.

MASSACHUSETTS

License Revocations.—It is reported that the State Board of Registration in Medicine has revoked the license to practice medicine of Dr. Joseph A. Keown, formerly of Lynn, who has been adjudged insane by the courts.

Cutter Lectures.—The Cutter lectures on preventive medicine and hygiene will be delivered at the Harvard Medical School amphitheater, January 11 and 12, at 5 p. m., by Dr. Alonzo Taylor, on "General and Specific Effects of Prolonged Subnutrition." The lectures are given annually under the terms of a bequest from John Clarence Cutter, and are free to the medical profession, to the press, and to others who are interested.

Harvard Medical Lectures.—The annual winter series of Sunday afternoon lectures on medical subjects by members of the faculty of Harvard University Medical School was initiated, January 2, by Dr. Robert W. Lovett, who spoke on "Infantile Paralysis." The next lecture will be delivered, January 9, by Dr. Alfred P. Rogers, on "The Correction of Dental and Facial Mal-Development in Children." The entire series includes thirteen lectures which are carefully arranged to cover subjects of public interest.

State Maternity Welfare Bill.—After an extended study by a special commission to investigate maternity benefits, a bill requesting an appropriation of $300,000 for the first year has been presented to the special session of the state legislature. It is proposed to use the fund chiefly for organizing a staff of nurses. Suggestions for cash benefits as a primary provision in the infant welfare movement were rejected by the commission, which was in favor of a system of education in the laws of hygiene and adequate nursing service. The medical members of the commission include Drs. Alfred Worcester, Waltham; Eugene R. Kelley, Boston; Merrill E. Champion, Boston, and Louis I. Dublin, New York.

MICHIGAN

State Tuberculosis Clinic.—A tuberculosis clinic will be held under the auspices of the state board of health at the Red Cross headquarters in North Saginaw Street, Pontiac, from January 31 to February 4. Dr. J. W. Deacon of the state board of health will have supervision of the clinic.

Society Meeting.—Dr. Harry M. Richter, professor of surgery in Northwestern University Medical School, Chicago, was the guest of the Muskegon County Medical Society at its annual banquet, December 10. Acting on the suggestion of City Manager Ellison, the society adopted a resolution that all physicians display on the radiator of their automobiles the emblem of the caduceus, the symbol of the medical profession.

MINNESOTA

Tuberculosis Scholarship.—The terms governing the award of a tuberculosis research scholarship, recently donated by Dr. Henry Longstreet Taylor, St. Paul, to the University of Minnesota, have been announced. The scholarship will be known as the Pokegama Scholarship in Tuberculosis and will amount to $1,000 during the first year, $1,250 in the second year, and $1,500 in the third year.

New County Health Organization.—A coordinate body, to be known as the Central Health Committee of Pennington County, was recently formed at a meeting of representatives of the various health and welfare associations of the county, held in the City Auditorium, Thief River Falls. Dr. Maurice G. Milan, medical director of the Oakland Park Sanatorium, was elected president of the new organization.

MISSOURI

New Health Officer.—Dr. J. W. Campbell has been appointed health officer of St. Louis.

Hospital Under Construction.—Work has been initiated on the construction of the new St. Luke's Hospital, on a 4 acre tract on Mill Creek Parkway, Kansas City.

Compulsory Notification of Diseases.—A recent order of the Missouri State Board of Health lists the following diseases as compulsorily reportable: anthrax, chickenpox, diphtheria, glanders, influenza, leprosy, measles, epidemic cerebrospinal meningitis, mumps, ophthalmia neonatorum (infantile), plague, acute anterior poliomyelitis, rabies, scarlet fever, smallpox, sore throat (epidemic or septic), tetanus, trachoma, tuberculosis, typhoid fever, whooping cough, and all venereal diseases. Failure to report any of these diseases is a punishable misdemeanor. The attending physician is held responsible for making the report to the local health department or local health officer, but if no physician is in attendance the head of the household is responsible.

NEBRASKA

Free Clinic at Norfolk.—A free general and special clinic has been opened in the Verges Sanatorium, Norfolk.

State Association Secretary Entertained.—Dr. Roy B. Adams, Lincoln, has been elected secretary of the Nebraska State Medical Association, to succeed Dr. Joseph M. Aiken, deceased. The Lancaster branch of the association tendered Dr. Adams a banquet at the Lincoln Hotel, Lincoln, December 9, at which visiting physicians from several adjacent counties were present.

NEW YORK

Inadequacy of Rural Medical Service.—The Health Department of the State of New York reports that during 1920 information was received from seventy-six districts in thirty-six counties that medical service was inadequate or not procurable. In Delaware County alone nine townships were in need of medical service. The population of these districts ranges from 500 to 6,000, and in most instances the nearest physician is from 5 to 10 miles distant. Forty-seven districts have been supplied with medical service, leaving twenty-nine communities still in need of such service.

Prohibition and Insanity.—Since the advent of prohibition, according to Dr. Horatio M. Pollock, chief statistician of the State Hospital Commission, there has been a considerable decrease in the number of persons committed to the state hospitals for the insane. The collected data indicate that a definite percentage of cases of insanity followed the abuse of alcoholic beverages. In 1909, for instance, 10 per cent. of the persons committed were addicted to the excessive use of alcohol, whereas in 1920, the percentage of such cases was only 1.9. The predicted increase in drug addiction as the result of prohibition is not borne out in statistics of insanity.

New York City

Harvey Society Lecture.—The fifth of the current series of Harvey Society Lectures will be delivered at the New York Academy of Medicine, January 15, by Dr. Alfred F. Hess, on the "Newer Aspects of Some Nutritional Disorders."

Personal.—Dr. Harry Plotz sailed January 7, to assume the duties of director of an American Jewish Relief unit in Eastern and Central Europe.——Dr. James J. Walsh has been elected president of the American Catholic Historical Association.

Brooklyn Hospital Sells Property.—The Brooklyn Eye and Ear Hospital has sold its property to the Polytechnic Institute for $150,000. The hospital directors are negotiating for the purchase of a site for a new hospital on Greene Avenue between Carlton Avenue and Cumberland Street, Brooklyn.

Health Statistics.—During the first eleven months of 1920, the death rate of the city was 12.01 per thousand population, as compared with a rate of 12.51 in the corresponding months of 1919. If this rate has been maintained in December, 1920, it will constitute a saving of 3,070 lives during the year, as compared with 1919. There has been an increase in the death rate among children and the aged. Of every thousand infants born during this period, eighty-six died in the first year, as against eighty-three in 1919. The increased mortality of children under 5 years of age is attributed to the severe epidemics of measles and whooping cough which prevailed from January to June; there were 574 more deaths from measles and 464 from whooping cough than in the same months of 1919. The increased mortality in the aged was due almost exclusively to the so-called degenerative diseases, which caused 768 more deaths during this period. The deaths from cancer increased by 185. A decrease of 3,540 deaths between the ages of 5 and 65 years is explained by a decrease in the number of deaths from tuberculosis, influenza and other respiratory diseases. Influenza reached its height in February, 1920, when 2,219 deaths from this cause were reported.

NORTH CAROLINA

Personal.—Dr. Alexander C. Bulla has been reelected health officer of Forsyth County.

Tuberculosis Clinics.—The first free tuberculosis clinics in Lenoir County will be held, beginning February 7, by physicians from the state sanatorium in cooperation with local physicians. The clinics will extend over a period of two weeks.

OHIO

Personal.—Dr. Senn F. Whisler has been reelected county health commissioner of Hancock County.——Dr. Cyril Haas, chief physician at the International Hospital at Adena, Cilicia, was recently in Columbus in connection with his tour of inspection of the important medical colleges of the country.

State Tuberculosis Clinics.—Under the joint auspices of the state and local health authorities, the Ohio State Medical Association, Ohio Public Health Association, and Ohio State Sanatorium, free tuberculosis clinics will be conducted throughout the state during the spring months as a part of the district health program. Local physicians in the various districts have been asked to assist in the arrangements for the clinics and have been urged to send suspected cases of tuberculosis for diagnosis.

Medical College Notes.—Dr. Roger S. Morris has resumed charge of the medical staff of the General Hospital and his position on the faculty of the University of Cincinnati College of Medicine, following a year's leave of absence, and the following faculty changes were recently announced: Dr. Edwin W. Mitchell has resigned as director of the department of contagious diseases; Dr. William D. Porter has resigned as professor of clinical obstetrics and assistant director of the obstetric department; Dr. R. S. Austin has been appointed professor of pathology, Drs. Wylie Ayres and Shiro Tashiro, associate professor of biochemistry, and Dr. Salmen K. Siebler, assistant in pediatrics. Dr. Gustav Eckstein of the department of physiology has been granted leave of absence for one year for special studies abroad.

OREGON

Proposed League for Health Conservation.—Proposals for the formation of a league for the conservation of public health, modeled on similar leagues already formed in California and Washington, were made at the meeting of the Portland City and County Medical Society, held at Hotel Portland, December 15.

Sterilization Law.—According to an announcement of the state board of health almost 100 persons have been sexually sterilized since the passage of the Sterilization Act in 1919. The operation in each case was done by order of the state board of eugenics, which is constituted of the members of the state board of health, the warden of the state penitentiary, the superintendent of the State Hospital, the superintendent of the Eastern Oregon Hospital, and superintendent of the State Institution for the Feebleminded.

PENNSYLVANIA

School Medical Inspectors.—The following physicians have been appointed medical inspectors of schools by the state commissioner of health: Dr. Joseph R. Beckley, Lebanon, for the Lebanon independent district; Dr. Clayton C. Flatt, for Kinzua and Corydon, and Dr. George F. Drum, Mifflingtown, for Briar Creek township.

Honor to Dr. Gerhard.—Women on the Main Line have united in a campaign to endow a bed in Bryn Mawr Hospital in memory of the late Dr. George S. Gerhard, Overbrook, through whose efforts the hospital was founded. Trustees of the hospital intend to place in the building a tablet bearing a medallion portrait of Dr. Gerhard in commemoration of his services to the institution.

Philadelphia

Personal.—Prof. Edgar Fahs Smith, former provost of the University of Pennsylvania, has been elected president of the American Chemical Society.

Appointment to University Faculty.—Dr. Henry Cuthbert Bazett of Great Britain has been appointed professor of physiology in the Medical School of the University of Pennsylvania to succeed Dr. Henry T. Reichert, who retired last year. Dr. Bazett is the Cheselden Welsh lecturer of clinical physiology at Oxford, England, and was connected with St. Thomas' Medical School.

School Medical Inspection Report.—According to the report of Dr. Walter S. Cornell, chief school medical inspector, more than one half of the public schoolchildren examined during the year had one or more physical defects. Not a case of smallpox has developed in a native Philadelphian in the last fourteen years. Three hundred tuberculous and poorly nourished children are cared for in special classes, and mental clinics and nutrition classes have been established to meet special needs.

RHODE ISLAND

Special Lecture at Brown University.—Dr. Charles R. Stockard, Cornell Medical College, New York, delivered a lecture on the subject of "The Rate of Growth and Quality of Structure," in Sayles Hall, Brown University, Providence, under the auspices of the Sigma Xi Society.

Psychopathic Department Advocated.—At a session of the State Conference of Social Welfare, held December 9, at the Rhode Island Medical Library, Providence, Dr. Charles M. Campbell, director of the Boston Psychopathic Hospital, delivered an address advocating the creation of a psychopathic department, either in hospitals or separately, where nervous and mental diseases may be treated.

SOUTH CAROLINA

New Health Officers.—Dr. Duncan D. Bullock, Roland, N. C., has been appointed health officer of Orangeburg County succeeding Dr. Robert S. Bailey, resigned.——Dr. Percy H. Brigham, New Orleans, has been appointed city health commissioner of Orangeburg.

Dedication of Salvation Army Hospital.—The Salvation Army Hospital at Greenville, the fourth established by this organization in the United States, will be dedicated, January 13. The hospital was erected at a cost of approximately $250,000 and is intended to serve the southeastern section of the country.

Pellagra Investigators Honored.—At a meeting of the Spartanburg County Medical Society held, December 17, special tribute was paid to those investigators who have been connected with the pellagra investigations during the last nine years. The invitations to attend were extended to Drs. Joseph F. Siler, W. J. McNeal, Robert M. Graham, Paul Shule, Joseph Goldberger, Robert Wilson, Edgar A. Hines, James A. Hayne, Stewart Roberts, Seale Harris and Franklin Wood.

TEXAS

Baylor Medical College Acquires Hospital.—At a joint meeting of the directors of the Texas Baptist Memorial Sanitarium and the trustees of Baylor University, held at Dallas, December 11, plans were perfected whereby the sanitarium will hereafter be conducted as a unit of Baylor University. The action was authorized at the last meeting of the Baptist general conference of Texas. A committee was appointed to apply for an amended charter for Baylor University to permit the operation of the sanitarium, which will hereafter be known as Baylor Hospital, under direction of the board of trustees of the university. The hospital will be conducted as a teaching institution in conjunction with the medical school. As soon as the necessary funds have been secured women's and children's hospital buildings will be erected, and a public dispensary will be provided.

VIRGINIA

New Valley Association.—Physicians from seven counties in Shenandoah Valley met at Harrisonburg, December 14, and organized the Medical Association of the Valley of Virginia. Sixty-four practicing physicians were enrolled as charter members.

Fire at State University.—A fire completely destroyed the office and private laboratory of Dr. J. A. Waddel, professor of pharmacology, and a large amount of apparatus in the physiologic laboratory at the University of Virginia, Charlottesville, on the morning of December 24. The loss is covered by insurance.

Drive for Hospital Fund.—A campaign for a fund of $150,000 for the erection of a new addition to the Roanoke Hospital and for additional equipment will be inaugurated, February 15. The proposed new unit will give the institution a capacity of 100 beds and will provide a maternity ward, children's ward, new operating rooms and other special facilities.

WISCONSIN

Personal.—At a meeting of the Milwaukee Oto-Ophthalmic Society, held in the rooms of the Milwaukee Medical Society, December 14, Dr. Clarence Loeb, Chicago, conducted a clinic hour and gave a special address.——Dr. William H. Bayer, Merrill, has been elected president of the Lincoln County chapter of the American Red Cross.

Society of Industrial Medicine.—Physicians and surgeons employed by industrial corporations of Wisconsin have organized the Wisconsin Association of Industrial Physicians and Surgeons and have elected the following officers: president, Dr. Clare E. Schram, Beloit; vice president, Dr. Robert A. Waite, Milwaukee, and secretary-treasurer, Dr. Robert E. Fitzgerald, Milwaukee.

CANADA

Personal.—Prof. A. B. Macallum of McGill University, Montreal, will deliver a course of lectures, extending over seven months, at the medical college in Pekin, China. He will leave for the Orient in March.

University Fund.—The subscription campaign in aid of McGill University, Montreal, yielded a total of $6,321,511, to which more than 4,000 people contributed. The province of Quebec and the Rockefeller Foundation gave $1,000,000 each, while an additional million was contributed by the graduates.

Hospital News.—A prominent manufacturer of Toronto has donated to the general hospital of his home town, Brantford, Ont., the interest for five years on a $25,000 victory bond, to be used as a trust fund at the discretion of the directors of the hospital.——An agreement has been made between the town of Cobalt, Ont., and the adjoining township of Coleman to equip the old Cook Camp of the Trethewey Mine as an isolation hospital.——A fire at the Muskoka Free Hospital for Consumptives at Gravenhurst, Ont., November 30, destroyed the three main buildings. The 200 patients in the institution were all removed safely.

GENERAL

Metric System as National Standard.—A bill introduced in the United States House of Representatives by Representative Britten of Illinois fixes the metric system of weights and measures as the standard for the United States.

Hygiene of Drinking Water on Steamships.—The U. S. Public Health Service has extended its regulations requiring certified drinking water on railroad trains to include all lake, river and ocean steamships under dominion of the United States.

Hawaiian Medical Society Elects.—The following physicians have been elected officers of the Hawaiian Medical Society for the ensuing year: president, Dr. Frank L. Putman; vice president, Dr. Grover A. Batten; secretary, Dr. Joseph E. Strode, and treasurer, Dr. F. J. Pinkerton.

Lane Lectures.—Dr. L. Emmett Holt of Columbia University, New York, has been appointed Lane Medical Lecturer for the year 1921. The lectures will be delivered at the medical school of Stanford University, San Francisco, during the week beginning November 28, on the general subject of growth and nutrition.

Award of John Scott Medals.—The board of directors of City Trusts of Philadelphia has awarded a premium of $800 and a John Scott Medal to Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research, in recognition of his work in the discovery of the causative organisms of infectious diseases, and to Dr. Edward Calvin Kendall, Rochester, Minn., in recognition of his work on thyroxin.

Seaboard Railway Surgeons Meeting.—The seventeenth annual session of the Association of Seaboard Air Line Railway Surgeons, held at Savannah, Ga., under the presidency of Dr. Louis J. Picot, Littleton, N. C., the following were elected officers for the ensuing year: president, Dr. Henry C. Dozier, Ocala, Fla.; vice presidents, Drs. Jabez Jones, Savannah, Ga., John H. Smith, Branchville, Va., and Harris Bass, Hendersonville, N. C., and secretary-treasurer, Dr. Jarrett W. Palmer, Ailey, Ga. The next annual meeting will be held in Birmingham.

Association for Research in Nervous and Mental Diseases.—This association held its first annual meeting in New York, Dec. 28-29, 1920; it was successful from every point of view. The following officers were elected for the ensuing year: president, Dr. Walter Timme; vice president, Dr. E. W. Taylor; secretary-treasurer, Dr. Foster Kennedy, all of New York. A commission on scientific work was appointed, composed of the officers ex officio and of the following members: Dr. Charles L. Dana, New York; Dr. William G. Spiller, Philadelphia; Dr. Hugh T. Patrick, Chicago; Dr. Bernard Sachs, New York; Dr. Israel Strauss, New York; Dr. J. Ramsay Hunt, New York, and Dr. Lewellys F. Barker, Baltimore.

Czechoslovakian Commission Studies Health Activities.—A Czechoslovakian commission for the study of public health administration in the United States is making a tour of the principal medical centers of the country, at the invitation of the Rockefeller Foundation, under the guidance of Dr. C. W. Wells of the International Health Board. The commission is composed of Dr. Vladimir Basika, chief of the medical department, Ministry of Public Health, Prague; Dr. Ivan Halek, chief health officer of Slovakia, Bratislava; Dr. Vladimir Petrik, medical superintendent for Slovakia, Bratislava; Dr. B. Vacek, chief health officer of Moravia, Brno; Dr. Karel Driml of the Ministry of Public Health, Prague, and Mr. Antonin Kolinsky, chief legal adviser of the Ministry of Public Health and Physical Education, Prague. While in Chicago, the members of the commission spent an entire morning at the headquarters of the American Medical Association, and expressed great interest in the activities of the Association.

LATIN AMERICA

Centennial of the University of Buenos Aires.—In honor of the centennial year, 1920, of the University of Buenos Aires, the *Revista de la Universidad* is publishing a historical sketch of the work of the university and review of all the theses presented. The entire 300 pages of No. 145 of Vol. 44, just received, are devoted to the period 1852-1873.

FOREIGN

Prize for Nicolle.—The Lasserre prize, which is an endowment in the ministère de l'instruction publique of France, has been awarded to Dr. Charles Nicolle of the Institut Pasteur at Tunis. He was a pioneer in research on transmission of disease by the louse.

The Campaign Against Typhus.—Our French exchanges confirm that the League of Nations through its typhus commission has called upon its members to contribute $8,000,000 to fight typhus in Poland and protect the rest of the world against the spread of the disease. It is estimated that there were 306,000 deaths from typhus in Poland and Galicia during 1920.

International Congress on Physiotherapy.—The fifth international congress for physiotherapy was to have been held in Russia, but this plan has been abandoned, and Madrid selected for the next meeting. It will convene at Madrid in 1922. Prof. Bartrena Costa, the incumbent of the recently organized chair of physiotherapy at the University of Madrid, is president of the committee in charge.

The Medical Orchestra.—The Paris "medical orchestra" gave fine concerts before the war. It is now being reorganized, and the committee in charge appeals to all *confrères instrumentistes* as well as to their wives, sons and daughters and to medical students. A general meeting for organization is soon to be held. The president of the committee is Dr. Richelot, 3 rue Rabelais, and the secretary, Dr. Destouches, 4 rue Thénard.

Tribute to Bordet.—Our Belgian exchanges relate that Brussels planned an ovation for Prof. J. Bordet on his return from Stockholm where he received the Nobel prize in medicine. The municipal and university authorities cooperated with the Fédération médicale, and the "Bordet Day" comprised a ceremony in the morning at the Institut Pasteur where a bronze medallion was presented; in the afternoon an academic session was held at the Palais d'Egmont, and in the evening a banquet.

Institute for Biologic Research in French Africa.—Our French exchanges mention the creation at Dakar in the French possessions in western Africa of an *institut de biologie* for the study of microbiology in man and animals and the study of biologic chemistry, as well as the production of vaccines and serums and treatment of rabies, etc. Calmette has been urging the organization of laboratories in primitive regions free from the taints which follow civilization, where tuberculosis and other diseases can be experimented with on monkeys and cattle without the influence of heredity and natural contagion.

Annual Meeting of the Swedish Medical Association.—At the annual meeting, Oct. 5, 1920, it was announced that the Pasteur medal had been awarded to Bordet for his complement fixation and whooping cough bacillus discoveries. The jubilee prize was given to Prof. U. Quensel for his research on urine sediment in kidney disease and the origin of tube casts. A legacy from the late Prof. K. G. Lennander was announced, to be applied for "Lennander lectures" on vital medical topics. The society has 1,370 members, which includes thirteen honorary foreign members and 134 foreign members. The latter groups had been added to during the year by election of Naunyn and Krehl of Germany, and of René Leriche, A. Policard and L. Bérard, all professors at the University of Lyons, France, and noted for their work on peripheral sympathectomy, bone and nerve grafting, etc. Six Americans were elected foreign members during the year: Ludvig Hektoen, R. W. Lovett, Lewellys F. Barker, Warfield T. Longcope, Rufus Cole and Peter Bassoe. A subsidy of 500 crowns was awarded Prof. R. Bárány for the purchase of instruments, and a similar amount was given the *Acta oto-laryngologica.* The association had offered a prize for a popularly written work on immunology, but only one was received in competition and this did not comply with the requirements. The association has thirteen endowed funds for stipends, etc., and fifteen for prizes and other scientific rewards.

French Delegation to Study Medical Education in the United States.—The *Presse médicale* of December 11 contains the report of Drs. G. Roussy and E. E. Desmarest, professors at the Paris medical faculty, who were sent as delegates by the University of Paris, at the request of the National Board of Medical Examiners, to examine conditions of medical education in this country. The party included also two delegates from England and one representative of the Triple Examining Board of Scotland. The French delegates express the warmest gratitude for the manner in which they were received and their task facilitated by their American confrères, and congratulate them highly for their initiative, the aim of the mission being to draw closer on the scientific side the ties formed on the battle fields during the war. They add that the Americans thought that the time had come for a closer interchange of students, professors and physicians, in the hope that the day may finally arrive when there will be reciprocity between the license granted by the National Board of Medical Examiners and the licenses granted in Great Britain or France. This mission was requested in order to acquaint the latter countries with the status of medical education in the United States. The delegates visited only the Class A medical schools, and in this instalment of the report describe them as inspected in all the principal cities from New Orleans to Minneapolis and east of the Mississippi. Subsequent instalments are to describe the medical examinations here, the proposed interchanges, and the general impressions of the delegates.

Deaths in Other Countries

Dr. **J. Federn,** a prominent physician of Vienna through several generations.—Dr. **L. A. de O. Catta Preta,** formerly professor of surgery at the medical school of Rio de Janeiro, president and one of the founders of the Sociedade de Medicina e Cirurgia, president of the first Brazilian medical congress, founder of the Polyclinica de Botafogo, and member of the cabinet during the days of the empire, aged 91.——**Sylvester David Willard,** London, England; M.R.C.S., L.R.C.P., London, 1889; aged 55; died, November 28.

CORRECTION

Some Influences of French Science on Medicine.—In the article by this title appearing first in The Journal for January 1, the following footnote was omitted: "Read before the Institute of Medicine of Chicago, October 29."

Government Services

REPORTS OF THE SURGEON-GENERALS

United States Army

The report of Surgeon-General Ireland for the fiscal year ending July 1, 1920, is a large volume of 755 pages. In his letter of transmittal, he points out that the major portions of 1919 and 1920 were devoted to demobilization, including physical examination of those discharged, caring for the sick and restoring the wounded, reconstruction of the disabled through vocational and educational training and finally, aiding in building up the new army medical department. The health of the army was satisfactory, modified by the general waning of the influenza epidemic and marked by a gradual decrease in all of the acute infectious diseases. It must be remembered that during this period an army of occupation had been maintained in Germany and expeditionary forces in Siberia and northern Russia. One of the most valuable parts of the report is that on battle casualties. There are numerous tables and charts indicating the relative number of killed and wounded in each branch of the service, time lost, duration of treatment, ultimate results of treatment, etc. A general discussion of the health of the army is followed by special chapters on infectious diseases, venereal diseases and the influenza epidemic. The report of the laboratory division indicates that the army has kept this department of the service at its highest point. Researches have been undertaken on the transmission of disease through kitchen utensils, on carriers of infectious organisms, on the etiology of influenza and on the prevention of diseases through the use of vaccines and serums. During this year the army has inaugurated a commendable feature, the "Medico-Military Review," published twice a month to serve as a medium through which items of current interest and importance are communicated to the medical officers. The Surgeon-General points out the great need for the building for the Army Medical Museum, plans for which have been made. It will be included with the Army Medical School as a part of the medical center to be built on the grounds of the Walter Reed General Hospital. Much space is devoted to the hospital section with its various departments and to an analysis of the personnel of the medical corps and of the reserve corps.

During this year 40,283 books and 5,475 pamphlets were added to the Surgeon-General's Library, which now contains 238,779 bound volumes, 35,496 unbound volumes, 366,295 pamphlets, 6,077 portraits of physicians, 149 medical engravings, and 358 medical caricatures. The library regularly receives, exclusive of transactions of societies, 1,300 current medical periodicals.

A large section of the report is devoted to the work of the forces in France, Germany, Russia and Siberia. Special sections are given to the reports of the department surgeons and to the army general hospitals. The army medical school conducted its twenty-fourth session during this year; thirty-five student officers completed the course and thirty were found proficient and were awarded certificates of graduation. In his conclusion the Surgeon-General expresses the hope that the new building for the Army Medical School and the Walter Reed General Hospital will be completed in time to transfer the activities there for the session of 1922. Courses will be given during the next year at the Field Service Medical School at Carlisle and at the Army Medical School in Washington, D. C. Medical Department administration, sanitary tactics and drill will be reserved for the Carlisle school, as well as hygiene of troops, personal hygiene and field sanitation. At the Army Medical School instruction will be technical and clinical. For the coming session five students have been accepted from the Spanish-American republics and places have been reserved for five officers of the National Guard. Sixty officers will be detailed from civil life or selected from among temporary medical officers, making a total attendance of seventy students.

United States Navy

The report of Surgeon-General Braisted comprises 326 pages and concludes the description of the navy's participation in the war. Peace has not yet restored previous conditions. The navy department also has been suffering from the war reaction and has been having difficulty in securing medical officers. Efforts have been made to increase the attractiveness of the various corps with the hope of attracting more physicians to this service. The Surgeon-General strongly urges that length of sea service should not be given the same value in estimating the standing of medical officers as it has for other naval officers and he strongly urges periods of study leave after sea service to permit the medical officer to bring himself up to date. He also urges special legislation to permit that temporary officers be given a place in the regular service. The corps at the time of this report had 655 regular medical officers, 107 reserve medical officers, 193 officers holding temporary appointments and 79 former pharmacists commissioned as assistant surgeons. As the authorized strength is 1,225 medical officers, the existing vacancies number 570. The shortage of specialists has induced the bureau to organize special classes at various institutions: surgeons attending the Mayo clinic; eye, ear, nose and throat specialists, the New York Eye and Ear Infirmary and the Washington University, St. Louis, and internists the Pepper Laboratory of the University of Pennsylvania. Students attend these clinics for a period of four months and receive special instruction. Much space is devoted to care of the sick and wounded in the war, to the care of the dead interred abroad, to cooperation with the Bureau of War Risk Insurance, to research carried on in the Navy Medical School, especially into the infectious diseases and diseases of nutrition, and to the course of instruction given at the Navy Medical School. Special sections are devoted to reports from the various ships of the navy together with recommendations. The navy, through the Marine Corps, maintained stations in Nicaragua, Haiti and in the Virgin Islands. In connection with these sections there is particular note of tropical disease investigations.

United States Public Health Service

During the fiscal year covered by the report of Surgeon-General Cumming the bureau has been administered in general under the same divisions as formerly, viz., venereal disease, marine hospitals and relief, scientific research, quarantine, insular quarantine and immigration, sanitary reports, and sections on inspection and public health education. The scientific research division has carried out special investigations of the various infectious diseases, industrial hygiene, sewage disposal, child hygiene, public health organization and general sanitary problems. Among the significant work particularly important were the researches on the various preparations of chaulmoogra oil in leprosy, on the cause and prevention of pellagra, and on the prevention of malaria. The Public Health Service should be given credit for its work on the control of the manufacture and importation of arsphenamin, assuring to America a product possibly superior to that offered previous to the war and at a reasonable price. The service has cooperated with the state of California in investigations on botulism; work has continued as usual on trachoma, typhoid fever and occupational diseases. Special reports are made by each of the various departments and divisions concerning the details of their work. The Public Health Service has held several important conferences, especially the annual meeting with state health officers. In conclusion, the Surgeon-General points out the necessity for legislation defining the limits of activities of the Bureau of War Risk Insurance, the Federal Board for Vocational Education and the Public Health Service. Many of the duties of these organizations now overlap. Additional appropriations are asked to permit investigation by the service into the spread of infectious disease, for the control of plague and for the improvement of quarantine service, particularly at Providence, R. I., and at Mobile, Ala. It is desired to extend the educational service, especially the carrying of messages of public health by circulars, lectures and lantern slides. It is strongly recommended, because of crowded conditions at headquarters, that steps be taken to locate all of the activities of the Public Health Service in one building of permanent fireproof construction. Legislation is needed also to permit the bureau to secure sufficient personnel and to extend its reserve corps.

Reorganization of Government Departments

The Smoot-Reavis bill for the reorganization of the various departments of the government has become a law without the President's signature, and the joint congressional committee will at once begin its survey of the departmental operations. While it is too early to predict what changes will be made in the health activities of the various departments, it is within the power of the committee to effect a unified system whereby many bureaus may be consolidated, unnecessary duplication eliminated, and the work of the government in public health lines brought under one department.

APPROPRIATIONS FOR MEDICAL ACTIVITIES

Medical History of the World War

The Sundry Civil Appropriation Bill, just reported to the House, contains an item of $50,000 for continuing the work of compiling the medical history of the World War, which is under the direction of Surgeon-General Ireland and Col. Charles Lynch.

Fate of Interdepartmental Social Hygiene Board

The Interdepartmental Social Hygiene Board requested $2,246,924 to carry on its work against venereal diseases during the next fiscal year, but the appropriation was entirely eliminated from the Sundry Civil Bill by the House Committee on Appropriations. This board will cease to function unless the Senate provides the necessary funds, which in the present year amounted to $1,015,000. Opposition to the continuation of the board is attributed in part to the fact that it duplicates work performed by the Public Health Service.

Public Health Service Activities

The bill authorizes the expenditure of $200,000 by the division of venereal diseases of the Public Health Service, although $336,715 was requested for the next fiscal year. The bureau asked for $50,000 for health education, and $200,000 for the control of influenza and other epidemic diseases, but these amounts were refused. The House Committee granted only $50,000 for the control of biologic products, the amount allotted during the current fiscal year.

The sum of $80,000 is provided for the maintenance of a home for lepers, including transportation of lepers, maintenance and care, and pay of necessary officers. This home has been located at Carville, La.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 13, 1920.

New Legislation for Sexual Offenses

A criminal law amendment bill, introduced by the government, makes important modifications in the law on sexual offenses and also provides for the care of young persons who may be the subject of such offenses. If it appears to the court that any person under the age of 16 with or on whom the offense has been committed requires by reason of character, conduct or associations care, supervision or control, the court may: (1) order that person's parent or guardian to enter into a recognizance to exercise due care and supervision in respect of that person; (2) make an order of committal to the care of a relative or other person named by the court; or, if the person with respect to whom the order is proposed is under 14 years, to an industrial school, and the provisions of the children's act of 1908 shall apply to such order. The court may also in the case of children under 14 place them under the supervision of a probation officer. Another clause is added to prevent the use of ships in harbor as resorts of prostitutes. It reads: "A prostitute shall not enter or be on board any ship or vessel in any port, dock or harbor for the purpose of prostitution, and a person shall not take any prostitute on board for such a purpose. The penalty is a fine not exceeding $10 or imprisonment with or without hard labor for a month. It shall be the duty of every port, dock and harbor authority to take all reasonable steps to prevent persons resorting to these places or to ships for the purpose of prostitution." Another clause inflicts penalties for false accusation: "If any person accuses another person of any offense under the act, knowing the accusation to be false or not having reasonable grounds for believing it to be true, he shall be liable to imprisonment with or without hard labor for a term not exceeding two years or to a fine not exceeding $250." Drastic penalties are imposed on persons soliciting sexual intercourse knowing that they are suffering from venereal disease in a communicable form.

Industrial Fatigue in Boot and Shoe Factories

The Industrial Fatigue Research Board has issued a report on the boot and shoe industry which derives special interest from the fact that this is one of the "consumptive industries," like stone cutting and printing. The Medical Research Committee recently reported that the boot worker is predisposed to infection by the sedentary nature of his employment and possibly by the attitude he adopts at his work, and that the infection is probably increased by the number of infected workers and is favored by lack of light, by infected dust and by inadequate ventilation in workrooms. It has consequently recommended that lighting, floor cleaning and ventilation shall be improved in the factories, and that periods of rest and exercise shall be instituted. The evidence obtained from a factory in which such play intervals had been instituted disclosed that they are of economic as well as hygienic advantage. More and better work is done than without such intervals. It was considered contrary to physiologic doctrine and to economic efficiency to keep girl machinists sitting at a bench for an unbroken spell of four hours. This was in 1912. The war came, and all hope of applying these views had to be abandoned. But in 1918 a certain boot-making firm was confronted with the problem of increasing output without adding new machinery, owing to the difficulty of obtaining machinery at that time. The difficulty arose in the "press room" where the leather is cut into pieces by a mechanical press working a heavy knife—an operation demanding skill and care. It was resolved to give the system of rest pauses a trial and thus attempt to get more out of the machinery. The advice that had been offered in 1913 in the interest of health was taken in 1918 in the interest of output. The view of the physicians that more and better work would be done with such intervals proved correct. The experiment was made of working with a team of three girls, each working forty minutes in each hour and resting twenty minutes. The earlier method was to work with two girls who carried on continuously during the day. The results were so favorable that the system was adopted. The rest room provided was comfortable, quiet, and attractively furnished. The girls could do there as they pleased—knit, crochet or read. Payment was by the day plus a bonus on output. The increased output on different machines varied from 34 to 75 per cent. and averaged 44 per cent. Yet the working hours of the individual were reduced by one third. The effect on the workers was carefully noted. At first they viewed the experiment with skepticism and thought they could not get through their work. But when they found the result they became enthusiastic. Moreover, they said that their health improved and that they no longer felt tired after the day's work. This applied especially to the weak and unskilful. Efforts were also made to determine the best working period for the industry. Saturday labor was found to be defective. In only one factory was the output 90 per cent. of the other days, and in one it was only 77 per cent. Some manufacturers, recognizing that Saturday work was not profitable, abandoned it. The fear then arose that Friday's output might then suffer, but this fear proved unfounded. With regard to Saturday labor, it was also found that the fall was less in the case of the more skilled operatives.

A Physiologist Appointed Director of a Clinical Medical Unit

A significant appointment has been made to the Clinical Medical Unit of St. Thomas' Hospital and one so far unique in this country. Dr. Hugh Maclean, professor of chemical pathology in the University of London, has been appointed director. He is well known for his writings on this subject. The appointment of a physiologist and biochemist to direct clinical teaching shows forcibly the trend of modern medicine.

PARIS

(From Our Regular Correspondent)

Dec. 3, 1920.

Recognition Throughout French Territory of Physicians and Dentists of Alsace-Lorraine

In a previous letter (The Journal, July 17, 1920, p. 187), I called attention to the peculiar situation in which Alsatian physicians find themselves at present. Although a number of these physicians, during the war, practiced in France among the civilian population and in the Red Cross hospitals, they are nevertheless treated as foreign physicians and are now authorized to practice only in Alsace and Lorraine. In order to remedy this deplorable state of affairs, the government has filed this bill with the chamber of deputies:

> Section 1. Physicians who have been duly authorized to practice medicine in Alsace-Lorraine and who have been admitted to the rights of French citizenship shall have the privilege of practicing medicine throughout all French possessions under the same conditions as those who have received diplomas in medicine from the French government.
>
> Section 2. Dentists who have received diplomas, in accordance with the local regulations in force in Alsace-Lorraine, entitling them to the designation "Zahnärzte," and who have been admitted to the rights of French citizenship, shall have the privilege of practicing the profession of dentistry throughout all French possessions under the same conditions as those who have received their dental diplomas from the French government.

International Congress of Medicine and Pharmacy as Applied to War

The Medical Corps of the Belgian army is organizing at Brussels for the month of June, 1921, an international congress of medicine and pharmacy as applied to war, to which all the physicians and pharmacists belonging, or who formerly belonged, to the armies of allied and neutral countries are invited. Questions that will come up for discussion are: (1) What the war has taught us in regard to the treatment of fractures of the extremities; (2) the campaign against venereal disease and tuberculosis in the army; (3) chemical and physical study of war gases; sequels of the action on the organism; significance of these sequels in the evaluation of disability claims, and (4) plan of organization of army medical corps, in general. Registrations for the congress, and the communications on the questions to be discussed, should reach the general secretary of the congress, M. Jules Voncken, hôpital militaire de Liége, Belgium, by April 1, 1921. Articles should be accompanied by a concise summary of their contents.

Antigens and Antibodies

Dr. Maurice Nicolle, of the Pasteur Institute in Paris, conceived the excellent idea of combining under this title and of publishing in the form of a small volume (Masson et Cie, publishers) the substance of the three Harben lectures, which had been desired in book form by the Royal Institute of Public Health, London. The interesting features of the work are the diagnostic and therapeutic applications of the ideas concerning antigens and antibodies. From the standpoint of serotherapy, Nicolle passes in review antipneumococcus serums, antimeningococcus serums, antigonococcus serums and antityphoid serums. In vaccinotherapy he discusses the indications for vaccines, their mode of action and their therapeutic effects.

Marriages

Joseph S. Parent, Galway, N. Y., to Miss Bessie M. Wright of New York, at Bennington, Vt., June 10.

Roy Chester Lowe, Evansville, Ind., to Miss Marie Whitaker of Indianapolis, December 18.

John Riley Merriman, Springfield, Ill., to Miss Dorothy Carroll of New York, October 27.

William Levine to Miss Kate L. Stivelman, both of Brooklyn, November 28.

Deaths

Orlando Benajah Douglas, Concord, N. H.; University of the City of New York, 1877; aged 84; a member of the New Hampshire Medical Society; a veteran of the Civil War; for many years surgeon and director of the Manhattan Eye, Ear and Throat Hospital; president of the New Hampshire Orphan's Home; at one time president of the Medical Society of the County of New York, and for ten years treasurer of the New York Academy of Medicine; died, December 17.

Walter Jackson Freeman ⊕ Philadelphia; University of Pennsylvania, Philadelphia, 1885; College of Physicians and Surgeons in the City of New York, 1885; aged 60; laryngologist to the Pennsylvania Institution for the Deaf and Dumb and the Orthopedic Hospital; a member of the American Laryngological Association and of the College of Physicians of Philadelphia; died, December 20.

Edward Herbert Thompson, Bluefield, W. Va.; Maryland Medical College, Baltimore, 1905; aged 33; a member of the West Virginia State Medical Association; secretary of Mercer County Medical Society since 1917; a member of the state board of health; died, December 14, from injuries received in an automobile accident.

Worthington Warner Miner ⊕ Ware, Mass.; University of Buffalo, N. Y., 1871; aged 73; for twenty-five years local surgeon for the Boston and Maine Railroad; at one time a member of the Ware school board and board of health; at one time associate editor of the *Buffalo Medical Journal;* died, December 12, from anemia.

Andrew William Hoisholt ⊕ Napa, Calif.; Cooper Medical College, San Francisco, 1882; University of Heidelberg, Germany, 1884; aged 62; clinical professor of medicine in Leland Stanford Junior University, San Francisco; medical superintendent of Napa State Hospital; died, December 17, from heart disease.

William Francis M. Sowers, Washington, D. C.; Johns Hopkins University, Baltimore, 1900; aged 46; a member of the surgical staff of Providence, George Washington and Foundling hospitals; a member of the Washington (D. C.) Surgical Society; died, December 19.

William Jonathan Swift, New York; College of Physicians and Surgeons of the City of New York, 1878; aged 68; a member of the Medical Society of the State of New York; visiting physician at the Manhattan Eye and Ear Hospital, New York Eye and Ear Infirmary, and Bellevue Hospital; died, December 20.

Oscar Franklin Kunkel ⊕ Bells Camp, Pa.; Jefferson Medical College, 1903; aged 40; for ten years medical director of Bon Air Sanatorium, Bells Camp; a member of the National Association for the Prevention of Tuberculosis; died, December 17, from tuberculosis.

George Oliver Coffin, Kansas City, Mo.; Kansas City (Mo.) Medical College, 1892; aged 42; at one time clinical surgeon to Kansas City General and St. Joseph's College Hospital; at one time city physician of Kansas City; died at the Bonner Springs Sanitarium, December 11.

James Thomasson Morehouse, West Orange, N. J.; University of the City of New York, 1893; aged 63; for nearly twenty-five years specializing in roentgen-ray work; died in the New York Hospital, December 20, following an operation for roentgen-ray dermatitis.

Edgar U. Parsons, Piedmont, W. Va.; Medical College of Virginia, Richmond, 1865; aged 82; a member of the West Virginia State Medical Association; surgeon in the Confederate service during the Civil War; died, December 20.

Sam W. McFarland ⊕ Lebanon, Tenn.; University of Nashville, Tenn., 1901; aged 40; a specialist in surgery; founder and superintendent of the McFarland Infirmary, Lebanon; died suddenly, December 15, from cerebral hemorrhage.

Lewis F. Tague, Belleville, Ill.; University Medical College of Kansas City, 1909; aged 47; a member of the Illinois State Medical Society; died in St. Vincent's Hospital, St. Louis, December 17, from an accidental gunshot wound.

Helen Josephine LeMaistre, Tuscaloosa, Ala.; Woman's Medical College of Pennsylvania, Philadelphia, 1914; aged 38; instructor in hygiene and physical adviser to women students at University of Alabama; died, December 11.

Arthur P. Rooney ⊕ Harlem, Mont.; Chicago Medical College, 1897; aged 51; local surgeon for the Great Northern Railroad; died in St. Mary's Hospital, Rochester, Minn., December 10, following an operation for gallstones.

Alvah Giles Floyd ⊕ Fair Bluff, N. C.; University of Maryland, Baltimore, 1885; aged 60; a practitioner for thirty-five years; president of the Columbus County Medical Society in 1919; died, December 14, from cerebral hemorrhage.

Robert Stevens Page, Bel Air, Md.; University of Maryland, 1898; aged 46; a member of the Medical and Chirurgical Faculty of Maryland; died at the Union Memorial Hospital, Baltimore, December 2.

William Edmunds Kerr, Steubenville, Ohio; Jefferson Medical College, Philadelphia, 1903; aged 43; physician and surgeon for the city police and fire departments; died, December 10, from pneumonia.

Edward S. Sharpless, San Francisco; Hahnemann Medical College and Hospital of Philadelphia, 1880; aged 67; died in Hahnemann Hospital, San Francisco, October 20, from chronic nephritis.

Charles A. Labenberg ⊕ Richmond, Va.; University College of Medicine, Richmond, 1896; aged 44; at one time lecturer on materia medica and therapeutics in his alma mater; died, December 16.

Thresa Chestro Snyder Hofmann, Mayfield, Calif.; Ohio State University, Columbus, 1912; aged 32; for six years a medical missionary in China; died, November 2, from cerebral hemorrhage.

Mary A. Quincy ⊕ Ashland, Neb.; University of Nebraska, Omaha, 1896; aged 63; secretary of the Saunders County Medical Society since 1914; died, December 7, from influenza.

Francis B. Norton ⊕ Cleveland; Western Reserve University, Cleveland, 1875; aged 72; for thirty-five years police surgeon of Cleveland; died, December 17, from heart disease.

Oliver C. Buster, Pilot Point, Texas; St. Louis College of Physicians and Surgeons, 1887; aged 74; a member of the State Medical Association of Texas; died, October 1.

Ralph Henry Sill ⊕ Cleveland; Western Reserve University, Cleveland, 1905; aged 40; captain, M. C., U. S. Army, and discharged, July 8, 1919; died, November 23.

William George Reynolds, Woodbury, Conn.; Yale University, New Haven, Conn., 1897; aged 49; a member of the Connecticut State Medical Society; died recently.

William T. O'Brien, Ashland, Wis.; College of Physicians and Surgeons, Chicago, 1891; aged 59; a member of the State Medical Society of Wisconsin; died, December 20.

Wilbur Burton Morris, Chalmers, Ind.; University of Louisville, Ky., 1898; aged 48; died at the Home Hospital, Lafayette, December 9, from uremia.

Albert W. Thompson, Bristolville, Ohio; Western Reserve University, Cleveland, 1874; aged 75; died, December 15, from cerebral hemorrhage.

Colley J. Miller, Haddenville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 50; died, September 11, from diabetes.

Benjamin Willis Cornwell ⊕ Buffalo and Williamsville, N. Y.; University of Buffalo, 1885; aged 58; died in Buffalo, November 27.

Edwin Fayette Smith, Morristown, N. J.; College of Physicians and Surgeons in the City of New York, 1876; died, December 13.

Charles E. J. Froatz, New York; Bellevue Hospital Medical College, 1892; aged 51; died, September 25, from necrosis of the jaw.

George W. Murphy ⊕ Sioux City, Iowa; State University of Iowa, Iowa City, 1888; aged 61; died, December 13, from carcinoma.

James Bedford Lockridge, Minnehaha Springs, W. Va.; University of Maryland, Baltimore, 1885; aged 58; died recently.

William Dickle Richmond ⊕ Knoxville, Tenn.; University of Pennsylvania, Philadelphia, 1903; aged 47; died, December 18.

John Peter Sheehan, Utica, N. Y.; Kentucky School of Medicine, Louisville, Ky., 1894; aged 52; died, November 16.

Newton D. Boddie, Chipley, Ga.; Atlanta (Ga.) Medical College, 1888; aged 54; died, November 20, from gastritis.

David A. Philips, Linesville, Pa.; Western Reserve University, Cleveland, 1867; aged 80; died, December 3.

Philip Cogan, St. Louis; Missouri Medical College, St. Louis, 1890; died, December 18.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

MORE MISBRANDED VENEREAL NOSTRUMS

Saxon Gonorrhea Injection.—The Saxon Co., Cleveland, Ohio, shipped in June, 1919, a quantity of "Saxon Gonorrhea Injection" which was declared misbranded. The Bureau of Chemistry reported that analyses showed this to consist essentially of a solution of salts of lead and zinc, with berberin, in water. It was falsely and fraudulently represented as a treatment, remedy and cure for gonorrhea, gleet and the prevention of stricture. In January, 1920, a decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7797; issued Nov. 26, 1920.*]

Santalets.—In November, 1919, the United States attorney for the District of Minnesota filed a libel for the seizure and condemnation of 20 bottles of "Santalets" shipped, it was alleged, in January, 1916, by Sharp & Dohme, Baltimore, and which the government officials charged were misbranded under the Food and Drugs Act. The Bureau of Chemistry reported that analysis showed the product to consist of capsules containing santal oil. The preparation was falsely and fraudulently represented as a treatment, remedy and cure for gonorrhea, gleet, catarrh of the bladder—acute or chronic—whether due to gonorrheal infection or other causes. In March, 1920, no claimant having appeared for the property, a decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7799; issued Nov. 26, 1920.*]

Specific Globules 37-77.—In July, 1919, the United States attorney for the Southern District of California filed a libel for the seizure and condemnation of 4 gross cartons of Specific Globules 37-77 on the charge that they were misbranded. The preparation is alleged to have been shipped in August, 1918, by Sharp & Dohme, Baltimore, Md. The analysts of the Bureau of Chemistry reported that the article was found to consist of gelatin capsules, containing essentially a mixture of copaiba, cubebs, santal oil and salol. The following claims for this product were made in or on the trade packages:

> "An improved combination in capsule form for the treatment of gonorrhea and its complications."
>
> "These Capsules stand in a class by themselves for the treatment of Gonorrhea, Gleet, Stricture, or prolonged discharge . . . for the treatment of Urinary diseases. . ."

These claims were declared false and fraudulent in that the packages "contained no ingredient or combination of ingredients capable of producing the therapeutic effects" claimed. In September, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product might be released to the Chambers Drug Co., the claimant, on payment of the proceedings and the execution of a bond of $300, conditioned in part that the product be relabeled under the supervision of the United States Department of Agriculture.—[*Notice of Judgment No. 7804; issued Dec. 8, 1920.*]

Saxon Methygon Tablets.—The Saxon Co., Cleveland, Ohio, consigned in June, 1919, a quantity of Saxon Methygon Tablets which were misbranded. Analyzed by the Bureau of Chemistry, these tablets were reported to consist essentially of methylene blue. Among other claims made for them were:

> "A reliable remedy for treating Gonorrhea and Gleet. Splendid results are obtained if used in connection with Saxon Gonorrhea Injection."
>
> "If Taken According to Directions, Methygon Tablets Will Prove Effective Where Other Preparations Fail."

These and other claims were declared false and fraudulent and, in January, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7810; issued Dec. 8, 1920.*]

Columbia Short Stop.—In December, 1917, and April, 1919, the Columbia Drug Co., Savannah, Ga., consigned a quantity of this product to Jacksonville and Tampa, Fla. The Bureau of Chemistry reported that the stuff consisted essentially of santal oil, copaiba, turpentine, gum acacia, ethyl nitrite and alcohol, flavored with oil of lavender. It was falsely and fraudulently recommended for "Gonorrhea, Gleet, Running Range, Inflammation of the Kidneys and Bladder." In June, 1919, the court entered judgment of condemnation and forfeiture and ordered that the product be delivered to the claimant upon payment of the cost of the proceedings and the execution of certain bonds.—[*Notice of Judgment No. 7811; issued Dec. 8, 1920.*]

Allan's Compound Extract of Sarsaparilla with Iodids.—In June, 1919, the Allan-Pfeiffer Chemical Co., St. Louis, consigned a quantity of this product to a concern in Illinois. When analyzed, the stuff was found by the Bureau of Chemistry to consist essentially of a laxative plant drug, plant extractives, sodium salicylate, a small amount of potassium iodid, glycerin, sugar, alcohol and water. Some of the false and fraudulent claims made for the nostrum were to the effect that it is the best known remedy for syphilis, that it was a powerful purifier of the blood and that it had various other curative and therapeutic effects. In December, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7812; issued Dec. 8, 1920.*]

Methylets.—In March, 1916, a quantity of "Methylets" were alleged to have been shipped from Illinois to Minnesota. The article was labeled in part "Sharp & Dohme's Methylets. . . . Manufactured only by Sharp & Dohme, Baltimore." The Bureau of Chemistry reported that analysis showed the product to consist of gelatin capsules containing a mixture of methylene blue, santal oil, copaiba, and oil of cinnamon. Among the claims made on the trade package for this product were:

> ". . . of great value in all forms of urethritis—especially gonorrheal and allied varieties."
>
> "It shortens the duration, lessens the severity, and renders complications less frequent and protracted."
>
> "In the numerous complications of Gonorrhea that attack the remainder of the genital tract, kidneys, and bladder, one Methylet three times a day will be sufficient."

These and similar claims were declared false and fradulent and in March, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7815; issued Dec. 8, 1920.*]

Bonkocine.—A quantity of this product consigned by J. E. Gasson, Kenton, Ohio, and shipped in March, 1919, was seized on the charge that it was misbranded. The Bureau of Chemistry reported that analysis showed "Bonkocine" to consist essentially of a watery solution of Epsom salt and berberin. The trade package contained such claims as:

> "Well Defined Cases of Gonorrhea yield to treatment in 1 to 5 days; Chronic Gonorrhea and Gleet in 5 to 10 days, provided they are not complicated with Stricture or Enlarge Prostate Gland."
>
> "Leucorrhea or Whites, Female Disease . . . Bonkocine has proven itself the best remedy for this disease."
>
> "As a Preventative Bonkocine used after an intercourse prevents the contracting of either Syphilis or Gonorrhea. It effectually eradicates both Syphilitic and Gonorrheal virus."

These claims were, naturally, declared false and fraudulent and applied with a knowledge of their falsity for the purpose of defrauding the purchasers. In February, 1920, judgment of condemnation and forfeiture was entered and it was ordered by the court that the product be destroyed.—[*Notice of Judgment No. 7816; issued Dec. 8, 1920.*]

Correspondence

EARLY USE OF IPECAC IN DYSENTERY

To the Editor:—A short time ago I saw in a medical journal an article in which the author described his method of treating dysentery, which consisted of giving 30 grains of ipecac at one dose, preceded by a hypodermic of one-eighth grain of morphin, and then placing the patient on the right side and urging him to lie still.

Since then I chanced to pick up a volume of "A Treatise of the Materia Medica and Therapeutics," by John Eberle, M.D., printed in 1824. In Volume 1, pages 40 and 41, I found: "Piso, as early as 1649 and before any of it had been brought to Europe, mentioned the ipecacuanha as a common remedy for dysentery, in the Brasils. . . . Mr. Playfair, in a paper in the tenth volume of the *Edinburgh Medical and Surgical Journal,* has given an account of a new method of using ipecacuanha in dysentery, and which he states to have proved exceedingly successful. He gave from half a drachm to a drachm of this article, in union with from thirty to sixty drops of laudanum, keeping the patient for some time in the horizontal position." This was published in 1801.

How often do we find that our new discoveries are only just finding something that the old fathers in medicine knew and practiced long ago. They had never seen an ameba in the stools of a patient with dysentery, but they had the treatment correct. Are we, in our refinements of diagnosis, losing the skill we ought to have in our work? This is not written to criticize the doctor's article in the least, but to keep the history of medicine straight.

F. S. Smith, M.D., Nevada, Iowa.

THE PROPER RECOGNITION OF THE LABORATORY TECHNICIAN

To the Editor.—During the last few years a remarkable development of the so-called "clinical laboratory" has taken place. The number of these institutions has now become so large that it is practically impossible to find a sufficient number of men, medically trained, to supply the demand for technicians. Laboratory directors have therefore been compelled to fall back on the services of nonmedical technicians for much of their routine work. The services of laboratory technicians are quite satisfactory, dependent, however, entirely on their training and temperament. Certain questions confront us in employing these people: What preliminary education have they had; What has been the character of their strictly technical education? How much practical experience have they had in routine clinical pathology? We find, first, that there is a constantly increasing demand for technicians; secondly, that they come with various kinds of recommendations, seldom with a certified account of their training and experience. It is often necessary to take them into the laboratory and spend much time ascertaining their exactitude in technic, their carefulness, their manner of procuring specimens, etc. At times we find that they are totally unfit to be entrusted with the important matters that constitute the everyday routine of the laboratory.

During the late war, the army required the services of many technicians, and established training schools before enlisting them in the service. This was an excellent plan. The time has now come when it is imperative to establish schools for the proper training of technicians and for the organization of some kind of board or tribunal before which the graduate technician must appear to prove his or her qualifications for employment.

Our purpose in bringing this matter before the profession is, first, to call attention to the necessity of using these nonmedical persons in this kind of work; secondly, to urge the need for their better training, and thirdly, to urge the advisability of instituting some kind of board before which graduate technicians must appear and prove their qualifications for employment. This will be a protection both for the properly trained technicians and for their future employers. At the same time it will result in better laboratory work and assist in the upbuilding of this specialty. Technicians have come to stay; it therefore behooves those who need their services to assist them in attaining the highest degree of efficiency and in constantly keeping them informed of the latest advances in laboratory procedure. To the end, too, that a better class of women be urged to enter this field, it is suggested that the organizations of women's clubs, etc., be informed of the possibilities for women in a career of this kind so that the best possible raw material may be selected and utilized in the upbuilding of this highly technical branch of medical specialism. Those who have seriously entered this work surely deserve some sort of recognition by the medical profession, and that recognition can come only through the official endorsement of a "laboratory examining board" of some kind. Perhaps the formation of some kind of national association by the technicians themselves might well take up the matter and bring about just what we have suggested.

R. B. H. Gradwohl, M.D., Chicago.

"CHRONIC PELVIC PERITONITIS OF UNKNOWN ETIOLOGY OCCURRING IN WOMEN"

To the Editor.—In his article in The Journal, Dec. 11, 1920, p. 1641, Dr. Geist describes a number of cases characterized by adhesions. I believe it is a faulty premise to presume that all adhesions are inflammatory in origin. It is now generally believed that the so-called Jackson's membrane, Lane's kink, and sigmoidal and some cholecystic bands are congenital in origin, owing to migration of the organs, together with faulty peritoneal fusion. They have all been frequently demonstrated in embryo. They do not have the general appearance of inflammatory adhesions, nor do they show the microscopic picture of these. Dr. Geist has not found any historical, bacterial or pathologic evidence of inflammation in his cases. Furthermore, I believe we have all encountered these fine velamentous adhesions binding down the uterus and tubes, and were satisfied to consider them inflammatory. Of course, they can and do produce symptoms, particularly of sterility and malposed organs. I would therefore suggest that these cases should not be termed pelvic peritonitis, as there is no evidence of inflammation, but rather should be grouped under those of congenital bands.

Herbert E. Stein, M.D., New York.

To the Editor:—In The Journal, Dec. 11, 1920, p. 1641, Dr. Geist describes four cases presenting a rather characteristic clinical picture and definite pathologic findings, without any demonstrable etiologic factor. Commenting on the etiologic possibilities in the production of extensive periadnexal adhesions, Dr. Geist says: "That there must be or must have been a source of irritation is undoubted, but the type of irritation is difficult, and in my four cases impossible to determine. Naturally a possible infection must be considered, but in none of the cases was a history of any type of infection obtainable." He concludes that this condition of pelvic inflammation does not fit into the classification of pelvic infections as we now understand them.

The negative clinical history, the insidious course, the symptomatology and the operative findings as detailed by Dr.

Geist are typically characteristic of periadnexitis resulting from chronic endocervicitis. The pathologic process is chronic ascending lymphangitis (not a peritonitis) with its source in a chronic infection within and limited to the endocervical mucosa. A full and detailed elaboration of the condition may be found in "Gynoplastic Technology" (Philadelphia, F. A. Davis Company, 1919, pp. 32-88) and previous articles on "Tracheloplasty" and "Endocervicitis" (*Surg. Gynec. & Obst.* **22**:93 [Jan.] 1916; *Tr. Sect. Obst., Gynec. & Abd. Surg. A. M. A.*, 1917, p. 42).

The vital importance of these newer views on the subject lies in their therapeutic application, for no method of intra-abdominal attack on the results of chronic endocervicitis, namely, periadnexitis, will or can cure the patient unless the endocervical focus is eradicated; while, on the other hand and what is more important, a timely eradication of an infected cervical mucosa will, if thoroughly executed, obviate any and every further attack on the adnexa.

Arnold Sturmdorf, M.D., New York.

"WHAT FASTING MEANS"

To the Editor:—The editorial on "What Fasting Means" (The Journal, Oct. 23, 1920, p. 1138) leaves the impression that the question of the persistence of hunger in man has not been experimentally determined for longer fasts than five days. In the *American Journal of Physiology* (**45**:81 [Jan.] 1918) I reported experiments on man showing that "during fifteen days' complete fast the gastric hunger contractions continue with practically normal rhythm and intensity, but the subjective sensations induced by these stomach contractions appear to be somewhat weakened and tinged with an element of general epigastric distress or 'sick stomach.'"

In earlier experiments on dogs (*Am. J. Physiol.* **33**:95, 1914) I showed that the gastric hunger contractions increase in vigor, at least up to the tenth day of fasting. Later, Dr. Patterson, working in our laboratory, showed that in dogs the gastric tonus and hunger contractions persist and even increase in strength during fasting until within a few hours of death from starvation (*Am. J. Physiol.* **37**:324, 1915). The same author has reported that in fasting turtles the gastric hunger contractions exhibit a progressive increase in vigor for the entire fasting period, sixty-four days (*Am. J. Physiol.* **42**:56 [Dec.] 1916).

A. J. Carlson, Ph.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

EFFECT OF BIRTH CONTROL ON THE INCOME OF PHYSICIANS

To the Editor:—Has The Journal ever published a discussion of the effect that birth control has or would have on the income of physicians? Any information you may be able to give me upon this subject will be thankfully received.

C. W. C., New Jersey.

Answer.—We have no reference to any article on the effect which birth control would have on the income of physicians. The social aspects of this measure in relation to the general population are so broad that the relative importance of any effect it might have on the income of physicians is infinitesimal.

Maternal Deaths.—Year by year about 15,000 mothers have been dying in the United States in childbirth from causes which are largely preventable. The new figures now published by the Census Bureau for 1916 (16.3 per thousand) indicate that since 1900 no decrease in maternal deaths had yet taken place.—*Connecticut Health Bull.*, October, 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. Samuel W. Welch, Montgomery.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

District of Columbia: Washington, Jan. 11-13. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

Hawaii: Honolulu, Jan. 10-13. Sec., Dr. J. E. Strade, 1041 Alakea St., Honolulu.

Indiana: Indianapolis, Jan. 11. Sec., Dr. W. T. Gott, Crawfordsville.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Missouri: St. Louis, Jan. 18-20. Sec., Dr. George H. Jones, Jefferson City.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Mexico: Santa Fe, Jan. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

New York: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

Oklahoma: Oklahoma City, Jan. 11-12. Sec., J. M. Byrum, Shawnee.

Pennsylvania: Philadelphia, Jan. 11-15. Sec., Dr. Thomas E. Finnegan, Harrisburg.

South Dakota: Pierre, Jan. 18. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

West Virginia: Charleston, Jan. 13. Sec., R. T. Davis, Charleston.

Wisconsin: Madison, Jan. 11-13. Sec., Dr. John M. Dodd, Ashland.

Wyoming June Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, June 7-9, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1, an osteopath, failed. Twenty-four candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado School of Medicine	(1901)	*
Loyola University School of Medicine	(1917)	76
Hospital College of Medicine, Louisville	(1898)	76
Marion-Sims College of Medicine	(1896)	81
St. Louis College of Physicians and Surgeons	(1919)	75

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Bennett Coll. of Eclectic Medicine and Surgery	(1907)	Arizona
Chicago College of Medicine and Surgery	(1914), (1917)	Illinois
College of Physicians and Surgeons, Chicago	(1901)	Illinois
Loyola University School of Medicine	(1916)	Illinois
Northwestern University Medical School	(1907), (1920)	Illinois
Rush Medical College	(1917)	Illinois
University of Illinois College of Medicine	(1911)	Illinois
Keokuk Medical College, Coll. of Phys. and Surgs.	(1905)	Iowa
Tulane University of Louisiana	(1912)	Kansas
Harvard University Medical School	(1918)	Mass.
Detroit College of Medicine and Surgery	(1920)	Michigan
American Medical College, St. Louis	(1896)	Iowa
National University of Arts and Sciences	(1913)	Missouri
St. Louis College of Physicians and Surgeons	(1906)	Iowa
St. Louis University School of Medicine	(1903)	Illinois
University Medical College of Kansas City	(1904)	Indiana
John A. Creighton Medical College	(1918)	Nebraska
University of Nebraska College of Medicine	(1903), (1916)	Nebraska
	(1919)	Delaware
University of Pennsylvania	(1910), (1917)	Penna.

*No grade given.

Montana October Examination

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 5-7, 1920. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Colorado	(1920)	77.6
Northwestern University Medical School	(1920)*	75.2
Rush Medical College	(1917) 78.9, (1920) 81.4,	85.5
University of Illinois	(1917) 82, (1920)	76.9
University of Michigan	(1920)	81.5
University of Minnesota Medical School	(1920)*	80.4
University of Pennsylvania	(1920)	77.8
FAILED		
University of Maryland	(1911)	71.7

* Diploma withheld until 1921, pending completion of hospital internship.

Social Medicine and Medical Economics

RELATIONS BETWEEN PHYSICIANS IN INDUSTRY AND GENERAL PRACTICE *

HARRY R. SHARPE, M.D., WILLIAM R. TINKER, M.D.
General Practitioners

C. C. BURLINGAME, M.D.
Industrial Physician

South Manchester, Conn.

In discussing the relations between medical men in industry and in general practice, one might be easily led astray into the problems of legislation and, in so doing, completely lose sight of the necessity of giving real thought to the best methods of establishing proper relations under the laws as they exist. In this presentation we have intentionally avoided a discussion of the merits of legislation—of changes that might be made in legislation, such as those that would be to the better interest of the patient and more equitable for all the medical men. The legislative aspect of this question might well consume all the time that has been allotted for this paper. Our presentation is more a delineation of the way in which physicians in industry and those in general practice have worked out their relations, than an effort to solve for all time and under all conditions what these relations should be.

FUNDAMENTAL CONSIDERATIONS

Of prime importance in working out these relations is an earnest desire on the part of both parties to try to solve the problem, to give and take during its period of solution, and to maintain the frankest relations possible.

Secondly, it must be constantly borne in mind that the ethics of the profession is equally binding on the physician in industry and the physician in general practice. Merely because he is not so dependent on the general public, merely because he is having his bills paid by a manufacturer, merely because the losing of an individual patient does not affect his income, the man in industry is not relieved of his obligation to maintain the highest standard of professional practice.

It is our belief that anything except voluntary visits to the physician in industry tends toward the lowering of the standard of practice. It is our belief that it is the inalienable right of every American, be he working man or executive, to have the physician of his own choice. No employer has any right to force a working man to accept medical attention against his will. If the physician in industry is to get the business of the employee there is only one fair way to do it—that is, by using professional means of making himself the physician of that person's choice.

There are two distinct plans now in vogue for operating medical departments in industry: one in which the employer undertakes it as a type of charity and a gift to his employees and their families, and the other in which he installs the medical department on the basis of its being a means of keeping his working force as productive as possible. The conduction of a medical department on the basis of charity is not at all flattering to the independent spirit of the average American. It is our belief, therefore, that the employer should confine himself to meeting his legal obligations and doing such additional things as seem to be based on sound business principles.

If we accept the organization of a medical department as a part of the business and not a charity, there again comes up for decision the question as to which of two paths should be followed: Should the medical department undertake to do all the work possible alone, or should it be undertaken as a cooperative effort between the industrial medical department and the physician in private practice? It is undoubtedly possible to conduct along ethical lines a medical department that is wholly independent of the physician in private practice; but, after much giving and taking on both sides, experience has led us to believe that cooperative effort with the physician in private practice promises the best returns for the patient.

PLAN OF OPERATION

Our development has brought us to this plan of operation:

The medical department is maintained in industry in a way wholly independent of the company.

The medical records are the property of the physicians in industry and not of any lay person in the plant, from the president of the company down.

The relation is strictly that of physician and patient—never that of employer and employee. No information concerning a patient coming into the medical office is ever given out, except under exactly the same conditions as it would be given out by a private physician. This we believe to be essential to the maintenance of a high standard of professional practice.

As provided by law, all the compensation conditions are taken care of, even if this requires following the patient into the home or to the hospital, in which case some member of the industrial staff or its consultants handles the case.

If, in a compensation case, the patient elects a physician other than a member of the industrial staff, it is aimed to have all the facilities of the industrial staff placed at the disposal of the man who has been chosen by the employee.

Cases that do not come under the compensation law are handled only when the patients can come to the general diagnostic clinic that is maintained. By this means it is hoped to keep ambulatory patients at work if this is possible and to the patients' interest. Records of the clinic show that four fifths of these ambulatory patients visiting the clinic continue at work while being treated.

Any physician caring for an employee may send such a patient to the dispensary for roentgen-ray or laboratory examination, etc., and the report, together with the patient, returned to the physician who sent the case. This is one of the chief points requiring the existence of confidence between the physician in industry and the physician in private practice. While it would be dangerous for the physician in industry to lose his pride in holding a case, yet it would be still more dangerous for him to fail to use every effort to return a patient sent to him in consultation.

At this point we should like to emphasize the necessity of following the ethics of the profession more strictly in industrial practice than in any other type of work. In the long run this will advance the industrial physician much farther and, still more important, will advance the interests of his patients as a whole.

District nursing is undertaken by nurses in the employ of the company, but it is essential that in making visits the nurses be impartial in their recommendation of physicians. They should be instructed to ascertain conscientiously who the family physician is, and then recommend that he be called. After the physician has been called they must then be as loyal in carrying out his instructions for him as if they were privately engaged by that physician.

The opportunity for complications for the physician in industry and in private practice is probably greater through a nursing force than in any other way. If the physician in industry is capable and has a good personality, he naturally has an opportunity of convincing his nurses that his methods are superior. He fails entirely to do his duty, however, if he does not impress on them that no matter what regard they may have for him as an individual, their allegiance belongs to the family practitioner during the time he is in charge of the case.

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* Read before the Hartford County Medical Association, South Manchester, Conn., Oct. 26, 1920.

The industry wants the employee cured in the shortest possible time. The employee wants to be cured in the shortest possible time. And it is to the interest of the private practitioner to restore his patient to industry in the shortest possible time. These three contracting parties therefore have a common interest and, if a private practitioner undertakes a piece of this work, it is to industry's best interests to put at the disposal of the private practitioner all of the facilities that are placed in the hands of its industrial physician.

It is short-sighted policy for industry to try to develop a group of physicians in its own employ at the expense of the private practitioner's development. It is, indeed, difficult to state just how far industry should go in the development of a medical department; but it seems as if it should be kept in mind that a medical department on a business basis should not ordinarily advance beyond the point necessary for meeting obligations imposed by law, for keeping the workman on the job, and getting the patient's confidence necessary properly to supervise and study health conditions.

We would not have it understood that these things can be accomplished without a hitch—without misunderstandings—or that things do not happen which need straightening out. The patient is not always a reliable source of information regarding the other physician's attitude. But the earnest desire to live up to those principles and the confidence existing between the two groups make it possible to carry out such a plan.

CONCLUSION

The industrial member of the committee presenting this paper wishes to state publicly that it is the fair minded attitude of the private practitioner and his willingness to meet the industrial man on an ethical basis that is responsible for whatever contribution has been made toward working out the proper relations.

Miscellany

ISOHEMAGGLUTINATION

Recommendation That the Jansky Classification Be Adopted for Universal Use *

The following report and recommendation in regard to the grouping of persons on the basis of isohemagglutination has been agreed on unanimously by special committees appointed to consider the matter, Ludvig Hektoen, W. J. Elsner and Reuben Ottenberg representing the American Association of Immunologists, C. G. Bull, J. A. Kolmer and A. F. Coca the Society of American Bacteriologists, and H. T. Karsner the Association of Pathologists and Bacteriologists.

HISTORICAL

In 1901, Landsteiner (*Wien. klin. Wchnschr.* **14**:1132, 1901) found that twenty-two persons studied by him could be divided into three groups with respect to isohemagglutination: Group A, the serum of which agglutinated the corpuscles of Group B but not those of Group C, the corpuscles of Group A being agglutinated by the serum of Groups B and C.

Group B, the serum of which agglutinated the corpuscles of Group A, but not those of Group C, the corpuscles of Group B being agglutinated by the serum of Groups A and C.

Group C, the serum of which agglutinated the corpuscles of Groups A and B, the corpuscles of the group not being agglutinated by the serum of any of the individuals examined.

There was no reaction between the serum and corpuscles of different members of the same group.

A little later, Decastello and Sturli (*München. med. Wchnschr.* **49**:1090, 1902) described a fourth group, the serum of which did not agglutinate any corpuscles the corpuscles of the group being agglutinated by the serum of all Landsteiner's groups, but not by the serum of their own group.

In 1907, Jansky (*Sborn. klin.* **8**:85, 1907) described the following four groups:

Group 1, the serum of which agglutinates the corpuscles of Groups 2, 3 and 4, while the cells are not agglutinated by any serum.

Group 2, the serum of which agglutinates the corpuscles of Groups 3 and 4, but not those of Groups 1 and 2, while the corpuscles are agglutinated by the serum of Groups 1 and 3, but not by those of Groups 2 and 4.

Group 3, the serum of which agglutinates the cells of Groups 2 and 4, but not those of Groups 1 and 3, while the corpuscles are agglutinated by the serum of Groups 1 and 2, but not by those of Groups 3 and 4.

Group 4, the serum of which does not agglutinate any corpuscles, while the corpuscles are agglutinated by the serum of all other groups.

In 1910, Moss (*Bull. Johns Hopkins Hosp.* **21**:63, 1910) made the following classification:

Group 1, the serum of which does not agglutinate any corpuscles, while the corpuscles are agglutinated by the serum of Groups 2, 3 and 4.

Group 3, the serum of which agglutinates the corpuscles of Groups 1 and 3, while the corpuscles are agglutinated by the serum of Groups 3 and 4.

Group 3, the serum of which agglutinates the corpuscles of Groups 1 and 2, while the corpuscles are agglutinated by the serum of Groups 2 and 4.

Group 4, the serum of which agglutinates the corpuscles of Groups 1, 2 and 3 while the corpuscles are not agglutinated by any serum.

At the present time it is accepted that the four groups considered include all adult persons; i. e., that the classification is complete.

Landsteiner found only three groups, but with the addition of the groups described by Decastello and Sturli, one can readily construct the groups described by Jansky. Landsteiner's Group C corresponds to Jansky's Group 1; Group A, to Group 2; Group B, to Group 3, and the group described by Decastello and Sturli corresponds to Jansky's Group 4. The same applies to Moss' classification, with the exception that the Decastello-Sturli group becomes Moss' Group 1, and Landsteiner's Group C, Moss' Group 4. It is seen, therefore, that the classifications of Jansky and Moss are identical excepting that Groups 1 and 4 are interchanged.

CONFUSION AND POSSIBLE ACCIDENTS FROM PRESENT USAGE OF TWO CLASSIFICATIONS

Both the Jansky and Moss classifications appear in textbooks and manuals. Some authors discuss both classifications, prominence being given to the classification that presumably the author himself uses in practice. Certain books give only one classification without mentioning the other.

In grouping persons for blood transfusion, both classifications are used, the classification of Moss being the more common, especially in France, England and the United States.

The use of different classifications in manuals and textbooks has caused confusion and misunderstanding in teaching.

It is also possible for serious accidents to arise in connection with transfusion of blood through confusion of the two classifications. This is especially true in case prospective donors are grouped by different examiners or at different hospitals. During the war, many individuals were tested and informed that they belonged to a certain group. Should such an individual be transfused or used as a donor without further tests and the other recipient or donor, as the case might be, be grouped according to a different classification, serious results might arise.

RECOMMENDATION

As further confusion and the possibility of accident may be avoided by the universal use of one classification, it is recommended unanimously on the basis of priority that the Jansky classification be adopted.

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* Reprints of this article will be sent by The Journal on receipt of 4 cents in postage.

Book Notices

The Physiology of Muscular Exercise. By F. A. Bainbridge, M.A., M.D., D.Sc., Professor of Physiology, University of London. Cloth. Price, $3.75 net. Pp. 214, with 22 diagrams. New York: Longmans, Green and Co., 1919.

This is the fourth in the series of monographs on physiology issued under the editorship of Professor Starling. The book combines direct and simple diction with scientific accuracy and lucid reasoning, thus making it useful not only to the specialist and the general medical practitioner, but also to the educated layman. The first seven chapters review the physiologic changes induced by exercise in the muscle and the nervous tissue, the blood, and the vascular and the respiratory mechanisms. The last five chapters deal with the applied physiology of training, second wind, exercise at high altitudes, fatigue (individual and industrial), the effort syndrome, overstress of the heart, and beneficial effects of exercise. Each chapter closes with an admirable summary of the important conclusions reached in the development of the subject under consideration. The author states in the preface that "the fullest cooperation between the laboratory worker and the physician is of supreme importance for bringing about a clearer understanding and more effective practical application of the principles underlying the behavior of the body during muscular exercise, since on a knowledge of these principles depends success or failure in the treatment of the unfit and in the building up of the sound man. I have attempted to present my subject in such a way as to promote a closer connection between the investigator in the laboratory and those directly concerned with the health and well-being of the community." The body of the monograph demonstrates the success of the author in carrying out this practical aim. The book closes with reference to the more important publications in the field. The author concludes the discussion of cardiac overstrain with this statement: "There is no evidence that, in a perfectly healthy man, even the most intense exertion produces any harmful effect on the heart." This would be reassuring were it not for the fact that present diagnostic methods fail to reveal the slight myocardial weaknesses, and the further fact that the "constant drop of water" experiment, freed from factors other than the excessive physical work, has not yet been made.

With the Doughboy in France. A Few Chapters of an American Effort. By Edward Hungerford. Cloth. Price, $2. Pp. 291, with illustrations. New York: The Macmillan Company, 1920.

The Story of the American Red Cross in Italy. By Charles M. Bakewell. Cloth. Price, $2. Pp. 253, with illustrations. New York: The Macmillan Company, 1920.

The Passing Legions. How the American Red Cross Met the American Army in Great Britain, the Gateway to France. By George Buchanan Fife. Cloth. Price, $2. Pp. 369, with illustrations. New York: The Macmillan Company, 1920.

These three volumes, issued in uniform binding and style, recite the exploits of the American Red Cross, respectively, in France, Italy and England during the great war. They do not present the usual stereotyped history of military or social effort. Rather they sketch in broad lines a picture of what the Red Cross tried to do in making easier the lives of soldiers and civilians. Hungerford's book deals with France; it describes preliminary surveys, the setting up of Red Cross canteens, the gradual movement toward the front, the casualties of the service, the Red Cross work in the hospitals, and the trip home. It is enlivened by actual incidents of humorous or tragic nature. Bakewell's book is devoted to the work of the Red Cross in Italy. The story is told in an impersonal manner. Here again the Red Cross followed the fighting forces and administered aid to the impoverished civilians. The coming of the American troops called for special service, and the final great battle with the Austrians involved aid to the Central Empires as well as to the Allies. This volume contains an appendix listing the entire personnel of the service and giving a budget. The "Passing Legions" describes how the American Red Cross took care of the American Army in Great Britain. The work was entirely back of the lines, involving, however, care of the wounded in British hospitals, and the first welcome to American troops on the way to the front. To all interested in the Red Cross and social efforts for the troops, these books will be of interest; they form a pleasing history of a great work.

Public Health Laboratory Work (Chemistry). By Henry R. Kenwood, C.M.G., M.B., F.R.S., Chadwick Professor of Hygiene and Public Health, University of London. Seventh edition. Cloth. Price, $4. Pp. 420, with illustrations. New York: Paul B. Hoeber, 1920.

This is in the seventh edition of this valuable reference work on the control of water, sewage, air and food. Of particular interest are the chapters on food examination which deal largely with sophistication and adulteration of food products.

Medicolegal

Care Required of an Injured Person

(West Lumber Co. v. Keen (Texas), 221 S. W. R. 625)

The Court of Civil Appeals of Texas, in affirming a judgment in favor of plaintiff Keen for $5,000 damages for personal injuries consisting of having one of his legs broken just above the ankle, a dislocation or mashing of the ankle, and minor bruises, holds that it was not error to refuse to require the jury to find whether, if the plaintiff had obeyed the directions, if any, of the physician who treated him, his injury would have been permanent, or not. The court says that, as it understands the rule, a person injured by the negligence of another is required only to use such care and prudence in treating and taking care of himself after the injury as would have been used by an ordinarily careful and prudent person in treating such injuries under the same or similar circumstances; but such injured person is not bound, as a matter of law, to obey the instructions and advice of any particular physician by whom he may be treated, or to apply any specific treatment prescribed by such a physician. Where such an issue is raised by proper pleading and evidence in line therewith, the proper inquiry would be: Did the plaintiff exercise such care and prudence in taking care of himself and in having his injuries treated as would have been exercised by an ordinarily careful and prudent person under the same or similar circumstances?

Privilege May Be Waived by Heirs

(Flack et al. v. Brewster (Kan.), 190 Pac. R. 616)

The Supreme Court of Kansas, in affirming a judgment which set aside a deed to real estate for want of mental capacity in the grantor to execute the deed, says that the principal question on the appeal concerned the admissibility of the testimony of two physicians who attended the grantor in her last illness. The Kansas statute provides that a physician or surgeon shall be incompetent to testify concerning any communication made to him by his patient with reference to any ailment, or concerning any knowledge obtained by a personal examination of the patient, without the consent of the patient. A more liberal view has been taken as to the matter of waiver in Kansas than in some states. For instance, it has been held that, as the statute provides that the patient himself may consent to the testimony of the physician, no question of public policy is involved. The prohibition imposed on the physician is the privilege of the patient and not of the physician, nor yet of the public, and therefore a patient may make a valid contract waiving the privilege afforded him in the statutory prohibition. Furthermore, while the privilege is personal to the patient and may be waived by him, the general rule is that after his death the privilege may be waived by his legal representatives and those interested in the preservation of his estate. Restrictions on the full development of the facts and the ascertainment of the truth of a controversy are strictly construed, and the privilege being personal in its nature, it should not be extended by implication, especially after the death of the one for whose benefit it was given. Of course, the prohibition of the statute must be given the effect intended by the legislature; but, so far as it is open to interpretation, it should be strictly construed instead of reaching for an implication that would operate to suppress the true facts necessary to a just determination of the issue involved. Wherefore the court holds that, in an action by heirs of a deceased grantor, contesting the validity of a deed executed by the grantor to her sister shortly before her death, on the ground of the unsoundness of her mind at the time of the execution, the testimony of a physician who attended her in her last illness as to the knowledge gained by him in his professional capacity, relating to her mental condition, may be admitted in evidence, where the heirs have waived the statutory privilege, which was effectually done in this case by the plaintiffs, who were suing as heirs of the deceased grantor, offering the evidence, they being interested in preserving the estate of the deceased, which would have been largely diminished if effect had been given to the deed held invalid. But as the defendant in this action, although a sister of the deceased grantor, claimed no rights as heir or devisee, but defended solely on the basis of being the grantee in the deed, she was not entitled to assert the statutory privilege, or to object to the testimony of the physicians in regard to the competency of the grantor.

Society Proceedings

SOUTHERN SURGICAL ASSOCIATION

Thirty-Third Annual Meeting, held at Hot Springs, Va., Dec. 14-16, 1920

The President, Dr. Willard Bartlett, St. Louis, in the Chair

Fractures of the Skull

Dr. C. E. Caldwell, Cincinnati: Skull injuries may be divided into two primary divisions, those in which the traumatism to the neural centers is of such severity that the patient is obviously doomed and dies within a few hours after the receipt of the injury. and those in which the injury is of such a nature as to permit of the patient's living to present those problems of intervention or nonintervention which are to determine the ultimate results of treatment. Of forty-one patients seen by me, seven were subjected to operation. Five of these patients recovered. Of the thirty-four patients not operated on, twenty-four recovered. Of the ten who died, eight died within two or three hours after admission. The remaining two lived four and five hours, respectively, and would have been operated on had I seen them earlier. The two who died after operation had severe intradural hemorrhage.

Late Results of a Series of Head Injuries

Dr. C. C. Coleman, Richmond, Va.: The incidence or severity of the late results of head injuries cannot be predicted on the type or degree of an acute injury. The prevention of late effects of head injuries is closely linked with early treatment and after-care.

DISCUSSION

Dr. Robert T. Morris, New York: Intracranial pressure, which is relieved by decompression, is frequently due to an irritative lesion which is caused by contraction of dural adhesions. These adhesions often are the cause of epileptic and epileptoid seizures and various psychoses coming on as late symptoms. When the dural adhesions cover only a small area we sometimes have a marked demonstration from the relief of pressure. When secondary changes have taken place, if the parenchyma has been injured seriously, with fatty changes in the cortex, and the cells of Purkinje destroyed, good results will not accrue from the separation of dural adhesions alone. When it is merely a matter of an irritative lesion of limited area, decompression is not the operation—separation of dural adhesions is indicated, and the application of methods for the prevention of their recurrence.

Dr. Henry O. Marcy, Boston: Hunter McGuire related the case of a man who was struck on the head with a missile in one of the southern battles. He was brought into Richmond unconscious. He made a slow recovery. He lost the ability to speak, and he lost the power of reasoning and thinking, and lived an animal life for thirteen years. Dr. McGuire operated on him, and on waking from the anesthetic the man exclaimed, "Where has the army moved today?"

Dr. W. P. Carr, Washington, D. C.: I wish to confirm what Dr. Morris has said about separating dural adhesions. I have observed great improvement by separating dural adhesions with my finger in some cases, while in others I have found them so tough or dense that they had to be cut with a knife or scissors. Decompression, a necessary part of the operation, has a good deal to do with recovery of these patients, because in most of them we find an edematous condition of the brain, and a great deal of that fluid will drain off during the operation.

Dr. James E. Thompson, Galveston, Texas: In the severe cases no one would interfere, except by spinal puncture. Symptoms can be warded off by spinal puncture, which relieves pressure. Our main difficulty is in understanding what is the condition of the brain after injury.

Dr. J. W. Henson, Richmond, Va.: Dr. Morris, how would you locate dural lesions?

Dr. Robert T. Morris, New York: Almost always there is local tenderness on pressure, and the scalp is tender over that point.

SYMPOSIUM ON CANCER

Cancer Infection

Dr. A. J. Ochsner, Chicago: Cancer develops very constantly on the proximal side of the pylorus and on the distal side of the ileocecal valve, while it develops only rarely between these two points. The fields in which it will develop contain substances that are acid in reaction, while the intestinal contents in the intervening portion are alkaline. Every precaution should be taken against cancer infection, notwithstanding the fact that its infectiousness has not been proved. Cancer occurs almost exclusively in portions of the body exposed to the irritation of the outside world. This includes the gastro-intestinal canal, which comes in contact constantly with filthy food in locations in which stasis insures long continued contact and persistent irritation. We find a notable example in the enormous incidence of cancer of the stomach in people eating raw vegetables growing in soil fertilized with manure. The Japanese, who eat such vegetables in abundance, suffer greatly from cancer of the stomach. The inhabitants of India, whose religion commands them to boil food and drink, are notably free from stomach cancer. Sewerage is said to be an important factor in the production of cancer.

Cancer of Uterus

Dr. John B. Deaver, Philadelphia: The cervix is the more common site of uterine carcinoma. In the vast majority of cases it develops in women who have had children. Complete hysterectomy is probably as sure a means of curing the disease as we have, provided the growth is not so far advanced as to threaten adjacent tissues. It is these cases also that the radiologist believes are most amenable to his treatment. This may be so, but it has not been my experience.

Radium in Carcinoma of Uterus

Dr. William Kohlmann, New Orleans: In many instances radium may be compared favorably in its effects with the results obtained by surgical measures; and frequently in cases in which surgery fails, it will bring about relief and even apparent cure. Of ninety-six cases of carcinoma of the uterus which have come under my observation, fifty-six were treated with radium only. The clinical diagnosis of carcinoma was confirmed microscopically. With few exceptions, all the patients were benefited. Some patients improved to such an extent that a cure could be hoped for.

Cancer of Rectum and Large Intestine

Dr. George W. Crile, Cleveland: From one to two days before the operation, large quantities of water are given by mouth, by rectum, subcutaneously or by means of a Rehfuss tube. If necessary, a transfusion of blood is given before the operation, and, if required, also after the operation. If the myocardium is impaired, digitalis is given until the action of the heart is improved sufficiently for the safe performance of the operation. The operation is performed in two stages, a sufficient period after the preliminary colostomy being allowed to insure the reaccumulation of the reserves of the patient. The operation is performed under nitrous oxid-oxygen analgesia, plus local anesthesia. A wide incision is made to insure the minimum handling of tissue. After operation, hot packs are applied to the abdomen in order to increase the functional activity of the liver. In cases of cancer of the rectum, radium is employed both before and after the operation. In cases of cancer of the large intestine, radium is applied after the operation. If these procedures are carried out in detail, the patient leaves the operating room in approximately the same condition as he entered it, and his convalescence is well secured.

Cancer of Pelvis of Kidney

DR. ALEXIUS MCGLANNAN, Baltimore: No definite relation can be found between the development of the papillary tumors and the presence of stone in the kidney. That leukoplakia may be the result of calculus irritation and, in turn, be the source of a squamous cell tumor is a possibility. Nephrectomy is required for the removal of these tumors. The ureter should be investigated carefully, and as much of this organ as is indicated should be removed because of the danger of an implanted growth in its lumen. In many cases complete nephro-ureterectomy should be performed. Some authorities believe that the latter should be the operation of choice in all cases. The symptoms of papilloma of the renal pelvis are fairly typical. Hematuria is almost constant, and the quantity of blood lost may be sufficient to disable the patient. There is some blood in the urine almost all the time, and at intervals profuse hemorrhage occurs and may persist for days or weeks. The profuse bleeding is usually preceded by a colicky pain, and this intermittent hematonephrosis is considered a characteristic symptom. The presence of transitional epithelium in the urine is a valuable corroborative symptom.

Life Expectancy Following Radical Amputation for Cancer of Breast

DRS. W. E. SISTRUNK and W. C. MACCARTY, Rochester, Minn.: Age seems to have a definite bearing on the results to be expected following operations. Of 218 cases, 41.7 per cent. of the patients over 50 years of age are alive from five to eight years after operation, while only 31.8 per cent. of those under 50 have lived for a corresponding time. The immediate hospital mortality from operation for cancer of the breast was less than 0.5 per cent. The prognosis has not been affected by the complete removal of small growths for microscopic diagnosis before the radical operation is performed. When local recurrences were found following operation, metastases were demonstrated in other regions in 60.9 per cent of the cases. In our experience nearly all patients who develop a recurrence of the malignancy following operation die from the disease.

Diagnosis of Breast Lesions at Exploratory Incision

DR. JOSEPH C. BLOODGOOD, Baltimore: The propaganda of education on cancer has had its effect. Women conscious of trouble in a breast now seek advice quickly. My records show a rapidly increasing number of patients who, after examination, have apparently no discoverable local condition in which experience teaches that operation is necessary. The percentage of benign lesions has rapidly increased. The number of cancers of the breast in the early stage is largely increased. In the majority of these cases, the diagnosis can be made only at the exploratory incision, and the best permanent results are obtained by the immediate complete operation after the exploratory incision has revealed the cancer. The mistake that should not be made is the incomplete operation for cancer. The records of the Surgical Pathology Laboratory of the Johns Hopkins Hospital show that since 1889, a period of thirty-one years, the mistake of performing an incomplete operation for cancer of the breast has been made five times by Dr. Halsted and the surgeons operating or trained in his clinic, and this mistake has been made but once since 1900. When cancer of the breast is incompletely removed, there is rapid local recurrence, with the rarest exceptions within one year. When only the breast is removed for cancer, there may be a longer period before the involved axillary glands become palpable. In the vast majority of lesions of the breast, the gross inspection of the local lesion is as important as the examination of the frozen section, and in many, especially in certain benign lesions, a more reliable conclusion can be reached. When cancer is distinct on gross inspection it is equally distinct in the section; but many tumors, especially the encapsulated benign adenoma and many of the cysts, have on gross inspection almost pathognomonic signs of benignancy, while frozen sections reveal pictures difficult to distinguish from possible early malignancy. This conclusion has been confirmed by submitting many sections to a large number of pathologists.

DISCUSSION

DR. W. C. MACCARTY, Rochester, Minn.: The surgeon is the only man who can show us cells as they really are, and he is the only man who is doing it. As to the early diagnosis of cancer, if clinicians would educate people to come to us in what we consider the precancerous stage, we must be able to differentiate a precancerous condition from one that is not precancerous. In our laboratory, 20 per cent. of all the tumors of the breast must of necessity be diagnosed by the microscope, which means that only 80 per cent. can be possibly diagnosed grossly, and 80 per cent. of these figures is the percentage of gross diagnostic efficiency in the hands of persons who have done nothing else for the last fifteen years but examine pathologic material. If the surgeon who only occasionally sees these cases possesses that diagnostic efficiency, I shall be greatly surprised. We study every breast in which there is the slightest suspicion. What does that mean? We are picking up grossly smaller carcinomas than we ever picked up before.

DR. J. SHELTON HORSLEY, Richmond, Va.: If cancer is chiefly caused by the contact of manure with tissue, as pointed out by Dr. Ochsner, it would be difficult to explain why cancer in the rectum, which is in constant contact with autogenous manure, is not universally fatal. It is also difficult to explain why it is that cancer of the stomach appears to be much more common than cancer of the rectum. The contents of the stomach under normal conditions are practically sterile. If we include the general types of cancer or malignant tumors, it would be difficult to explain why sarcoma of bone is not due to tissue contact with manure. It is also true that carcinoma of the breast occurs in a locality that is far more protected than the face. It is also true, as statistics show, that cancer of the buccal surfaces in the Indian is much more common even without the use of the pipe. Cancer following the chewing of the betel nut or smoking a pipe is a comparatively sterile condition.

DR. CHARLES H. MAYO, Rochester, Minn.: If we educate our communities in regard to certain things, people will not only ask for them, but demand them. Much of the work that has been done to advance medicine in the past has been accomplished by educating the people. We have increased wonderfully in our ability to control cancer because we have educated the people to come early.

DR. JOHN G. CLARK, Philadelphia: Although I have seen cases that have led me to favor the use of radium, I take the position that if a case is still operable, I will operate; but we are finding fewer and few inoperable cases.

DR. R. C. COFFEY, Portland, Ore.: With regard to the transportation of cancer cells during operation, within the last month I have had four cancer growths in abdominal wounds which I made within the last year in cases in which the growth has not recurred at the point from which the cancer was removed.

DR. THOMAS S. CULLEN, Baltimore: The medical profession should support the excellent work of the American Society for the Control of Cancer.

DR. WILLIAM B. COLEY, New York: I agree with Dr. Mayo that many of these tumors seemingly benign are potentially malignant. Fifty per cent. of sarcomas have an antecedent local trauma. A large number of cases of bone tuberculosis start with antecedent trauma.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

Dec. 15, 1920, **26**, No. 6

*Use of a High Fat Diet in Treatment of Diabetes Mellitus. L. H. Newburgh and P. L. Marsh, Ann Arbor, Mich.—p. 647.
*Metabolism in Tuberculosis. W. S. McCann and D. P. Barr, New York.—p. 663.
*Failure of Antibody Formation in Leukemia. K. M. Howell, Chicago.—p. 706.
*Primary Mesothelioma of Pleura. E. S. Du Bray and F. B. Rosson, San Francisco.—p. 715.
*Fat Metabolism in Diabetes Mellitus. N. F. Blau and S. T. Nicholson, Clifton Springs, N. Y.—p. 738.
*Variations in Normal Blood Sugar. S. Strouse, Chicago.—p. 751.
*Alimentary Hyperglycemia. S. Strouse, Chicago.—p. 759.
*Renal Glycosuria. S. Strouse, Chicago.—p. 768.

High Fat Diet in Diabetes.—Newburgh and Marsh state that patients with severe diabetes, as a class, do not remain sugar free on the usual high protein diet unless the total energy intake is kept so low that incapacity from starvation results. The only satisfactory diet is one which will keep the diabetic sugar free, which will prevent the occurrence of serious acidosis, which will maintain nitrogen balance and which will make it possible for him to resume the ordinary activities of life. With these four points in mind, they studied the effect of a high fat, low protein, low carbohydrate diet in the treatment of diabetes. Then experience with this type of diet in the management of seventy-three diabetics has convinced them that it is capable of fulfilling these four specifications. Diet lists are given.

Metabolism in Tuberculosis.—McCann and Barr found that the basal metabolism of tuberculous patients may be normal or very slightly above that of normal men of the same size. Thus, in ten cases, the variation from average normal was from minus 3 to plus 15 per cent. Further increases in metabolism occur with a rise of body temperature. These increases are not large. Thus one case was given in which the temperature rose 1 degree C. during two hours without a chill. The heat production of the second hour was only two calories greater than that of the first hour. Within a rectal temperature of 104 F. (40 C.) the metabolism may be 30 per cent. above the average normal. The basal heat production in tuberculosis may be less than the normal for the same patient when in health; in other words, the loss in weight may be accompanied by a reduction in metabolism which more than compensates for the tendency to increase caused by the disease. Limited data regarding the nitrogen excretion show that, while a toxic destruction of protein does exist in tuberculosis, it is not large. The urinary nitrogen may be reduced to from 5 to 6 gm. per diem, though nitrogen balance may be attained only at a higher level (about 10 gm. a day). The specific dynamic rise in metabolism produced in two cases by the ingestion of a protein meal corresponded closely with that produced by the same meal in three normal men. In view of the fact that the food requirements of tuberculous patients are not large, either as regards total energy value or nitrogen content, McCann and Barr consider that forced feeding is unnecessary and is probably harmful in the active stages of pulmonary disease. Since protein increases the respiratory exchange in the tuberculous as in normals it may be well to limit the protein intake during periods of activity (of the disease) in order to put the lungs at rest.

Failure of Antibody Formation in Leukemia.—The failure of both opsonin and agglutinin formation after typhoid vaccination, as shown in the two cases reported by Howell, of agglutinin formation in Moreschi's spontaneously infected cases and in his vaccinated cases, and of agglutinin production after vaccination with still another bacterial species, as shown by Rotky, may indicate that the tissues of the leukemic individual have lost the property of antibody formation in general. The loss of ability to form antibodies is probably the result of the marked alterations in the hematopoietic tissues which characterize leukemia. This loss of ability may be due to the excessive proliferation of the hematopoietic tissues, one of whose normal functions is the formation of antibodies. With rapidly repeated cell generations the cellular energy used in multiplication prevents the utilization of the energy which is necessary for normal function.

Primary Mesothelioma of Pleura.—A clinical and pathologic contribution to pleural malignancy is made by Du Bray and Rosson and one case is reported in which the clinical diagnosis of malignant pleural disease was substantiated by the necropsy findings. The two most important and at the same time difficult diseases to exclude in the differential diagnosis are pulmonary tuberculosis with hemorrhagic pleural effusion and primary malignant disease of the lung or bronchus.

Fat Metabolism in Diabetes.—Twenty-six cases of diabetes were compared by Blau and Nicholson in relation of the blood fat to the blood sugar and were found to fall roughly into three groups, the members of each group bearing certain clinical resemblances to each other. About 42 per cent. of these cases showed, at the beginning of treatment, a marked increase of blood lipoids, along with a considerable drop of the blood sugar due to starvation or a severely destricted diet. This rise in the lipoid curve must not be taken as a measure of the degree of impairment of the fat burning mechanism; it may be due to a normal response to fasting and also to an insufficient carbohydrate intake. Clinically these were all severe cases of diabetes. Blood fats seemed to rise and fall with the blood sugar in almost 27 per cent. of the cases, decrease in the fat apparently progressing more slowly than the decrease in the blood sugar. All but two of these patients were in a milder stage of the disease. In about 31 per cent. of the cases there was an almost constant value for blood lipoids, at high level, while the blood sugar decreased. They all presented a history of infection previous to the onset of diabetes, and suffered from a somewhat more severe form of the disease than those of the preceding group. The lipoid value seemed to be lowest in a negative carbohydrate balance, showing that the diabetic organism can utilize fats more readily in the presence of large amounts of sugar in the body, and that in "sugar free" patients there must be a great strain on the fat burning mechanism when large amounts of fats are fed. Evidence of this may often be seen in the high values for plasma cholesterol.

Variations in Normal Blood Sugar.—Efforts made by Strouse to change blood sugar percentage of five normal persons by increased or diminished water intake and excretion failed to change the blood sugar percentage. This indicates that for practical clinical purposes the blood sugar percentage method is accurate. Daily variations of blood sugar percentage occurred in five normal persons. These variations seem to depend on changes in the weather.

Alimentary Hyperglycemia.—A review of his own work on diabetic curves for the past few years has shown Strouse that there is a definitely normal and definitely pathologic type of reaction, but that between these two extremes the reaction may waver either way. The investigation here reported concerns mainly the interpretation of the wavering type of reaction, its relationship to clinical diagnosis, and its value in the study of the metabolic change in diabetes.

Renal Glycosuria.—Four cases of renal glycosuria are presented by Strouse. Two patients have been under observation two years, one patient almost five years, and one patient for eight years. All four still show glycosuria. None shows symptoms of diabetes mellitus. In one, tests for renal function seven years after onset showed no depression of renal function except in regard to phthalein excretion. The two who have been observed the longest show at the end of four and eight years, respectively, a ultilization of glucose that cannot be considered strictly normal, one at the end of seven years' observation showing a distinctly pathologic alimentary hyperglycemia. This may indicate the beginning of metabolic disturbance. This study emphasizes the importance of long and continued observation of all patients with this most interesting anomaly.

Archives of Neurology and Psychiatry, Chicago

December, 1920, **4**, No. 6

Special Field of Neurologic Surgery After Another Interval. H. Cushing, Boston.—p. 603.
*Abdominal Neurasthenia. A. S. Taylor, New York.—p. 638.
*Case of Cerebral Porosis: Histopathologic Report. G. B. Hassin, Chicago.—p. 645.
*Support in Facial Nerve Paralysis. N. S. Yawger, Philadelphia.—p. 659.
*Tinel's Sign, Formication or Distal Tingling on Percussion and Deep Pressure Sensation. J. O. Bower and I. L. Hawkins, Wyncote, Pa. —p. 662.
Nervous Signs and Symptoms as Related to Certain Causations of Conduct Disorder. W. Healy, Boston.—p. 680.

Abdominal Neurasthenia.—Four cases are analyzed by Taylor selected from a larger series, to illustrate varying phases of the problem. One patient had had a prolonged history of abdominal pain and digestive disturbance, on which the neurasthenic condition had been engrafted and finally became the predominating feature in the minds of many of the consultants. The second patient who had had little digestive disturbance beyond flatulence and that without constipation, suddenly developed a neurasthenia, apparently idiopathic, which was greatly increased by influenza. For a year he had had various treatments without result. The third patient also had few symptoms relating to the digestive tract, except flatulence and occasional constipation. Her neurasthenia came on gradually during several years, was associated with lack of mental balance and probably with disturbance of the endocrine system. The fourth patient had never been robust and developed a profound neurasthenic condition following a simple herniotomy. In her case the neurasthenic and abdominal symptoms developed simultaneously and were about equally prominent over a period of eight years. A painstaking examination of the digestive apparatus indicated what proved to be, in these cases, the chief underlying cause of the illness. The nerve exhaustion was apparently secondary to the absorption of toxins from the digestive canal, and it is Taylor's belief that the formation of these toxins largely resulted from mechanical interference with the normal motility of the digestive canal. The obvious deduction from the facts presented is that a complete examination should be made of the digestive tract of every neurasthenic. In a certain proportion of cases surgery would offer a short cut to recovery.

Cerebral Porosis.—The most striking pathologic features in Hassin's case are the cavities, the bacillar venous thrombosis and the subarachnoid changes. The most striking clinical phenomena are the bronze skin and mental dulness. Both clinical and pathologic findings are most probably a manifestation of the gas bacillus infection, of which the cavities are the most outstanding pathologic features.

Support in Facial Nerve Paralysis.—By means of adhesive plaster strips Yawger supports the sagging tissues for the time being.

Tinel's Sign.—Bower and Hawkins state that there is a definite relation between the return of deep sensation and the advance of formication. When deep sensation returns normally there is an advance in formication of one-tenth inch daily.

Archives of Ophthalmology, New York

November, 1920, **49**, No. 6

Detachment of Retina. D. T. Vail, Cincinnati.—p. 553.
Trephining and Aspiration in Retinal Detachment. E. S. Thomson, New York.—p. 563.
Intranasal Dacryocystostomy. C. F. Bookwalter, Chicago.—p. 568.
Bilateral Glioma; Report of Case Unsuccessfully Treated with Radium. A. Knapp, New York.—p. 575.
Nasolacrimal Surgery in Ophthalmologic Perspective. C. B. Walker, Springfield, Mass.—p. 585.
Cyclopia, Its Bearing on Certain Problems of Teratogenesis and of Normal Embryology; Description of Cyclocephalic Monster. E. Hill, Richmond, Va.—p. 597.
Neuropathic Keratitis Setting in Long After Alcoholic Injections into Gasserian Ganglion for Relief of Trigeminal Neuralgia. B. Chance, Philadelphia.—p. 621.
Transient Herpetic Rash Over the Area of Distribution of the Ophthalmic Branch of the Fifth Nerve Following Application of Bluestone in a Case of Parinaud's Conjunctivitis. M. L. Foster, New Rochelle.—p. 628.

Illinois Medical Journal, Oak Park

December, 1920, **38**, No. 6

Human Breast: A Plea for Well-Directed Treatment Based on More Accurate Diagnosis. W. S. Bainbridge, New York.—p. 473.
Do Our Leaders Lead? If so, Whither? T. P. Foley, Chicago.—p. 479.
Accident Company, Doctor's Jinx. W. F. Grinstead, Cairo.—p. 481.
Caloric Method of Artificial Feeding in Normal Babies. L. O. Frech, White Hall.—p. 484.
Some Problems in Increased Intra-Ocular Tensions. T. Faith, Chicago.—p. 489.
Some Problems Encountered in Attempting to Apply Insurance Methods to Sickness Hazard. E. MacD. Stanton, Schenectady, N. Y.—p. 493.
*Volkman's Contracture of Forearm. C. U. Collins, Peoria.—p. 497.
Some Practical Phases of Local Anesthesia. J. R. Harger, Chicago. —p. 500.
Endocrine System. J. H. Hutton, Chicago.—p. 505.
Focal Infection in Head and Its Relation to Systemic Disease. C. F. Yerger, Chicago.—p. 509.
*Pulmonary Infection by Sporothrix of Schenk. F. Le Blanc, De Kalb. —p. 516.
*Case of "Argyria." C. E. Smith, De Kalb.—p. 517.
Significance of Cardiac Murmurs. C. J. McMullen, Chicago.—p. 517.
Sphenoid Sinuses. J. A. Cavanaugh, Chicago.—p. 521.
Abscess of Tongue. J. C. Dallenbach, Champaign.—p. 522.
Bronchopneumonia with Some Complications. G. W. Rice, Galena.—p. 525.
Saving of Foot Function by Skin Grafting. L. E. Barton, Malta.—p. 527.
Hernia of Bladder; Report of Two Cases. L. F. Watson, Chicago.—p. 527.
Technic for Removal of Foreign Bodies. W. M. Thompson, Chicago. —p. 531.
Some Complications in Cases of Acute Mastoiditis. J. S. Clark, Freeport.—p. 536.

Volkmann's Contracture.—Collins reports a case in which lengthening of tendons was resorted to with good results attending. He regards the procedure as much more simple than a resection of the bones of the forearm. The final result in his case shows no deformity, while a resection of the bones of the forearm would have left a shortened forearm. This patient was received into the service without question during the late war and served his required time in the army.

Sporotricosis of Lung.—Le Blanc cites two cases in which a diagnosis of pulmonary tuberculosis had been made, and he thinks not correctly, in which he saw in the throat a yellowish, firm, submucous granuloma, the size of a split pea. After endeavoring to puncture it and evacuate what might be pus, Le Blanc found that it was rather firm in texture. Microscopic examination disclosed a sporotrichosis granule bearing many spores which proved to be the sporothrix of Schenk.

Argyria.—Smith's patient took silver nitrate in ¼ grain doses, three times daily, for three months for a "catarrh of the nose" when it was noted that the skin of the face and hands—the exposed surfaces—was assuming a darker color. A focal infection in the maxillary sinus proved to be the cause of the catarrh.

Indiana State Medical Association Journal, Ft. Wayne

Dec. 15, 1920, **13**, No. 12

Silver Wire in Vesicovaginal Fistula. J. R. Eastman, Indianapolis.—p. 393.
Mediastinal Tumor. W. D. Asbury, Terre Haute.—p. 398.
Physician. F. B. Wynn, Indianapolis.—p. 400.

Journal of Bacteriology, Baltimore

November, 1920, **5**, No. 6

Bacterial Inhibition. I. Germicidal Action in Milk. W. H. Chambers, Urbana, Ill.—p. 527.
Bacterial Group in Decomposing Salmon. A. C. Hunter, Washington, D. C.—p. 543.
*Influence of Various Chemical and Physical Agencies on B. Botulinus and Its Spores. I. Resistance to Salt. Z. N. Wyant and R. Normington, East Lansing, Mich.—p. 553.
Time Saving Bacteriologic Apparatus. M. J. Prucha and F. W. Tanner, Urbana, Ill.—p. 559.
*Milk-Powder Agar for Determination of Bacteria in Milk. S. H. Ayers and C. S. Mudge, Washington, D. C.—p. 565.
*Use of Washed Agar in Culture Media. S. H. Ayers, C. S. Mudge and P. Rupp, Washington, D. C.—p. 589.

Inhibition of B. Botulinus by Salt.—The data obtained by Wyant and Normington prove quite conclusively that a large number of strains of *B. botulinus* are not inhibited by percentages of salt ranging from 1 to 10, when growing in a medium of an alkalinity of 0.5. This may not signify that *B. botulinus* will survive 10 per cent. or less salt used in pickling, as the additional factor of acidity enters here, and this anaerobe is said to be injured—some strains quite decidedly so, by even a slightly acid medium (+ 0.5 to + 0.8). However, the results obtained seem to indicate strongly that it is not the salt which is the inhibiting factor in the destruction of *B. botulinus* and its spores by pickling solutions.

Milk-Powder Agar for Determination of Bacteria in Milk.—Formulas for three agar mediums are given by Ayers and Mudge, two of these containing skimmed-milk powder with different amounts of peptone and meat extract. The third medium contains skimmed-milk powder and yeast extract, no peptone or meat extract being used. Any of the mediums described give counts very much higher than standard extract agar and the colonies are very much larger. The larger size of the colonies makes the counting process much more accurate. With these milk-powder mediums it is possible to obtain not only a total count, but a count of colonies of strong and weak acid-producing, alkali-forming, inert and peptonizing bacteria.

Washed Agar Culture Medium.—The standard extract medium with washed agar used by Ayers, Mudge and Rupp showed in many cases, when market milk was examined, a much higher count than the same medium with regular shred agar. Washing agar reduced its content of calcium and magnesium salts. A few experiments indicated that the removal of these salts was a factor in the cause of the higher counts. This point, however, is merely suggested by the results and not definitely proved. Since certain samples of milk show a higher count when plated on a washed-agar standard extract medium than on the regular standard extract medium, it seems evident that washing removes something detrimental to the growth of certain species of bacteria. This naturally suggests that a further study is needed of the value of washed agar in lines of bacteriologic work where it has not been used.

Journal of Experimental Medicine, Baltimore

Dec. 1, 1920, **32**, No. 6

*Biologic and Physical Properties of Hemotoxin of Streptococci. P. D. Meader and G. H. Robinson, Baltimore.—p. 639.

Divisions of So-Called Flexner Group of Dysentery Bacilli. W. C. Davison, Baltimore.—p. 651.

Biologic Study of Hemophilic Bacilli. E. C. Stillman and J. M. Bourn, New York.—p. 665.

Etiologic Rôle of Vibrio Fetus. T. Smith, R. B. Little and M. S. Taylor, Princeton, N. J.—p. 683.

*Production in Monkeys of an Acute Respiratory Disease Resembling Influenza by Inoculation with Bacillus Influenzae. F. G. Blake and R. L. Cecil, Washington, D. C.—p. 691.

*Pathology of Experimental Influenza and of Bacillus Influenzae Pneumonia in Monkeys. R. L. Cecil and F. G. Blake, Washington, D. C.—p. 719.

*Experimental Studies on Heteroplastic Bone Formation. G. Asami and W. Dock, St. Louis.—p. 745.

Simplified Production of Antimeningococcic Serum. H. L. Amoss, F. L. Gates and P. K. Olitsky, New York.—p. 767.

Hemotoxin of Streptococci.—The hemotoxin of the streptococcus, according to Meader and Robinson, is a labile substance affected by centrifugation or shaking. It is adsorbed by various organic and inorganic substances. Hemotoxin is produced within a wide range of hydrogen-ion concentrations. It is neither in nor on the bacterial cell but is free in the culture medium. It is probably not an enzyme. There are at least two substances which are essential to the medium for the elaboration of hemotoxin, one of which is phosphorus; the other is a substance of unknown composition. The unknown component is present in small quantities in unfiltered muscle infusion, but is more abundantly supplied by blood serum and kidney infusion. This substance is not an albumin, globulin, primary or secondary proteose, metaprotein, or peptone of the medium or enriching fluid. It is ether-soluble, is destroyed by boiling in alkaline solution and by prolonged heating, and is removed to a considerable extent by passage through a diatomaceous filter.

Experimental Influenza Inoculation.—By inoculation with *Bacillus influenzae* Blake and Cecil were able to initiate in normal monkeys an acute infection of the upper respiratory tract which may be complicated by acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs, bronchiolitis, and bronchopneumonia. This disease appears to be essentially identical with influenza with respect to its clinical course, symptoms, and complications. The etiologic relation of *B. influenzae* to acute sinusitis, tracheobronchitis, bronchiolitis, and bronchopneumonia is established. Although it seems reasonable to infer from the results of experiments that *B. influenzae* is the specific cause of influenza, a definite conclusion is not permissible, since it is impossible to determine whether the respiratory disease produced in monkeys with *B. influenzae* is identical with influenza or merely similar to it. The experiments are advanced, therefore, as evidence in favor of the etiologic relation of *B. influenzae* to influenza.

Pathology of Experimental Influenza Lesions.—The pathologic changes observed by Cecil and Blake in experimental influenza differ in no essential respect from those which occur in human influenza. In both instances the disease manifests itself as an acute catarrhal inflammation of the upper respiratory tract, extending usually from the nasal cavities down into the trachea and bronchi. In both diseases the accessory sinuses are often involved and a secondary bronchopneumonia is a frequent complication.

Heteroplastic Bone Formation.—Experiments on rabbits were made by Asami and Dock. The results lead them to conclude that bone formation in the rabbit kidney with ligated vessels takes place (*a*) through the activity of young fibroblasts which accumulate to form a membrane-like structure; (*b*) subsequently by direct ossification of hyalin connective tissue in continuity with preformed bone; and (*c*) through erosion of lime placques by granulating tissue and lying down of lamellar bone by cells derived from fibroblasts. Bone formation in the rabbit kidney begins not in direct contact with calcium deposits, but in the loose vascular connective tissue close under the transitional epithelium of the calices. With autotransplanted ear cartilage of the rabbit there is an active new formation of cartilage in the connective tissue which surrounds the transplants, and the bone is formed by the fibroblasts from the perichondrium which erode and invade the calcified areas in this new cartilage. The process of bone formation in the kidney is similar to that found in normal membranous ossification, while with the transplanted ear cartilage the process is identical with endochondral ossification.

Journal of Immunology, Baltimore

November, 1920, **5**, No. 6

*Comparison of Smear, Culture and Complement Fixation in Chronic Gonorrhea in Women. J. D. Smith and M. A. Wilson, New York.—p. 499.

*Experiments on Production of Antihuman Hemolysin with Special Reference to Immunization with Erythrocytes Sensitized with Heated Serum. M. Matsumoto, Philadelphia.—p. 507.

*Nonspecific Production of Antibodies. M. Matsumoto, Philadelphia.—p. 517.

*Sachs-Georgi Precipitation Test for Syphilis. T. G. Hull and E. E. Faught, Springfield, Ill.—p. 521.

Study of Mechanism of Human Isohemagglutination. H. L. Koeckert, Cleveland.—p. 529.

*Immunization with Blackleg Aggressin. T. P. Haslam, Sioux City, Ia.—p. 539.

Study of Specificity of Absorption of Antibacterial Precipitins. C. Krumwiede and G. M. Cooper, New York.—p. 547.

Value of Complement Fixation Test in Gonorrhea.—The conclusions reached by Smith and Wilson are that the gonococcus complement fixation test is of undoubted value in chronic gonorrheal infections. In acute and early subacute infections it is on a par with the Wassermann test in the initial lesion stage prior to development of the secondary. A nongonorrheic does not give a positive complement fixation test. A gonorrheic may give a negative test in certain stages of the disease.

Immunization with Erythrocytes.—Matsumoto states that that immunization of rabbits with unwashed and washed human erythrocytes by intravenous injection every five days, produced similar results in influence on body weight, mortality, hemagglutinin and hemolysin production. Exposure of human erythrocytes to antihuman serum diluted 1 : 10 and heated at 70 to 80 C., reduces susceptibility to agglutination and increases susceptibility to hemolysis; immunization of rabbits with these sensitized erythrocytes produced results similar to those observed with plain washed corpuscles. The stroma of human erythrocytes injected intravenously into rabbits may prove fatal; solutions of erythrocytes in distilled water largely free of stromata (shadow corpuscles) were better borne.

Nonspecific Production of Antibodies.—The immunization of rabbits with washed human and sheep corpuscles resulted in the production only of specific agglutinins and hemolysins for human and sheep corpuscles, respectively. Occasionally rabbits showed an apparent slight increase of nonspecific hemolysin or agglutinin, but these were so slight and irregular as to be explained by the normal variation of natural antibodies or experimental error.

Modified Sachs-Georgi Test.—A modification of the Sachs-Georgi precipitation test for syphilis is described by Hull and Faught using clear blood serum and an alcoholic extract of beef heart, either cholesterinized or not. In their work the precipitation test agrees with the Wassermann test in 88 per cent. of the cases; in 7 per cent. it was more delicate, giving positive results where the Wassermann was negative; in 3 per cent. it was negative where the Wassermann was doubtful; in 2 per cent. it was negative where the Wassermann was positive. Treatment of the patient apparently affects the results of the precipitation causing it at times to come negative while the Wassermann still is positive. Attempts to determine whether the precipitate formed in this test was entirely responsible for the Wassermann reaction were unsuccessful.

Brain Culture Medium.—By substituting the brain recommended by von Hibler for the meat pieces used in Foth's medium, Haslam obtained a medium which seemed superior to either the "Hirnbrei" of von Hibler, or the "meat piece liver bouillon" of Foth. It was much more sensitive than guinea-pigs for detecting the presence of *B. chauveaui* in blackleg aggressin.

Journal of Mental and Nervous Diseases, New York

November, 1920, **52**, No. 5

Manometric Oculocompressor. J. Rubinowitch, Paris.—p. 385.
*Case of Hemangioma Cavernosum of Cerebrum. S. Uyematsu, Tokyo. —p. 388.
Psychiatry Before Hippocrates. J. Wright, London.—p. 399.
*Lethargic Encephalitis. J. Meyer, Chicago.—p. 409.

Hemangioma Cavernosum.—In Uyematsu's case no clinical symptoms were manifested. The details are given, the literature is reviewed and the opinions of various clinicians are discussed. The author advances the congenital theory in his case because of the presence of other congential structures in the central nervous system of the same person.

Lethargic Encephalitis.—Meyer reports two cases, from the blood of one of which a hemolytic streptococcus was isolated. Injected intravenously into rabbits and guinea-pigs, the organism failed to produce any effect. Attention is also directed to the fact that in one of these cases anesthesia was present. The patient first showed a left hemiparesis which disappeared and was followed by a paralysis of the right side. The early appearance of an ankle clonus opposite the paralyzed side, and the presence of a bilateral ankle clonus and a negative Babinski, were also points of interest and suggested involvement in one of the nuclei at the base or of the gray matter in the cord. Attacks of delirium occurred in both cases.

December, 1920, **52**, No. 6

Cerebellar Agenesis. Report of Two Cases. F. P. Moersch, Ann Arbor, Mich.—p. 465.
*Analysis of Suicidal Attempts. K. G. Lowrey, Boston.—p. 475.
*Contralateral Plantar Reflex. A. Gordon, Philadelphia.—p. 482.
Is There an Ideal Treatment for Morphinism? C. B. Pearson, Catonsville, Md.—p. 490.

Analysis of Suicidal Attempts.—Of 46 cases analyzed by Lowrey, 16 were cases of dementia praecox; 9 of manic depressive insanity; 5 of psychopathic presenility; 3 of psychoneurosis and the others scattered. In 14 cases the attempt was due to depression; in 7 to hallucinations or delusions; in 6 to escape persecution; in 7 to escape physical suffering or dread of mental disease. The methods used most often were cutting, gas and poison.

Contralateral Plantar Reflex.—Gordon maintains that the presence or absence of a contralateral reflex is an indication not only of the presence of lesions in the pyramidal tracts but also of the intensity of these lesions. It is, consequently, a valuable diagnostic phenomenon.

Journal of Orthopaedic Surgery, Lincoln, Neb.

December, 1920, **2**, No. 12

Congenital Malformations and Deformities of Hand. A. Steindler, Iowa City.—p. 639.
Principles of Treatment of Congenital Talipes Equino-Varus. R. C. Elmslie, London.—p. 669.
*System of Joint Measurements. W. A. Clark, Rochester.—p. 687.

System of Joint Measurements.—All joint movements are measured by Clark on a half circle arc from 0 to 180 degrees. The zero end of this arc is toward the head and the neutral position is 180 degrees for all movements except rotation. For rotation, including pronation and supination, the zero end is toward the median body line (on the left for the spine) and the neutral position is 90 degrees. Extension is a movement toward 180 degrees and flexion toward 0 on the flexor half circle arc in the anteroposterior plane. Hyperextension is a movement toward 0 on the half circle arc on the extensor side of the joint in the anteroposterior plane. Abduction and adduction are both movements toward 0 in the lateral plane, the former on the half circle arc lying external to the joint, and the latter on the half circle arc lying internal to the joint. Internal rotation is toward 0 and external toward 180 degrees on the anterior half circle arc in the transverse plane. For the spine rotation to the patient's left is toward 0 and to his right toward 180 degrees. The number of degrees stated in records by this system indicates the limit of motion on the half circle scale and not the amount of motion.

Kentucky Medical Journal, Bowling Green

November, 1920, **18**, No. 11

Diphtheria Therapeutic Comparisons. R. B. Gilbert, Louisville.—p. 406.
Diphtheria from Standpoint of Family Physician. F. Brandies, Louisville.—p. 408.
Indications for Intubation in Diphtheria. B. E. Pirkey, Louisville.—p. 408.
Diphtheria from Standpoint of School Nurse. E. Bears, Louisville. —p. 409.
Diagnostic Methods of City Health Office in Diphtheria. V. Robbins, Louisville.—p. 410.
Complications. J. H. Pritchett, Louisville.—p. 411.
Value of Schick Test. H. E. Tuley, Louisville.—p. 412.
Fractures of Forearm. J. I. Taylor, Russellville.—p. 415.
Deferred Chronic Intermittent Versus Early Intensive Treatments of Syphilis. E. R. Palmer, Louisville.—p. 417.
Lateral Sinus Thrombosis with a Case Report. J. R. Peabody, Louisville.—p. 428.
Fragment of Steel Removed from Eye, After Two Years, with Magnet; Case Report. S. G. Dabney, Louisville.—p. 434.
Hysteria as It Affects Eye. A. O. Pfingst, Louisville.—p. 436.
Diagnosis. R. M. Rankin, Covington.—p. 443.
Venereal Clinic. R. Dade, Hopkinsville.—p. 446.
Medicine Past and Present. S. P. Alderson, Russellville.—p. 447.
Rabies. H. H. Hunt, Mayfield.—p. 448.
Arteriosclerosis. W. Z. Jackson, Arlington.—p. 450.

Medical Record, New York

Dec. 11, 1920, **98**, No. 24

How "Tuberculosis Schemes" Fail and Why. S. J. Maher, New Haven, Conn.—p. 967.
Epidemic of Lethargic Encephalitis. I. Abrahamson, New York. —p. 969.
Chemically Pure Anhydrous Dextrose as Therapeutic Agent. William H. Porter, New York.—p. 973.
What Is an Intoxicating Beverage? C. A. Rosewater, Newark, N. J. —p. 976.
Treatment of Certain Gynecologic Diseases with Radiation. J. T. Stevens, Montclair, N. J.—p. 979.
*Subluxation of Head of Radius. J. Grossman, New York.—p. 981.
*Method for Standardizing Knee Jerk Test and Its Measurement. G. F. Boehme, Jr., Los Angeles, Calif.—p. 982.
Drugs and Their Active Principles in Relation to Treatment of Disease. B. Robinson, New York.—p. 983.
Meningitis Serosa. R. A. Kilduffe, Pittsburgh.—p. 984.
*Acute Veronal Poisoning Simulating Lethargic Encephalitis. E. MacLeod, Centralia, Wash.

Subluxation of Head of Radius.—Subluxation of the head of the radius, Grossman says, occurs only in children, generally between the ages of 8 months and 3 years. The mode of production and the subsequent picture, namely raising or dragging the patient by gripping the wrists and the apparent flaccid paralysis, are characteristic of this condition. It is often called "traumatic palsy" of the upper extremity. Extreme forcible supination is all the treatment required to overcome the subluxation. After-care is not necessary. As relapses may occur, Grossman says, parents should be warned of the risk of dragging or lifting their children by gripping the wrists.

Standardizing Knee Jerk Test.—The test devised by Boehme is performed as follows: The patient is laid on his back on a regular examining table. The thigh is flexed on the abdomen to complete flexion. The knee is flexed on the thigh to a right angle. The leg is held with the nonpercussing hand preferably grasping the angle, holding the total limb in the position described. The quadriceps tendon is then carefully palpated to locate the tendon between the lower ankle of the patella and the tibial tubercle. It will present a moderate degree of tension. The area described is then percussed with the percussion hammer, when an extension movement of the leg on the thigh occurs. The spontaneousness of the reflex, the intensity, etc., can then be measured by the hand holding the leg in position. This measure gives a method of testing the knee jerk with constant factors: (1) As to position of the limb; (2) as to tension on the quadriceps; (3) as to mental inhibition.

Veronal Poisoning.—MacLeod's patient took fourteen 5 grain barbital (veronal) tablets in divided doses over a period of thirty-six hours and slept continuously for seven days. This prolonged sleep from veronal suggested to MacLeod its use in status epilepticus, with happy results from 30 grains in divided doses. In probably other mental conditions as morphinomania, etc., MacLeod suggests that a week's sleep would eliminate the pain and suffering from withdrawal of the drug.

Dec. 18, 1920, **98**, No. 25

Rummo-Ferranini Genito-Dystrophic Geroderma (Senilism), Lean Type, Due to Tardy Hereditary Syphilis. M. R. Castex and C. P. Waldorp, Buenos Aires, Argentina.—p. 1009.
Thymic Epilepsy. W. Browning, Brooklyn.—p. 1013.
Diathermy an Aid in Empyema. A. B. Hirsh, New York.—p. 1015.
Case of Leontiasis Ossea. J. E. Sheehan, New York.—p. 1017.
Dermoid Cyst of Mediastinum with Transmitted Pulsation. H. E. Hale, New York.—p. 1019.
Case of Chronic (Residual) Lethargic Encephalitis Simulating Paralysis Agitans Type, in Boy, Aged 16. J. H. Leiner, New York.—p. 1020.
Laboratory Experiments to Determine Value of Certain Agents in Connection with Surgical Operations. J. T. Gwathmey, New York, and E. S. Tibbets, Cumberland, Md.—p. 1021.
*Galvanopalpation. M. Kahane, Vienna.—p. 1026.
Partial Asphyxiation in an Infant Resulting from Inhalation of a Dusting Powder. L. Fischer, New York.—p. 1027.

Galvanopalpation.—Galvanopalpation is a method of testing the sensory and vasomotor nerves of the skin. It consists in the application for short intervals frequently repeated, of a needle-like anode electrode as sharply pointed as possible, to the part of the skin that is to be examined, while the indifferent electrode (the cathode) is applied to some other part of the body, e. g., the palm of the hand. The diagnostic importance of galvanopalpation consists in the fact that the cutaneous vasomotor and sensory reactions are of a secondary nature, being dependent on internal diseases, and that topically the reaction spots correspond to the site of the disease. Thus, for example, in an ulcer of the stomach, the reaction phenomena (reddening of the skin, etc.) will be limited strictly to the area of the skin over the ulcer, and there will be no reaction phenomena whatsoever elsewhere. A third point of great importance is this: the intensity of the reaction is proportional to the intensity of the irritation or inflammation in the subjacent tissue or organ, and consequently we may gain information as to the progress of the disease by studying the character and intensity of the reaction at regular intervals. The tissues and organs which Kahane says lend themselves to diagnosis by galvanopalpation are: on the head, the outlets of the trigeminus, the nose, the sinuses, and nasal cavities; on the neck, the vagus, the accessorius, and the sympathetic, the larynx, the thyroid gland, the cervical roots and the brachial plexus; in the thorax, the lungs, the heart, the aorta and the dorsal roots; in the abdomen, the superficial portion of the liver, the gallbladder, the anterior wall of the stomach, the large intestine, the appendix, the kidneys, the lumbar and sacral roots; on the extremities, the bones, joints, muscles, peripheral nerves (as far as they are directly under the skin). Galvanopalpation is of special value in those cases of abdominal disease in which the patient's statements are of no value as aids to the localization of the malady.

Minnesota Medicine, St. Paul

December, 1920, **3**, No. 12

Some Medical Traits and Their Consequences. J. H. Adair, Owatonna.—p. 561.
Application of War Methods of Treating Fractures to Those Occurring in Industrial Occupations. J. A. Blake and J. N. Worcester.—p. 565.
Relation of Chronic Gas Poisoning (Warfare) of Lungs to Pulmonary Tuberculosis. F. W. Spicer, Duluth.—p. 573.
Surgical Treatment of Cerebral Hemorrhage in New-Born. A. C. Strachauer, Minneapolis.—p. 577.
Dilatation of Upper Portion of Internal Saphenous Vein Simulating Femoral Hernia. W. E. Sistrunk, Rochester.—p. 583.
*Value and Significance of Blood Pressure in Obstetrics. A. G. Schulze, St. Paul.—p. 585.
Wassermann Test; Plea for Standard Method. J. C. Ohlmacher, Vermilion, S. D.—p. 590.

Blood Pressure in Obstetrics.—In a series of 145 consecutive cases Schulze found that the average of seventy-five blood pressure readings taken when the patient was at full term but not in labor was 123.5; the average of eighty-six readings taken as near as possible in the second stage of labor was 133; and the average of 104 readings taken as near as possible three hours after labor was 120 mm. A series of blood pressure readings properly taken rather than a series of urine analyses, serve as an index of the eclamptic or the noneclamptic condition of the patient. If the blood pressure is below 100 be prepared for shock; if above 150 it is no longer to be regarded as normal. A moderately high blood pressure that shows no tendency to mount and which is not accompanied by symptoms of eclampsia is not necessarily serious; a pressure, even if low and unaccompanied by symptoms of eclampsia, but which does show a tendency to mount, should be regarded with suspicion.

Missouri State Medical Association Journal, St. Louis

December, 1920, **17**, No. 12

Traumatic Aneurysms. H. S. Valentine, Kansas City.—p. 475.
Chronic Dacryocystitis Treated by Curettage and Rapid Dilatation. John Green, Jr., St. Louis.—p. 480.
Subconjunctival Injections of Mercury Cyanid in Treatment of Ulcers and Infected wounds of Cornea. W. H. Schutz, Kansas City.—p. 482.
The Eye, the Window of the System. W. F. Hardy, St. Louis.—p. 485.
Vesico-Intestinal Fistulas. H. S. MacKay, St. Louis.—p. 489.
Deep Therapy with Roentgen Ray. E. C. Ernst, St. Louis.—p. 491.
Case of Erythromelalgia Treated with Adrenalin Chlorid. J. I. Tyree, Joplin.—p. 497.

New York Medical Journal

Dec. 18, 1920, **112**, No. 25

*Case of Alkalosis and Impairment of Excretory Power of Kidneys. J. L. Morse, Boston.—p. 965.
*Use of Atropin in Treatment of Hypertonic Infant. A. D. Kaiser, Rochester, N. Y.—p. 971.
Class Method of Treating Malnutrition in Children. W. H. Donnelly, Brooklyn.—p. 973.
Six Months' Experience with Nutrition Class. L. M. Ruderman, Brooklyn.—p. 976.
Simplified Infant Feeding. F. H. Richardson, Brooklyn.—p. 977.
Xeroderma Pigmentosum. I. S. Ravdin, Philadelphia.—p. 985.
Empyema in Children. E. Glenn, Philadelphia.—p. 987.
Weak Foot in Child. H. Scheimberg, Brooklyn.—p. 998.

Alkalosis.—Morse's patient, a girl, aged 10 years, had had a renal pyelitis for four years. Following the administration of sodium bicarbonate she developed spasmophilia, also attacks of slight spasm of the larynx. It was believed that the spasmophilia was due to the sodium bicarbonate. The sodium had driven out the calcium, and on account of the disturbance of the normal balance between sodium and potassium on the one side and calcium and magnesium on the other, the spasmophilia had developed. Under the active treatment with glucose and water by mouth and by rectum and with water subcutaneously all signs of the spasmophilia were gone by the end of a week.

Atropin in Hypertonic State.—Kaiser says the method of treatment outlined by Haas has given him the best results. A 1:1,000 solution is used. The usual dose to begin with is 1 drop or 1/1,000 grain in each feeding, or in a small amount of water before breast feedings. The dose is increased to 2 drops for the next twenty-four hours if no untoward symptoms develop. In order to procure the desired relief of symptoms 3 or 4 drops six or seven times a day, may be necessary. The average hypertonic infant will tolerate from 1/50 to 1/25 grain atropin a day.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

Nov. 27, 1920, **14**, No. 2

*Tartar Emetic in Guinea-Worm Infections. J. W. S. Macfie.—p. 137.
Three Cases of Cardiac Aneurysm in Native Boys of the Gold Coast. J. W. S. Macfie and A. Ingram.—p. 147.
Strongylidae in Horses. W. Yorke and J. W. S. Macfie.
IX. Cylicostomum Tridentatum sp.n.—p. 153.
X. On the Genus Poteriostomum, Quiel.—p. 159.
XI. Species Found in West Africa and Jamaica.—p. 165.
XII. Cylindropharynx Rhodesiensis, sp.n.—p. 169.
XIII. Cylicostomum Triramosum, sp.n.—p. 175.
Fish and Mosquito Larvae in Bengal, Bihar and Orissa, India. T. Southwell.—p. 181.
Ceratopogonne Midges of Gold Coast with Descriptions of New Species. Part I. H. F. Carter, A. Ingram and J. W. S. Macfie.—p. 187.
Ceratopogonne Midges of Gold Coast with Descriptions of New Species. Part II. H. F. Carter, A. Ingram and J. W. S. Macfie.—p. 211.
*Further Experiments with Anopheles Plumbeus, Stephens; Its Infection with P. Falciparum in England. B. Blacklock and H. F. Carter. —p. 275.

Tartar Emetic in Guinea-Worm Infections.—Macfie states that the intravenous injection of 4 grains tartar emetic is sufficient in many cases to kill a guinea-worm and the embryos in it. But to effect a permanent cure he suggests to give every other day an injection of 1 grain tartar emetic until a total dose of 6 gains has been administered. In the event of relapse or recurrence, a second course should be given.

Anopheles Experiments.—Of twelve females of *Anopheles plumbeus* fed once on one or other of two cases of simple tertian malaria (*P. vivax*), and subsequently kept at room temperature (maximum 22 C.; minimum 13 C.) none became infected. Of twelve females of *A. plumbeus* fed once on a case of malignant tertian malaria (*P. falciparum*), and subsequently kept at 28 C., none lived longer than eight days after the infected feed; one contained oocysts in the midgut.

British Medical Journal, London

Dec. 4, 1920, **2**, No. 3127

Psychopathology and Dissociation. W. Brown, London.—p. 847.
*Subacute Infective Endocarditis. T. F. Cotton, London.—p. 851.
Action of Antimony Tartrate in Intravenous Injections. J. B. Christopherson.—p. 854.
Antimony in Leprosy. F. G. Cawston.—p. 855.
Two Cases of Double Glioma Retinae. A. R. Moodie.—p. 855.
*Treatment of Ascites by Drainage. J. O'Connor.—p. 856.

Subacute Infective Endocarditis.—Fifty-five cases form the basis of Cotton's paper. The exercise tolerance was poor in all. Fever was present in all but one. It was the rule for these patients to have a toxic appearance. The appearance of these patients often suggested a greater degree of anemia than the actual blood examination revealed. The spleen was enlarged and easily palpable in forty-eight. In five no mention was made of its size; in two it could not be felt. Clubbed finger tips was one of the most striking clinical features of the disease in these patients. Petechiæ were observed in forty. Osler's nodes, small tender and painful spots of nodular erythema on the hands and feet, disappearing within a week, were observed in seven cases. Emboli obstructing larger vessels were noted in seven cases. The urine in thirty-four cases was albuminous. A bacteriologic examination of the blood was made in twenty-four cases. Micro-organisms were grown in eleven cases. Streptococci were found in eight cases; streptococci and staphylococci in one case; staphylococci alone in one case; and a gram-positive diplococcus in one case. In every instance, the diagnosis of infective endocarditis was made without the aid of the bacteriologic report. Of the fifty-five patients, forty-four are known to have died with an average duration of symptoms of fourteen months. The cause of death in twenty-six cases was gradually increasing heart failure, acute heart failure in five, the sudden onset of auricular fibrillation and death in a few hours in one. Three patients died following a hemiplegia; one patient died from pulmonary embolism and one from a streptococcus pneumonia. The pathologic changes revealed at necropsy were typical in every instance of subacute infective endocarditis.

Continuous Drainage in Ascites.—O'Conor reports two cases in which continuous drainage with a rubber catheter apparently effected a cure. One was a case of hepatic cirrhosis. Drainage ceased on the fourth day. The tube was retained until the twelfth day, but nothing more exuded. The patient still was in good condition one year later. The second case was one of cardiac hepatic block, incompetence and ascites. Drainage ceased in the sixth day.

Edinburgh Medical Journal

December, 1920, **25**, No. 6

Carcinoma of Postcricoid Region and Upper End of Esophagus. A. L. Turner.—p. 345.
Pellagra. E. J. Wood.—p. 363.
Influenza. W. D. D. Small.—p. 375.
*Age and Sex Incidence of Pernicious Anemia. J. Eason.—p. 389.

Age Incidence of Pernicious Anemia.—On investigation Eason found that Edinburgh hospitals show the largest numbers of cases of pernicious anemia occurring between the ages of 45 and 59. Until the age of 50 the rate of incidence inclines to be higher in the female than in the male. Thereafter, the rate is definitely higher in males than in females. It appears that senility is a more important etiologic factor than has hitherto been generally recognized. There appears to be an increasing liability to pernicious anemia with advancing years.

International Journal of Public Health, Geneva

November, 1920, **1**, No. 3

War and Social Prophylaxis of Tuberculosis. L. Bernard.—p. 281.
Leper Colonies and Improved Treatment in Control of Disease. L. Rogers.—p. 287.
Scurvy in World War. A. F. Hess, New York.—p. 302.
Treatment of Typhus Fever. G. C. Shattuck.—p. 308.
Antimalaria Campaign at Fiumicino (Rome), with Epidemiologic and Biologic Notes. M. Selia.—p. 316.

Japan Medical World, Tokyo

Oct. 23, 1920, **10**, No. 43

Progress of Medical Science in Brazil. A. Neiva.—p. 935.

Oct. 30, 1920, **10**, No. 44

Nature of Paralysis Due to Polished Rice Disease in Domestic Fowls. G. Kato.—p. 955.

Nov. 6, 1920, **10**, No. 45

Nature of Paralysis Due to Polished Rice Disease in Domestic Fowls. G. Kato.—p. 975.
Structure of Nucleus. O. Tamura.—p. 976.

Nov. 13, 1920, **10**, No. 46

*Structure of Nucleus. O. Tamura.—p. 995.
Calorimetric Metabolism of Japanese Sucklings. Y. Yano.—p. 995.
Clinical Experiences with Carmol B, a New Urologic Preparation. H. Wakimoto.—p. 996.

Nov. 20, 1920, **10**, No. 47

Intestinal Parasites Among Choreans: Abnormal Forms of Eggs. H. Kobayashi.—p. 1015.
Autoserum Therapy of Gynecologic Cases. N. Ishikawa.—p. 1016.

Structure of Nucleus.—Tamura disagrees with the generally adopted views on the structure of the nucleus, that the chromatin, the nucleoli, the nuclear membrane and the linin, are independent bodies having different structures. He affirms that the substance that makes up the nucleus consists of two kinds, to which he gives the name ectokarpoplasma and endokaryoplasma. The ectokaryoplasma is a basophilic protoplasmic substance found in the outer structure of the chromosome, the nuclear membrane and the intranuclear reticulum. The interior is formed by the ectokaryoplasma of the reticulum which gives facilities for the endokaryoplasma is an acidophilic substance found in the internal structure of the chromosome. It is also found in the internal structure of the reticulum and more or less agglomeration of this substance in the reticulum gives features of the granular appearance seen under the microscope.

Medical Journal of Australia, Sidney

Oct. 23, 1920, **2**, No. 17

Deafness in Children. G. E. Rennie.—p. 391.
Causes of Blindness in Children in New South Wales. J. C. Halliday. —p. 392.
Care of Blind and Deaf Children. S. Harrison.—p. 393.

Hymenolepsis mana in North Queensland. P. A. Maplestone.—p. 394.
Two Cases of Abdominal Injury. F. O. Stokes.—p. 395.
General Ankylosis Following Osteo-Arthritis. J. C. Windeyer.—p. 396.

Oct. 30, 1920, **2**, No. 18

Impressions of New Zealand from a Medical Practitioner's Standpoint. E. G. Blaxland.—p. 407.
Case of Anne Boleyn. C. MacLaurin.—p. 413.
Rupture of the Coronary Artery. H. L. Kesteven and C. A. Verco.—p. 416.
Case of Cerebrospinal Meningitis. E. True.—p. 417.

Nov. 6, 1920, **2**, No. 19

Four Years' Work in Gynecologic Wards of Sydney Hospital, 1915-1918. R. Worrall.—p. 429.
Case of Hydatid Mole. R. I. Furber.—p. 434.

Practitioner, London

December, 1920, **105**, No. 6

Medical Aspects of Carcinoma of Breast. R. Hutchison.—p. 385.
Insanity and Responsibility for Crime. W. A. Brend.—p. 390.
Recent Work on Anesthetics. J. Blomfield.—p. 402.
Beginning of Disease. O. C. Gruner.—p. 411.
*Afferent Nerve Supply of Female Genito-Urinary Organs and Bowel. W. A. Ogilvy.—p. 421.
Different Modes of Auscultation. C. W. Chapman.—p. 430.
Wassermann Reaction. C. Lundie.—p. 431.
*Diet After Gastro-Enterostomy. A. MacLennan.—p. 435.
*Intestinal Stasis: A Suggestion. J. C. Watt.—p. 437.

Nerve Supply of Female Genito-Urinary Organs.—Ogilvy is of the opinion that the tenth thoracic nerve supplies the functionating portion of the kidney, the ovary and the small bowel, all of which are highly functionating; that the eleventh thoracic nerve supplies the upper branching extremity of the ureter, the uterine tube and the ascending and transverse colons; the twelfth thoracic nerve supplies the ureter, the uterus and the descending and sigmoid colons, all of which are comparatively passive carriers, except for the absorbing function of the large bowel; that the first lumbar nerve supplies the bladder, rectum and uterus, all of which are organs of convenience; and that the third and fourth sacral nerves supply the trigone and urethra, the os and vagina, and the anal canal, all of which are outlets.

Diet After Gastro-Enterostomy.—As most of the troubles following gastro-enterostomy are due to bilious regurgitation, and this misfortune is proportionate to the amount of atony present in the stomach, MacLennan states that a diet which tends to contract the stomach is indicated. He allows champagne, brisk beer, a sparkling or sour wine, as much raw fruit as the patient likes, especially the gooseberry; condiments of all kinds; addition of vinegar to the lavage is a cure for bilious regurgitation, at any rate for the time; all edible vegetables, provided they are properly cooked or properly chewed. Smoking in moderation after food is permissible.

Cause of Intestinal Stasis.—Watt blames the cecum for constipation. Being what he terms a "dead end," it constitutes a possible seat of complete and permanent stagnation; and being placed head downward, it is required not only to empty itself but to assist in the emptying of several inches of colon, by its own unaided exertions, against the weight of its own contents, and those of the ascending colon (to a variable extent). To relieve the stasis, Watt amputates the cecum obliquely to the long axis of the ascending colon, at the lowest point at the shortest possible distance below the ileocecal valve, the uppermost point midway between the two outer longitudinal bands, thus as much as possible eliminating the culdesac. The source of toxic absorption being removed, the ileocecal valve would be able to sustain any weight of the colon contents, and to prevent regurgitation.

Archives des Maladies de l'Appareil Digestif, Paris

November, 1920, **10**, No. 11

*Etiology of Gastric Achylia. K. Faber (Copenhagen).—p. 641.
Radiodiagnosis of Gallstones. Therre.—p. 654.
*Dyspeptic Coma with Gastric Ulcer. L. Timbal.—p. 664.
*Hemorrhagic Nonulcerative Rectocolitis. A. S. Alivisatos.—p. 671.
Severe Intoxication from Bismuth Carbonate Contrast Meal. V. Danulescu and D. Simici.—p. 684.

Etiology of Gastric Achylia.—Faber here amplifies his views which were summarized in these columns, July 3, 1920, p. 72. He thinks that there are so many possible exogenous causes for achylia that it is not necessary to assume a congenital constitutional anomaly. Toxic action from any infection, especially intestinal, is liable to damage the stomach as it damages other glandular organs. It may act directly or indirectly on the secreting apparatus of the stomach, and sooner or later may entail irreparable injury. He attributes to toxic action likewise the chronic achylia found in 50 per cent. of cases of exophthalmic goiter and of polyarthritis. The achylia in these two groups may not present symptoms at any time during the course of the disease, thus resembling in every respect the cases generally considered idiopathic or constitutional.

Fatal Coma of Dyspeptic Origin.—In Timbal's two cases the chronic ulcer in the stomach had induced intense pains, frequent vomiting and profound inanition from the almost complete intolerance of the stomach. The cerebral symptoms were drowsiness in one, gradually passing into the fatal coma; in the other case impairment of vision and delirium ushered in the coma, with death the second day. The patients were men of 50 and the ulcer symptoms were of several years' standing. The pylorus was permeable in the second case, but glycosuria testified to insufficiency of the liver. Dyspeptic coma can be combated with large doses of sodium bicarbonate by various routes, but it is almost inevitably fatal.

Hemorrhagic Rectocolitis.—Alivisatos describes a case of mild nonulcerative rectocolitis, a recurring case, and a third case with a cancer graft. The diarrhea and the hemorrhage were arrested in the first two by injection of bismuth subgallate and dieting, but the third proved rebellious until the bowel was flushed from above by appendicostomy. This nonulcerative type is often tenacious but under the above measures kept up possibly for months, a cure is usually realized.

Bulletin de l'Académie de Médecine, Paris

Oct. 19, 1920, **84**, No. 32

Infant Welfare Work in Small Town. Vidal.—p. 143.
Improved Technic for Preparing Antiserums. J. W. Howard (Buenos Aires).—p. 147.
Lethargic Encephalitis Sequels. Rémond and Lannelongue.—p. 149.
Tuberculous Myocarditis. E. Lenoble.—p. 151.

Nov. 16, 1920, **84**, No. 36

*The Soil in Infectious Encephalitis. J. Lépine.—p. 225.
*Secondary Malignant Tumors in Bones. P. Delbet.—p. 231.
*Children's Seashore Sanatorium. E. Ausset.—p. 233.

The Soil in Infectious Encephalitis.—Lépine explains why lethargic encephalitis is not more actively contagious, ascribing this to a lack of receptivity on the part of the nervous system in the contacts. In all his fifty cases he could distinguish a predisposing factor almost without exception, excessive physical or emotional strain, a constitutional nervous or mental taint, a tendency to migraine, or the onset or conclusion of the genital phase of women's life. Netter in the discussion stated that persons in the environment may and probably do develop the infection, but in a mild, abortive form, sparing the brain, so that it is not recognized. Only when the nervous system is substandard, permanently or temporarily, does the disease manifest itself as encephalitis. He has also noted the peculiar gravity of the disease in the pregnant.

Secondary Tumors of Bones.—Delbet refers to tumors in bones which seem to be primary but which in fact are metastases that have found a more favorable soil for their development than the primary tumor had encountered, and hence the secondary tumor far outshadows the primary growth. He has observed a number of cases of this kind, the sarcoma in the long bone causing fracture as almost the first sign of its presence. He regards a sarcoma with spontaneous early fractures as suspicious of a primary localization elsewhere, and he searches scrupulously for this before attempting any mutilating operation.

Child Welfare Work in France.—Ausset describes the fine results realized at the Zuydcoote sanatorium on the sea, near the Belgian line, where almost 1,700 children have regained health and strength since the war, "thanks," he adds, "to our friends, the Americans, who have made it possible for so many children to have their tottering health restored and who have covered the liberated regions with infant welfare stations."

Bulletin Médical, Paris

Nov. 13, 1920, **34**, No. 53

*Tuberculosis in Older Children. P. Armand-Delille.—p. 999.
*Spurious Tuberculosis of Psychopathic Origin. M. de Fleury.—p. 1003.

Tuberculosis in Older Children.—Armand-Delille concludes this postgraduate lecture with the statement that our efforts in prophylaxis should be devoted to protecting children against repeated exposures to large numbers of tubercle bacilli. Among the other signs discussed, he says of augmented transmission of the whispering voice in the interscapulovertebral zone—d'Espine's sign—that he has found it valuable in corroboration of other signs. Treatment of tuberculosis in children must be almost exclusively physiotherapy, but it may give very fine results if it takes advantage of the natural resisting forces of the organism, and stimulates the defensive reactions. He mentions among others a case of tuberculous peritonitis cured by heliotherapy in the heart of Paris in a court surrounded by five-story buildings.

Spurious Tuberculosis.—Summarized Dec. 25, 1920, p. 1806, when published elsewhere.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 29, 1920, **44**, No. 32

*Treatment of Acute Purulent Pleurisy. M. Renaud.—p. 1251. Cont'd.
Decalcification in Neurasthenia. H. Dufour.—p. 1261.
*Early Joint Lesions in Gonococcus Rheumatism. Id.—p. 1262.
Trophedema with Sacrum Bifidum. A. Léri.—p. 1263.
*Unilateral Hypertrophy of Skull Bones. A. Léri.—p. 1266.
*Vaccine Treatment of Serous Meningitis. Delahet.—p. 1272.
Autochthonous Pernicious Malaria. P. E. Weil and Plichet.—p. 1276.
Prognosis of Epidemic Encephalitis. R. Cruchet et al.—p. 1279.

Treatment of Acute Purulent Pleurisy.—Renaud deplores the mistake so frequently made in treating acute purulent pleurisy without regard for the fact that it is always the reaction of the pleura to some lesion in the lung. The nature and the distribution of this pulmonary lesion are what determines the pleurisy. The disease is not in the pleura but in the lung. He cites some instances to show that pleurotomy is not only useless but that it may do direct harm in these cases. The prognosis depends on the process in the lung. He has never encountered a case of an acute pleuropulmonary process becoming chronic.

Gonococcus Rheumatism.—Dufour recalls the tenacious localization of the rheumatism in the same joint; the arthritis with true rheumatism shifts about. The pain with the former is also more intense and it is spontaneous, persisting even in repose. Certain points in the joint are tender on palpation. The roentgen ray shows further pronounced decalcification in a few weeks of the joints thus affected.

Hemicraniosis.—Léri applies this term to the congenital deformity from hyperostosis limited to one half the skull. The territory of the trigeminal nerve is the region affected, and in the few cases of the kind on record an intracranial tumor developed in time, an angiolithic sarcoma of the dura. Léri reports another case which seems to belong to this category as the vision of the boy of 10 is imperfect on the side of the hyperostosis, and the movements of the eye are abnormal. In this group of cases the tumor did not manifest itself till in the twenties, so he discusses whether there is a probability of a tumor developing later in this boy. In Spiller's and Parhon's cases the deformity was not congenital, and the tumor was not always on that side.

Anaphylactic Meningitis.—Delahet's case confirms that in addition to the urticaria, arthritis, arthralgia and myalgia sometimes observed as manifestations of anaphylaxis, an anaphylactic meningitis is also possible, from overlong antimeningococcus serum treatment. It may develop immediately after the injection or not until several days later; in the latter case it is usually mistaken for a relapse of the primary meningitis. This antiserum meningitis may keep up, with intermissions, for some time. The puriform aseptic nature of the spinal fluid should suggest it, but only chemical analysis of the fluid is decisive; this discloses that the sugar content is normal or above, sometimes enormously high, in contrast to the subnormal sugar content with active meningococcus meningitis. Effectual treatment requires the neutralizing of the precipitin which is formed in every spinal fluid after several intraspinal injections of antimeningococcus serum. When more of the antiserum is injected, a flaky precipitate is thrown down, extremely irritating for the nerve centers. Desensitization can be realized by subcutaneous injection of a mixture of the patient's spinal fluid and horse serum, supplemented by intraspinal injection of the patient's own blood serum as a kind of vaccine. This accomplished the purpose in the case described. The seric meningitis which had kept up for two months, without any signs of spontaneous decline, became attenuated at once after the intraspinal injection of the patient's own blood serum. The case teaches further that with persisting meningitis which does not seem to be due to partitioning off of the infectious process, no further intraspinal injections of the antimeningococcus serum should be made without testing the sugar content of the spinal fluid. If this is above or below normal, we will know whether there is merely irritation or persisting infection.

Encéphale, Paris

September, 1920, **15**, No. 9

Contracture from Peripheral Facial Paralysis. D. Noica.—p. 521.
*Acute Mental Confusion in Pneumococcus Infection. H. Damaye.—p. 529.

October, 1920, **15**, No. 10

Atrophy of Muscles in General Paresis. Briand and de Fursac.—p. 553.
Hereditary Cerebellar Ataxia; Two Cases. Benon and Lerat.—p. 563.

Infectious Mental Confusion.—Damaye reports four cases which demonstrate that certain cases of acute delirium with hallucinations are the result of a septicemia acting on an organism debilitated by alcoholism, exhaustion, extreme debility or sitophobia. Saprophytes may assume virulence on account of the depressed vitality or fatty or amyloid degeneration of viscera. Treated energetically and in time, this infectious delirium may be cured, but otherwise the heart breaks down under the strain. Necropsy then shows the lesions common with acute psychoses. In two of his four cases the women soon died. The course and the lesions were alike in both, and they were in the hospital the same week. The two other patients were men, both addicted to liquor, and both recovered. The pneumococcus was cultivated from the blood in all the cases.

Gynécologie et Obstétrique, Paris

1920, **2**, No. 2

*Spontaneous Delivery After Cesarean Section. A. Grosse.—p. 81.
*The Very Small Newborn. E. Hauch and Erna Ruge.—p. 84.
*Chancre of Cervix of Gravid Uterus. P. Lantuéjoul.—p. 110.
*Operation for Inversion of Uterus. R. Zaletel.—p. 120.

Spontaneous Deliveries After Cesarean Section.—The section was done in Grosse's case on account of an ovarian cyst impeding delivery, thirty hours after the first signs of labor. The woman passed through three normal deliveries at term with large children thereafter, without mishap, although some of the linen threads used for the interrupted sutures of the uterus wall (exclusive of the mucosa) had been expelled several months afterward.

The Exceptionally Small Newly Born.—Hauch and Ruge state that in a recent nine year period, 3.8 per cent. of the infants born in the Copenhagen maternity weighed less than 2.050 gm.; only 50.3 per cent. of them survived the first twenty-four hours. These small children are liable to be chilly, so that it is better to defer washing until they are a few days old. Twins and the infants of mothers with nephritis were the smallest, and they seemed to be born starved, as they increased rapidly in weight with proper nourishment. Only fifty-nine of the 262 surviving were traced later; forty-two of them had rachitis, but later they developed normally, and the thirty-five personally reexamined seemed to be normal in mind and body except that two were unusually small and one was an idiot. In the service, 14 per cent. of these exceptionally small children died and 24 per cent. died within the first year, but the proportion of survivors has been higher since the incubation chamber has been fitted up instead of the single incubators formerly in use. They add that there should be a special service for prematurely born infants who are not sick but only a little feebler than normal.

Chancre of Cervix Impeding Delivery.—In Lantuéjoul's case the chancre had persisted for five months, and labor began at the eighth month of the pregnancy, just after the woman had been seen for the first time. After twenty hours of ineffectual labor, the child was delivered by vaginal cesarean section as there was no time to wait for medical treatment of the chancre. He cites six similar cases, all confirming the necessity for acting promptly to deliver the woman as there is scarcely any chance of the cervix dilating enough for delivery. The lesion on the cervix may be mistaken for ordinary ulceration, soft chancre or incipient epithelioma, so that excision of a scrap is often advisable for examination. Other syphilitic lesions elsewhere may give the clue. Secondary syphilitic sclerosis of the cervix presents the same indications as the chancre. He adds that vaginal cesarean section allows the greater chance for saving the uterus, which is justified the more as the dystocia is essentially transient, the cause of it subsiding under medical measures. Abdominal hysterectomy is advised at once if the woman has been long in travail and serious infection is suspected. The syphilitic lesions of the cervix healed readily under specific treatment when the pregnancy was terminated.

Operative Treatment of Inversion of the Uterus.—Zaletel makes a crescent-shaped incision in the roof of the anterior vagina, opens the uterovesical reflection of the peritoneum, and, putting the left forefinger in the funnel formed by the inverted uterus, he incises the anterior wall of the uterus on the median line. With the right hand the uterus is then reduced and the fundus is drawn forward, ligating and dividing the tubes, and interposing the body of the uterus between the bladder and the roof of the anterior vagina. He says that this technic is applicable only after failure of conservative measures. It avoids danger of adhesions to the rectum; the uterus is usually injured so much by the inversion that such adhesions are almost inevitable. It also prevents cystocele and prolapse later, while the technic is simple and easy.

Journal de Médecine de Bordeaux

Nov. 25, 1920, **91**, No. 22

*The Oculocardiac Reflex in Surgery. J. Guyot and G. Jeanneney.—p. 591.
Milian's Method of Treating Scabies. G. Petges.—p. 593.
*Meningeal Hemorrhage in Uremia. A. Chabé.—p. 596.
The Factors in Panic. Le Meillour.—p. 598.
Medical Aid in War Devastated Regions. Hamilton.—p. 605.
Reform in University Instruction. R. Cruchet.—p. 608.

The Oculocardiac Reflex from Surgical Standpoint.—Guyot and Jeanneney warn that the test for the oculocardiac reflex must be applied with caution, as it may be dangerous under certain exceptional circumstances. But when due caution is observed, it may be found of great assistance in estimating the condition before an operation. When this reflex is normal, the operator can proceed with confidence, but inversion of the normal response testifies to an upset of the balance between the sympathetic and the vagus, the influence of the former predominating. This is a condition found in certain forms of shock. When the reflex is abolished, this is a sign of insufficiency of centers in the medulla, etc., and imposes the need for extreme caution in the intervention. They reiterate that the surgeon should test for this reflex when he has reason to suspect vagotonia. Chloroform should be proscribed with vagotonia; even with ether, the vagotonia should be combated by injection of atropin twenty minutes before the anesthesia. This blocks the pneumogastric and thus wards off the syncope from inhibition which menaces with vagotonia. It has the further advantage of reducing secretion of mucus. They commend a mixture of 0.5 mg. atropin sulphate with 1 cg. morphin in 1 c.c. of distilled water. Other uses for the oculocardiac reflex are to facilitate examination of the heart by the bradycardia it induces, in study of the thyroid, and of organs in the thorax and abdomen, etc.

Meningeal Hemorrhage in Uremia. — Chabé insists that meningeal hemorrhages in the course of uremia are more common than realized, the symptoms from them being ascribed to uremic poisoning of the nerve centers. Lumbar puncture is the only clue, as he shows by a typical example reported in a man of 53 with chronic nephritis without edema. The sudden and alarming meningeal symptoms kept up for three days before lumbar puncture revealed almost pure blood in the spinal fluid; 15 c.c. were withdrawn, the patient having evidently had a subarachnoid hemorrhage just as he had had a severe epistaxis two weeks before. Three days later 20 c.c. of the still hemorrhagic spinal fluid were withdrawn and recovery rapidly progressed. Chabé reiterates that meningeal hemorrhage is by no means always fatal; and many conditions of coma and excitability in uremia may have been due to this cause, usually curable if taken in time.

Journal d'Urologie, Paris

August, 1920, **10**, No. 2

*Calculus Impacted in Ureter. André.—p. 89.
*Mobilization of Lower Bladder. L. Thévenot.—p. 99.
*Capillary Puncture of Bladder. R. de Berne-Lagarde and Ramos.—p. 107.
*Cystalgic Pyelitis. F. Pirondini.—p. 113.
Multiple Gunshot Wounds of Pelvis. M. Ferron.—p. 117.
Nephrectomy for Hydronephrotic Wandering Kidney. Z. do Amaral (Brazil).—p. 129.
*External Urethrotomy for Calculi in Children. Diamantis.—p. 133.

Calculi in the Ureter. — André's eight cases demonstrate anew that a calculus lodged in the ureter can often be brought out by introduction of a catheter into the ureter, even without injection of glycerin or other fluid. It may be necessary to leave the catheter in the ureter for a day or two, or reintroduce it several times, but final success invariably crowned his efforts. When the catheter reached the pelvis, he usually rinsed it out with a little weak silver nitrate solution which besides its antiseptic action stimulated the ureter to contract. With reflex anuria from calculi, the retention catheter in the kidney improves conditions for the operation if necessary. If the catheter is arrested by the calculus, the attempt should be repeated at different times if haste is not imperative. There is frequently more than one calculus, and any operation is liable to be incomplete. Recurrence is frequent with reflex anuria from calculi. In two women, with the impacted calculus small and low in the ureter, he succeeded in dislodging it by introducing into the ureter mouth a small laminaria tent, leaving it for twenty-four hours. Almost at once after removal of the tent, the calculus was spontaneously expelled.

Mobilization of the Lower Bladder.—Thévenot expatiates on the advantages of detaching all around the middle perineal aponeurosis to obtain access to the urethra and lower portion of the bladder. This permits their mobilization, and the surgeon does not have to work on them at the bottom of a deep well. The whole prostate-bladder region can thus be exteriorized as he illustrates, discussing the conditions for which it is specially applicable. The great progress realized by this *désinsertion ischio-pubienne totale de l'aponévrose périnéale moyenne,* as Rochet first published it (1916), was most evident, Thévenot remarks, in two cases of cancer of the prostate, one as large as a small orange. The stump of the bladder was sutured to the stump of the urethra with the greatest ease. The method gave constant satisfaction in war wounds of the region.

Dangers of Puncture of the Bladder.—Lagarde and Ramos mention that Albarran and Legueu have never punctured the bladder in their extensive experience, regarding it as dangerous and futile. But they have frequently had to treat complications of capillary puncture done elsewhere. A few cases of this kind are described, showing the almost inevitable diffusion of urine in the preperitoneal cavity. When it is absolutely impossible to evacuate the bladder by the natural route, an emergency cystotomy is indicated. This merely palliative intervention should be followed sooner or later with a second operation.

Cystalgic Pyelitis.—Pirondini has encountered three cases of an intense, painful and rebellious polyuria, all in women, with no objective findings except pain on pressure of the hypogastrium or anterior wall of the vagina. The cystoscope discloses nothing to explain the cystalgia, but catheterization of the ureters reveals the pyelitis responsible for the cystalgia. The condition might be called spurious tuberculous pyelitis or masked pyelitis, as the pyelitis does not manifest its presence in the usual direct way.

Calculus in Boy's Urethra.—Diamantis writes that urinary lithiasis in young children is frequent in Egypt, and serious and permanent damage is often wrought by ill considered attempts to extract the calculus by the natural route. All that is necessary is a rapid axial incision down to the calculus, held between thumb and finger, and its extraction with scoop or forceps. No anesthesia is necessary, no suture, no ligature, but a flat dressing with a good suspensory. The urine escapes through the incision for five or six days but then normal micturition is reestablished and the result is perfect. The linear scar, parallel to the raphe, is almost invisible, and never induces a stricture.

Médecine, París

November, 1920, **2**, No. 2. Dermatology-Syphilography Number

*Skin Diseases and Syphilis in 1920. H. Gougerot.—p. 85.
*How to Cure the Syphilitic. L. Queyrat and M. Pinard.—p. 101.
*Inherited Syphilis and Dentition. R. Sabouraud.—p. 105.
*Syphilis of the Nervous System. J. A. Sicard.—p. 111.
*Jaundice and Arsphenamin. G. Milian.—p. 113.
*Arsphenamin Erythrodermia. L. Brin.—p. 117.
*Pathogenesis of Neurorecurrence, etc. H. Gougerot.—p. 119.
*Elimination of Arsphenamins. M. Pomaret.—p. 123.
*Early Diagnosis of Syphilis. L. Spillmann.—p. 126.
*Abortion of Syphilis. Lévy-Bing and Gerbay.—p. 130.
*Treatment During Incubation of Syphilis. A. Tzanck.—p. 132.
"Epidemics" of Toxic Action from Arsenicals. A. Lévy-Franckel.—p. 135.
*Neo-Arsphenamin by the Vein for Syphilitic Infants. G. Blechmann.—p. 137.
Technics for Bordet-Wassermann Reaction. A. D. Ronchèse.—p. 141.
Bordet-Wassermann Reaction in Spinal Fluid. M. Bloch.—p. 143.
Cold in Treatment of Erythematous Lupus. M. Vignat.—p. 147.

Dermatology and Syphilis in 1920.—In the course of this long review Gougerot remarks that there seems to be increasing agreement as to the wisdom of large progressive doses in primary syphilis. Milian gives from 0.3 to 0.9 gm. or even 1.2 of neo-arsphenamin in the primary phase. Leredde in the second and third phases begins with small doses, 0.1, increasing to 0.9. With syphilitic disease in the nervous system, kidneys or aorta, the doses recommended are between 0.1 and 0.3. The advantage of associating mercury with the arsenicals is admitted more and more. "The arsenical attacks, but the mercury brings up the reenforcements to hold what has been gained." As to mishaps with the arsphenamins, Gougerot thinks that damage of the organ by the drug and damage by the syphilis both cooperate. Abadie declares that in rebellious cases treatment should be kept up with mercuric cyanid by the vein every second day, from 0.01 to 0.02 gm., for one, two or three years if necessary, and reports success beyond all hopes in certain cases by this means. Gougerot presents the arguments for and against there being more than one type of spirochete, inclining to the negative view himself. He mentions parenthetically a special calendar he gives to his syphilitic patients.

Technic for Treating Syphilis.—Queyrat and Pinard laud the method of attacking syphilis at its beginning by striking hard, in six day doses, beginning with 0.15 gm. of arsphenamin and reaching 0.6 by the eighth injection.

The Teeth in Inherited Syphilis. — Sabouraud cautions against overlooking malformations of the teeth as they may seem normal on casual inspection unless they are counted, and the jaw examined. These signs of the inherited taint are particularly instructive as they are permanent.

Treatment of Neurosyphilis.—Sicard reiterates the great value of small, repeated doses of neo-arsphenamin and iodid, kept up every day or second day by both the subcutaneous and the intravenous route. The family can be trained to do this. Five of his patients with typical general paresis have resumed their place in the family if not in business, and the improvement has persisted for three years. Three times a year each is given a course of small repeated doses to a total of from 7 to 10 gm. Some have taken up to 70 gm. of neo-arsphenamin during the three years. His opinion of intraspinal injection is that it is deluding, and does not deserve the praise given it in America and in Spain, while experience has convinced him of its dangers.

Jaundice and the Arsenicals.—Milian says that he at first believed the jaundice was the work of the arsenicals but three years of study have convinced him of his error, and he now declares that the syphilis itself is responsible for it, as also for the ocular, facial or other paralysis sometimes noted. These phenomena are observed only by those giving too timid doses; thirty such cases have been sent him in the last eighteen months, and in every instance the dosage had been too weak or the technic defective. All were treated vigorously with the arsenicals and the cure was soon complete; if the drug were responsible, it would be an unheard of thing to cure a manifestation of poison by giving more of the poison.

Arsphenamin Erythrodermia. — Brin mentions that the extensive and desquamating erythrodermia appeared after from seven to twenty injections of neo-arsphenamin. In such cases there had usually been up to 5 or 10 gm. injected during the current course of treatment. The drug should be stopped at once, nothing but milk allowed for a few days, and then a milk-vegetable diet, rinsing out the intestines thoroughly with boiled water. All active local treatment should be avoided.

Pathogenesis of Neurorecurrence.—Gougerot explains the neurorecurrences and the symptoms developing in viscera, after arsenical treatment, as a combination of toxic manifestations and flaring up of the syphilis. The syphilis has become modified by the treatment until it is tertiarized, the lesions assuming the destructive character of the spontaneous tertiary phase. If the toxic element predominates, further arsenical treatment can do only harm, but if the visceral lesions outshadow them, then further arsenical treatment will usually cure.

Elimination of the Arsenicals.—Pomaret's research has confirmed that more of the arsphenamin is eliminated by the intestines than by the kidney after intravenous injection. The bile from a dog with a bile fistula showed constantly more than 1 cg. in 5 c.c. of bile, while 15 c.c. of the urine contained only fractions of a milligram. As the amount of bile secreted in the twenty-four hours is about equal to that of the urine, the importance of this mode of elimination is obvious. Similar experiments on a rabbit gave analogous findings. Jeanselme has published a case in which 1 cg. of arsenic was found in the vomit from five to eight hours after injection of 0.6 gm. of arsphenamin. We know also that the hair, the skin, etc., retain arsenic in considerable amounts. Elimination seems to be slower after intramuscular injection. Simultaneous mercurial treatment retards elimination somewhat.

The Pharmacist and Syphilis.—Spillmann extols the important aid which the pharmacist can render in the organized fight against syphilis by warning the customer to seek a proper diagnosis at once. He cites the resolution recently adopted by the Nancy Medical Society urging pharmacists consulted by persons with genital lesions to impress on them the extreme urgency of their being examined by a physician before selling them remedies which may waste precious time.

Conditions for Abortive Treatment of Syphilis.—Lévy-Bing and Gerbay discovered that the Bordet-Wassermann reaction appeared always after a certain interval from the hour of contagion. If abortive treatment is pushed before this date it has every prospect for success, but after this date, treatment may retard the appearance of the positive reaction but does not prevent its becoming positive sooner or later. This interval is thirty-seven days long, counting from the hour of infection. Then comes a period of eight days during which the outcome is dubious, but after the forty-fifth day no treatment will ward off a positive reaction. Hence, they conclude, abortive treatment cannot be counted on to be effectual after the thirty-seventh day.

Syphilis Should Be Treated During the Incubation.—Tzanck insists that the spirochete should be the call to arms; we must not wait for a positive Wassermann reaction.

The Syphilitic Newly Born. — Blechmann points to the mounting tide of infants with inherited syphilis, and the greater recognition of the ever widening sphere of its evil influence. We must attack it at once and strike hard, profiting by the efficacy of the arsenicals in addition to mercury. He begins with less than a centigram per kilogram, increasing to 0.015 or 0.02 gm. every sixth or seventh day, by the vein, in series of from five to ten injections, with suspensions for a month or two.

Paris Médical, Paris

Nov. 20, 1920, **10**, No. 47

*Acute Poisoning from Nitrous Fumes. F. Jacoulet.—p. 369.
*Fulminating Deafness in Inherited Syphilis. G. Portmann.—p. 374.
Case of Trophic Disturbance in Hysteria. E. Macris.—p. 378.
Intentional Tremor from Picric Poisoning. E. Charpin.—p. 379.

Nov. 27, 1920, **10**, No. 48

General Conception of Lichen Planus. G. Thibierge.—p. 385.
Grouping of Atoms in Epinephrin. M. Tiffeneau.—p. 390.
Kineplastic Operations on Amputation Stumps. C. Roederer.—p. 394.

Acute Industrial Nitrous Poisoning.—The plumber had been repairing a ventilator opening into the "lead rooms" of a chemical fertilizer factory, and was exposed to the nitrous fumes for several minutes. He felt a general malaise during the afternoon, and at night developed a distressing spasmodic cough. By the next morning the dyspnea was extreme, all the symptoms suggesting suffocating capillary bronchitis. Wet cups were applied and spartein and camphorated oil injected without relief. Venesection improved conditions a little but the condition grew progressively worse, with subcoma, progressive asphyxia and asystoly, the condition desperate by the thirty-sixth hour. Then subcutaneous injection of oxygen through a serum needle induced slight progressive improvement. In forty-eight hours more than 80 liters of oxygen were thus injected, forming an emphysema over the entire body to the base of the chest, and the man rapidly recovered. In Pic and Durand's case the man was in complete coma but recovered after subcutaneous injection of 180 liters of oxygen the first day, to a total of 230 liters in forty-eight hours. The diffusion and absorption of the oxygen are promoted by light massage; the absorption proceeds the more rapidly the more avid the tissues for oxygen. Jacoulet knows of only four attempts to inject oxygen by the vein, and urges that for the present it is better to keep to the subcutaneous route. This has proved its harmlessness, and these cases demonstrate its efficacy.

Fulminating Deafness in Inherited Syphilis. — Portmann analyzes the mechanism of the vascular lesion presumably responsible for the sudden deafness, blocking the conduction of the auditory impulse.

Presse Médicale, Paris

Nov. 20, 1920, **28**, No. 85

*Devices to Correct Incontinence. L. Ombrédanne.—p. 833.
*Blood Germ Carriers. E. Escomel (Lima).—p. 835.
*Serodiagnosis of Syphilis. P. L. Marie.—p. 836.

Correction of Urinary Incontinence.—Ombrédanne's method consists in the wearing of a light metal brace to compress the meatus and thus insure continence. Unscrewing the brace opens the meatus and allows practically normal micturition. In order to insure the correct functioning of the metal brace it has to be fastened solidly to the skin, and for this he utilized a horizontal, kineplastic skin-lined tunnel through the aponeurosis of the rectus muscles, well above the pubis, with a corresponding parallel tunnel just below the base of the penis. The tunnel found most convenient and durable was made with a flap of skin cut beyond one side of the site of the proposed tunnel. This flap was sutured to make a tube close up to its pedunculated end, adjacent to the site of the tunnel. Then it was turned back over on itself and drawn through the tunnel for which it provided a lining tube its entire length. The folding over does not seem to impair its vitality. He gives an illustrated description of the successful outcome in a boy with incontinence after correction of epispadias and a girl with incontinence entailed by spina bifida. The girl's brace fits into a single perpendicular tunnel, and closes the meatus with a pad. The whole is removed at night. Ombrédanne thinks that this combination of tunnels and mechanical devices may prove useful to close incontinent gastrostomies, artificial anus, etc.

To Detect Carriers of Micro-Organisms in the Blood.—Escomel's warning in regard to possible latent parasitism of the blood was recently cited in these columns, Dec. 4, 1920, p. 1601. He here describes a simple method for detection of this hemoparasitism, as he calls it. He mixes with the blood a 1 per cent. solution of acetic acid to destroy the erythrocytes; centrifuges, and then applies the usual stains to the sediment. When the erythrolysis is not complete with 10 or 15 c.c. of the solution, he mixes the sediment with another 15 c.c. The parasites and leukocytes are collected into very small compass, and by this simple means examination repeated every day under identical conditions allows two curves to be charted, one of the parasites and one of the leukocytes, which permit deep insight into the course of the disease. It should always, he declares, be an indispensable preliminary to a major operation as much as examination of the urine for sugar.

Serodiagnosis of Syphilis. — Marie passes in review the various methods for serodiagnosis of syphilis proposed in recent years, adding that Vernes' researches have demonstrated the general nature of the phenomenon of the flaking of suspensions of colloids under the influence of serums, syphilitic or not. But syphilitic serum induces it a little faster than normal serum. It is merely a question of degree in a general physical-chemical phenomenon. This flaking is not pronounced enough to be visible, but it becomes visible indirectly by the inhibition of hemolysis which it entails. Vernes' latest reaction is based on the superflaking properties of syphilitic serums as estimated with a standard opalescence scale. Marie remarks in conclusion that it is scarcely probable that syphilis is the only disease that induces physical-chemical changes in the serum, and evidence is accumulating that the serum in tuberculosis and cancer may have a special action on suspensions of colloids.

Nov. 24, 1920, **28**, No. 86

Heart Sounds in Partial Heart Block. Laubry and Esmein.—p. 845.
Results of War Fractures. Rottenstein and Courboules.—p. 846.

Nov. 27, 1920, **28**, No. 87

Inaugural Lecture on Obstetrics. Brindeau.—p. 853.
*Continent Gastrostomy. C. Souligoux and R. Bloch.—p. 857.
*Treatment of Poisoning. L. Cheinisse.—p. 858.

Dec. 1, 1920, **28**, No. 88

Clinical Importance of Electrocardiography. H. Vaquez and E. Donzelot.—p. 865.
Improbability of Contusion of Hip Joint. A. Basset.—p. 867.

A Continent Gastrostomy.—Souligoux and Bloch assert that the technic of which they give an illustrated description insures an absolutely continent opening. The patient can cough and strain with his stomach full and yet not a drop escapes. In the cadaver, the stomach can be distended to bursting and yet the fistula will not leak when made by this method of torsion plus invagination. The stomach wall is lifted up, about 5 cm. high, with three forceps, and the tip of the cone thus formed is twisted exactly one quarter around, the forceps bunched vertically. The walls of the cone thus fall into two or three spiral folds, and these folds are held in place with a few interrupted silk sutures not reaching to the mucosa. A suture thread is then passed entirely through the wall of the cone at the opening in the tip, and this thread is then passed through the serosa and muscle of the wall of the cone at its base. Four such interrupted stitches are taken around the edge of the opening in the tip of the former cone, each including a hold at the base of the cone, and each is drawn up and tied. The whole intermediate part of the wall thus loops down inside, and this loose invaginated crown of wall tissue forms a most efficient valve to prevent egress of the contents of the stomach while not impeding in the least the entrance into the stomach.

Treatment of Poisoning.—Cheinisse comments on the progress realized recently in the treatment of poisoning. The old habit of giving an emetic has been abandoned for lavage of the stomach which may prove useful even after six to twelve hours, with certain poisons. As some poisons are liable to stick to the wall of the stomach, the rinsing process must be thorough, using from ½ to ¾ liter of water each time, and repeating till the stomach has thus been flushed with about 20 liters. This should be followed with animal charcoal to insure the absorption of the poison left in the body. This takes the place of the old antidotes, although there is nothing to hinder any of the usual antidotes being added to the water for the rinsing procedure. Adler published at Prag in 1912 7 cases of phosphorus poisoning, 3 of morphin and others of poisoning with mercuric chlorid, arsenic, absinthe, etc., a total of 30 cases in 22 of which the outcome would most certainly have been fatal without this absorbent action. Klemperer advocates in every case of poisoning of not more than two hours' duration to begin with the lavage and then introduce into the stomach two tablespoons of finely pulverized animal charcoal, combined with 30 gm. of magnesium sulphate. If too late for the lavage, he gives this mixture at once in ½ liter of water by ingestion or through a tube. Klemperer advises to give a saline purge at the same time, but Cheinisse recalls Lubenetzky's statements that castor oil is a better purge under these conditions, as the accumulation of fluid in the bowel is liable to prove injurious. Be this as it may, Klemperer up to October, 1920, had a record of 25 grave cases of poisoning with mercuric chlorid, arsenic, lysol, phosphorus and cyanid of potassium, without a single fatality, under this treatment. The heart should be supervised, but the charcoal is the only antidote to rely on. In conclusion Cheinisse reiterates that the charcoal is liable to prove as effectual against autogenous toxins as against the exogenous, especially in enteritis, diarrhea, etc.; from 20 to 30 gm. of the charcoal may ward off serious injury. Cheinisse adds that the above does not refer to corroding acids or alkalis; these of course require neutralizing with magnesia or with dilute acetic or citric acid.

Revue Médicale de la Suisse Romande, Geneva

October, 1920, **40**, No. 10

Acute Epidemic Encephalitis. E. Bauer and J. Mayor.—p. 645.
*Roentgen-Ray Treatment of Epilepsy. E. Kummer.—p. 662.
Transfusion of Blood. H. Curchod.—p. 666.
*Splenopneumonia. R. Reymond.—p. 675.
Retroperitoneal Tumors. H. Vulliet.—p. 682.
*Fulminating Streptococcus Purpura. Reh.—p. 690.
Cancer of Stomach Invading Abdominal Wall; Gastrectomy and Recovery. C. Perrier.—p. 694.

Radiotherapy in Epilepsy.—Kummer cites data from the records which show that the action of the roentgen rays in epilepsy is neither regular nor constant, benefit in some cases being balanced by negative or frankly bad results in others. He reports a personal case of traumatic epilepsy in a man inclined to abuse of alcohol. The extremely severe seizures had returned about once in two weeks for nine months when Kummer applied radiotherapy, a total of 90 X roentgen units in two series during two months. There were no seizures during the following nine months. Then three new seizures occurred, and another series of roentgen exposures was given to a total of 40 X units. There has been no recurrence since then during the three months to date of writing. After each exposure the man fell into a deep sleep for ten minutes, but then roused and felt well. Bromid is given regularly daily.

Splenopneumonia. — Reymond concludes from a case described and compared with what others have written, that Grancher's disease is merely a purulent pleurisy in which the pus has become encysted deep in the tissues. Study of an interlobar pleurisy accessible to puncture shows the analogy. The punctures should be repeated at different levels of the interlobe, and especially before defervescence.

Fulminating Purpura. — Reh recently reported a case of fulminating streptococcus purpura in a newborn infant, fatal at the sixtieth hour. He here reports a similar case in a girl of 6, with death in twelve hours. The child had recovered three weeks before from a mild attack of enteritis.

Schweizerische medizinische Wochenschrift, Basel

Oct. 28, 1920, **50**, No. 44

Care of the Prematurely Born. O. Hürzeler.—p. 985.
Cholesteatoma with Tuberculous Otitis Media. E. Oppikofer.—p. 993.
Biochemical Treatment of Pulmonary Tuberculosis. E. Zueblin (Cincinnati).—p. 994.
Device for Recording Movements of Isolated Frog Heart. C. Amsler.—p. 997.
Focal Injections of Silver Preparation. H. Koller.—p. 998.

Annali d'Igiene, Rome

May, 1920, **30**, No. 5

Use of Ultraviolet Rays in Making Vaccines. R. Lanzillotta.—p. 245.
Combination of Mineral Salts with Organic Colloids in Certain Vegetables. A. Scala.—p. 251.
Cultivation of Anaerobes. G. Ciani.—p. 274.
Typhus. A. Ilventó.—p. 280. Cont'n.

Pediatria, Naples

Oct. 15, 1920, **28**, No. 20

The Opsonic Index in Relation to the Specificity of Vaccines. I. Nasso.—p. 937.
Importance of the Intradermal Tuberculin Test in Infants and Young Children. G. Salvetti.—p. 941.
*Idiopathic Osteopsathyrosis. E. Ruggeri.—p. 953.

Idiopathic Osteopsathyrosis.—The history and literature of this subject are compared with the roentgen rays and metabolic findings in a pronounced case in a girl of 13, who had a history of twelve fractures. The daily high deficit in the phosphorus, calcium and magnesium balance was much reduced under treatment with thymus and suprarenal extract, and there was great general improvement for a time after the nearly three months course, but gradually the condition returned to statu quo. Even the few months of marked improvement under the organotherapy throw light on the pathogenesis. There was nothing to suggest syphilis in the family, or tuberculosis, and no hereditary influence could be discovered. The child was born with this extreme fragility of the bones as well as hypoplasia of the cardiovascular and muscular systems. The whole suggests embryonal defective development of the mesoderm.

Policlinico, Rome

Nov. 1, 1920, **27**, No. 44

*Acute Necrosis of Pancreas. G. Moccia.—p. 1235.
Bilateral Peri-Anal Abscesses. E. Pirondini.—p. 1241.
*Reflex Anuria from Calculus. A. Sala.—p. 1242.

Acute Necrosis of the Pancreas.—The woman of 40 had been having diffuse abdominal pain with occasional vomiting for a month, with periods of relative calm with diarrhea but no fever or jaundice. Then came intense pain in the right hypochondrium, spreading to the entire abdomen, with continuous vomiting, hiccup, extreme meteorism, the abdomen tender throughout, and other signs of acute occlusion of the bowel, with anuria, stercoremia and collapse. Nothing was found in the bowel to explain the ileus, and the woman died twenty hours after the laparotomy. The pancreas was only slightly larger than usual but the hemorrhagic necrosis explained the clinical picture. The case emphasizes the difficulty of differentiating acute necrosis of the pancreas in certain cases.

Reflex Anuria.—In Sala's case the reflex had been elicited by a small calculus in the ureter which did not block it completely. The symptoms had indicated a calculus in the kidney, but exposure of the single kidney failed to reveal the calculus which was found at necropsy in the ureter close to the entirely empty bladder.

Nov. 8, 1920, **27**, No. 45

Skin Tuberculin Reaction in a Thousand Public Hospital Patients. Anna Zanon.—p. 1267.
Epidemics of Grain Itch. L. Puntoni.—p. 1273. Idem. P. Pantaleoni.—p. 1275. Summarized Dec. 11, p. 1656.
Square Frame for Fractured Humerus. G. Spelta.—p. 1276.
Etiology and Pathogenesis of Tuberculous Skin Disease. P. Rusca.—p. 1278.

November, 1920, **27**, Medical Section No. 11

*Biologic Tests for Echinococcus Disease. F. Pontano.—p. 405.
*Paroxysmal Hemoglobinuria. L. Datta.—p. 422.
Vaccine Therapy by Spray in the Air Passages. A. Gasbarrini.—p. 435.
*Urine as Vitamin. F. Curatolo.—p. 439.

Biologic Tests for Echinococcus Disease.—Pontano reviews what has been done in this line, and reports extensive clinical and experimental research which has demonstrated that Casoni's method of intradermal injection in man of fluid from a hydatid cyst in an animal is a very sensitive and reliable test. It proved positive in 84 per cent. of Pontano's experiences while the subcutaneous reaction was positive only in 66; the Ghedini-Weinberg fixation of complement test in only 50 per cent., and there was characteristic eosinophilia in only 40 per cent. The fixation of complement test is strictly specific but it does not occur when there is suppuration in the cyst. The fluid from a hydatid cyst is an antigen, capable of sensitizing normal persons. The amount necessary for the intradermal test reaction is from 0.2 to 0.3 c.c. while 1 c.c. is necessary to elicit a subcutaneous reaction. Suppuration in the cyst is responsible for the negative reactions sometimes obtained.

Paroxysmal Hemoglobinuria from Chilling.—Datta describes three typical and severe cases which confirm the connection between this pathologic condition and syphilis; under treatment as for syphilis all were cured. The patients were two men of 34 and 49 and a woman of 24, and the Wassermann reaction was positive in all. The cure has persisted for years to date in the two men. The woman succumbed to an intercurrent pneumonia, but nothing was found at necropsy to throw light on the hemoglobinuria. Each of the patients continued to present abnormal urobilinuria at times, and Datta is inclined to regard this as a kind of abortive attack.

Substances in Urine Which Act Like Vitamins.—Curatolo has confirmed Gaglio's assertions in regard to the protecting action of urine against deficiency disease in pigeons. Pigeons fed with 20 gm. of polished rice do not develop polyneuritis when 5 c.c. of rabbit urine is given with it, while others developing the deficiency disease from lack of vitamins regain their normal health under systematic administration of 5 c.c. of the natural urine from rabbits. Gaglio's experiments were made with human urine. The rabbit urine seemed to be equally effectual against the spastic and the paralytic forms of polyneuritis in the pigeons. The vitamins Funk extracted from beer yeast displayed a curative action only in the acute, the spastic form, and recurrence a few days later was the rule. Curatolo evaporated the rabbit urine and found that the inorganic mixture of salts resulting had absolutely no action as a vitamin. This must be restricted to the nitrogenous waste in the urine.

Riforma Medica, Naples

Sept. 25, 1920, **36**, No. 39

Bladder Diverticulum in Inguinal Hernia. B. Rosati.—p. 878.
Gastro-Enterostomy for Cicatricial Stenosis of Pylorus. A. Ajello.—p. 880.
Drug Treatment for Vascular Spasm. A. Ferrannini.—p. 885.
Diet to Promote Growth. A. Jappelli.—p. 887.

Oct. 2, 1920, **36**, No. 40

The Scientific Dignity of Special Pathology. G. Viola.—p. 901.
*Precipitin Test for Tuberculosis. L. Ferro.—p. 907.
*Fixation of Complement in Dementia Praecox. P. Magaudda.—p. 908.
*Treatment of Malaria. T. Silvestri.—p. 909.
Operative Treatment of Cholecystitis. V. Pauchet.—p. 911.

Thermoprecipitation in the Diagnosis of Tuberculosis. — Ferro refers to the ring of precipitation which forms at the line of contact between a chloroform autolysate of tuberculous sputum and the serum from a horse hyperimmunized against tuberculosis. Diagnostic import has been ascribed to this by A. Ascoli and others, but Ferro's tests with over 100 specimens of sputum showed that this reaction occurred indiscriminately in varying proportions in the healthy as well as in the tuberculous.

Complement Fixation in Dementia Praecox. — Magaudda relates that extracts of the testicles, thyroid and pituitary of eight dementia praecox cadavers were applied to test for hemolysis the serum from twenty patients with dementia praecox. His table shows complete hemolysis in all with the pituitary extract from each of the eight cadavers with the exception of one negative response to one of the eight extracts. Each of the extracts from two of the cadavers (paranoid dementia) induced constantly positive reactions. All the pituitary extracts were constantly positive.

Treatment of Malaria.—Silvestri comments on the enormous spread of malaria in Italy during and since the war, and urges the combination of other measures with quinin treatment, especially suprarenal extract, protein therapy, serotherapy, strychnin, etc. He endorses in particular a daily dose of 2 or 3 mg. of strychnin as useful and simple. By changing the mode of administration of the quinin, sometimes better results are obtained. Without insisting on laboratory examination, he has his old malaria patients after apparent cure take a new, shorter course of treatment spring and fall. He adds that it might be well to give Viale's photodynamic method a trial, that is, to expose the trunk, nude, to the sunlight after taking the dose of quinin. Even if it does not enhance the action of the quinin, as anticipated, it might benefit in other ways. He also cites authorities who corroborate the advantages of Pais' method of mild roentgen irradiation of the spleen. The public health authorities in Italy sanction this, and others assert that it rouses the defensive forces like a trip to the mountains. M. Ascoli, Fagiuoli Stephan, Fraenkel, Stettner and Klewitz have recently reported experiences showing the stimulating action of very mild irradiation of the glands with an internal secretion, the spleen in particular.

Brazil-Medico, Rio de Janeiro

Oct. 2, 1920, **34**, No. 40

Nephrectomy for Hydronephrotic Sagging Kidney; Recovery. Z. de Amaral.—p. 651.
*Syphilitic Meningitis. O. Clark.—p. 652.
*Testing for Urobilin. Cunha Lopes, Jr.—p. 654.

Syphilitic Meningitis.—Clark's patient presented the complete clinical picture of cerebrospinal meningitis, but the lumbar puncture fluid was almost pure blood at three punctures. There had been no trauma, but serologic tests were positive, and under treatment as for syphilis complete recovery promptly followed. Six weeks after the first symptoms the spinal fluid was normal. Extreme ophthalmoplegia was one of the early symptoms.

Improved Test for Urobilin in Urine. — Cunha Lopes describes a simple method which renders fluorescence tests much more sensitive and reliable, according to his account

Oct. 9, 1920, **34**, No. 41

*Surgical Treatment of Glaucoma. G. de Andrade.—p. 669.
*Acute Syphilis of the Lung. Ary Miranda.—p. 675.

Surgical Treatment of Glaucoma. — De Andrade is convinced that the few instances in which irridectomy has failed to cure glaucoma have been due to lack of skill in the operator or to the insubordination of the patient. If the hypertension returns anew, sclerotomy is indicated, and he cites a case in which sclerotomy was repeated as occasion arose twenty times, saving the eyesight. In another case sclerotomy was done four times in Rio after it had been done three times in Paris and twice in Bahia, saving vision, which certainly would have been lost without this repeated intervention. He warns expressly against the use of miotics at the operation as they predispose to iritis.

Pulmonary Syphilis.—Nothing but the absence of tubercle bacilli in the sputum contradicted the assumption of an acute tuberculous process in the left lung of the man of 19 with rapid destruction of tissue, extreme weakness, sweats, dyspnea and profuse expectoration. There was no history of acquired syphilis, but inherited syphilis could not be absolutely excluded, and under treatment for syphilis clinical recovery promptly followed. The Wassermann test had been constantly negative but veered transiently to positive during the course of treatment.

Tohoku Journal of Experimental Medicine, Sendai

Sept. 13, 1920, **1**, No. 3-4. German and English Edition

*Physiologic Action of Typhoid Toxin. J. Sogen.—p. 212.
*Action of Pneumococcus Toxin on Circulation. J. Sogen.—p. 287.
*Action of Bacterial Toxins on Intestine. J. Sogen.—p. 339.
*Studies in the Gastric Juice. I. M. Takata.—p. 354.

Physiologic Actions of Typhoid Toxin.—Sogen's exhaustive study of this subject from the clinical and experimenta standpoints is an attempt to explain the relative slowness o the pulse with the high fever characteristic of typhoid.

Influence of Pneumococcus Toxin on the Circulation.—In a similar study of pneumotoxin, he found evidence that the disturbance in the circulation was not due entirely to periph eral vasomotor paralysis but rather to primary toxic injury of the heart.

Influence of Bacterial Toxins on the Intestine. — Sogen announces further that the pendulum movement of the sur viving intestine is affected differently by different bacteria toxins, as he describes in detail.

Chlorids in Body and Secretion of Gastric Juice. — The results of Takata's experiments on a dog with a Pawlov fistula contradict some of the prevailing views in regard t the secretion of hydrochloric acid as dependent on the chlori content of the body fluids.

Jahrbuch für Kinderheilkunde, Berlin

1920, **93**, No. 5

*Diphtheria in Young Infants. Elise Hermann.—p. 273.
*Deep Roentgen-Ray Treatment for Children. P. Karger.—p. 295.
*Complications of Sinusitis in Children. M. Paunz.—p. 313.

Intubation for Diphtheria in Infants.—Hermann remarks that feeding the infant through a tube in the nose permits intubation even for the youngest. Her statistics show that pneumonia is scarcely any more frequent after this than after tracheotomy. Local ulceration was found in 50 per cent. of the 12 infant cadavers less than a year old but only in 14.28 per cent. of 28 between the ages of 1 and 2, the average thus being only 25 per cent. for these two years while the average was 36.36 per cent. of the 33 children 3 and 4 years old. Tracheotomy gives no better results in regard to complications. Her article is based on ten years' experience at the Leipzig children's clinic. Diphtheria in very young infants is more likely to be restricted to the nose than in older children. During the first years of the war the interns were constantly changing, and the lack of experience of the newcomers was reflected in the higher death rate in the intubated younger children.

Deep Roentgen-Ray Treatment of Children.—Karger has applied this technic in 100 cases, mainly tuberculous lymphomas. The majority subsided in from two weeks to three months, that is, under one or two exposures. Only a few were given a longer course, but one child was finally cured after a year of treatment. No permanent injury was observed in any instance but other tuberculous lesions in the vicinity sometimes flared up. The lymphomatous tumors in pseudoleukemia melted away under the exposures but the effect was merely cosmetic, as the children all died. No benefit was observed with inoperable malignant tumors except that the pain was materially reduced. The skin of the abdomen seems more sensitive than the neck in children. Some children displayed a general reaction with fever, headache, and vomiting, beginning from half an hour to six hours after the exposure, and lasting from half an hour to several days. Those affected were almost always older children, with a neuropathic predisposition. The roentgenotherapy seems to hasten the regression of lesions with a tendency to a spontaneous cure and it can be regarded as a useful adjuvant but too much must not be expected of it.

Complications of Sinusitis in Children.—Paunz comments on the frequent discovery in child cadavers of inflammatory and suppurative processes in the sinuses communicating with the nose. In older children an acute infectious disease is generally responsible for the sinusitis, but in infants even coryza or tonsillitis may develop this complication; cases are known in infants only a few weeks old. Schlemmer has encountered 5 cases of the kind in children and has compiled 52 similar ones from the literature, including 24 for which scarlet fever was responsible. Paunz gives the details of 12 cases from his own service, including one with a fronto-ethmoidal mucocele which had developed slowly without subjective symptoms. He has had a number of such cases in adults; the optic nerve never showed injury although in some of the cases the eyeball protruded. Acute inflammation in such a mucocele might do serious damage, and hence operative treatment is called for at once when first diagnosed. In 3 children the frontal and ethmoid sinusitis was a complication of typhoid, diphtheria or measles; in 2 others of scarlet fever, and in one child there was a tuberculous process in the frontal bone. In the 6 others, the sinusitis had followed coryza, including one 6 weeks' infant.

Zeitschrift für Tuberkulose, Leipzig

September, 1920, **32**, No. 6

*The Silicic Acid Problem in Tuberculosis. A. Kühn.—p. 321.
Pathologic Anatomy of Progressive Tuberculosis. H. Beitzke.—p. 329.
Morphology of the Sputum in Pulmonary Tuberculosis. E. Liebmann.—p. 341.
*The Urine Test for Tuberculosis. R. Offenbacher.—p. 355.

Silicic Acid in Tuberculosis.—Kühn emphasizes that not enough attention has been paid hitherto to silica which forms such a large proportion of fibrin, the main factor in the healing of a tuberculous process in the lung. Human hair contains from 2.61 to 29.3 per cent. silica, according to Gonnermann's table; the suprarenals from 7.44 to 16, and fibrin from 16.28 to 30 per cent. Kühn succeeded in rendering guinea-pigs immune to tuberculosis by injection of colloidal silicic acid, and 400 tuberculous persons under his directions have been taking for four years a silica tea, that is, a decoction of certain herbs which Gonnermann found contained from 43 to 272 mg. of silicic acid in the three cupfuls which formed the daily dose. The herbs are *Herba equisiti min.; Herba polygon.* and *Herba galeopsidis.* The number of cases in which great improvement is evident is too large to be attributed to chance. He mentions parenthetically that the disease seemed to be most dangerous and hardest to influence in the young, and he queries whether the lesser silica content of certain organs in the young may not have some influence in this respect. In some cases he gave the silicic acid in colloidal form by intramuscular injection.

The Urine Test for Active Tuberculosis.—Offenbacher relates that of twenty persons with active tuberculosis, only three gave an unmistakably positive response to the Wildbolz auto-urine test. In some of the cases the response was negative when the Mantoux intradermal tuberculin test was positive. The urine has to be evaporated to one tenth, the heat not allowed to surpass 60 C.

Zeitschrift für urologische Chirurgie, Berlin

Nov. 6, 1920, **5**, No. 3

Diverticulum in the Bladder; Three Cases. Bischoff.—p. 123.
*Diagnosis of Hypertrophy of the Prostate. O. Zuckerkandl.—p. 135.
*Physiology and Pathology of Micturition. H. G. Pleschner.—p. 148.

Diagnosis of Hypertrophy of the Prostate.—Zuckerkandl gives thirteen illustrations to show the changes in the roentgen ray and other findings when the prostate becomes enlarged. The most striking change is perhaps that in the outline of the contrast fluid injected. In normal conditions the outline is something like a triangle, the small end down, while with hypertrophied prostate the broad end of the triangle is down and the smaller end on top. He illustrates further the cystoscopic findings characteristic of the anatomic changes which develop with enlargement of the prostate, especially at the trigonum and ureter mouths. Cancerous degeneration occurs in about 10 per cent. of the cases of hypertrophied prostate, but it is impossible to differentiate this until it reaches an advanced stage. When the prostate shrivels into cicatricial tissue, the symptoms of retention and complicating infectious processes are particularly pronounced, but differentiation may be difficult. The long duration, the febrile periods, and the hardness of the shriveled gland are suggestive.

The Physiology and Pathology of Micturition.—This forty page communication with extensive bibliography introduces an alleged new muscular element into the micturition process. It is a longitudinal muscle in the urethra which in normal conditions holds the posterior urethra open during micturition. When it is injured by hypertrophy or atrophy of the prostate, it ceases to accomplish its physiologic purpose, and this entails the disturbances in urination which accompany these prostate anomalies.

Zentralblatt für Gewerbehygiene, etc., Berlin

November, 1920, **8**, No. 11. Only medical articles listed.

*Asthma in Fur Dye-Workers. C. Gerdon.—p. 201. Conc'n.

Asthma in Fur Dye Workers.—The dyes to which Gerdon refers are of the ursol class, made from p-phenyldiamin which has been used also in hair dyes. Criegern in 40 cases of illness from preparations of p-phenyldiamin observed asthma, besides eczema and irritation of the air passages, and noted that the asthma recurred at the mere odor of the dye. Gerdon's experience confirms this sensitization to the dye, his 7 cases of occupational asthma from this cause confirming the assumption of an anaphylaxis instead of a primary intoxication. There was salivation in 3 of the 7 cases, edema in 3, diarrhea in 2 and exophthalmos in 2 others, with coryza in all. A supplementary direct toxic action from the chemical on the air passages may induce a local region of lesser resistance. The 6 men and 1 woman displayed no signs of a neuropathic or exudative predisposition. They had been employed at this work for three months to ten years. The asthma does not develop until from half an hour to twenty-four hours after inhaling the dust containing the chemical. On changing to another occupation they had no further attacks of asthma but it returned on resuming this work; in one case after an interval of seven years. Those who have abandoned the work occasionally have to handle ursol-dyed furs from another city, and some of them each time develop an attack of asthma. In addition to these occupational cases he reports the case of a young woman, who had been assisting him in his chemical experiments. She was taken suddenly in a theater with nausea, a "hideous taste in the mouth," and incessant dry coughing, which kept up for two hours. The nausea persisted for two weeks, at which time there was eosinophilia of 7 per cent. She was wearing a fur tippet at the time, and Gerdon suggests that wearing a recently ursol-dyed fur might sensitize so that later contact with a new ursol pelt or the smell from it might bring on an attack of asthma. It might be well to investigate this when consulted for asthma. Gerdon's experimental research thus has confirmed that anaphylaxis can be induced with certain p-phenyldiamin derivatives, and suggests the prophylactic use of calcium for those engaged in dyeing pelts. Ursol dust is almost tasteless and odorless to normal persons.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1919, No. 10. Parallel Dutch-English Edition

*Anophelines in Connection with Occurrence of Malaria. N. H. Swellengrebel and J. M. H. S. de Graaf.—p. 1.
*Parasitic Haplosporidium Found in Anophelinae. Id.—p. 68.
Malaria in Modjowarno. Id.—p. 73.
*Malaria and Anophelines at Samarang. Id.—p. 113.

Mosquitoes and Occurrence of Malaria in Java and Sumatra.—The various articles are illustrated. They describe extensive research on the anophelines of different parts of the Netherlands Indies.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 23, 1920, **2**, No. 17

*Genital Tuberculosis in Women. L. F. Driessen.—p. 1652.
*Poisoning from Cheese. B. Hylkema.—p. 1662.
Roentgen-Ray Treatment of Tuberculous Glands. S. Keyser.—p. 1667.
Coagulen Internally and the Temperature. W. Jost.—p. 1673.
Rapid Osteomyelitis After Influenza. A. Verschoor.—p. 1676.

Genital Tuberculosis.—Driessen says that in investigating the outcome in his cases of genital tuberculosis in women, he has been surprised to find the women in excellent health ten years or more after operative treatment of afebrile genital tuberculosis, and even without operative intervention. But when there were fever and night sweats, the outcome was usually fatal. However, recent favorable experiences with roentgen rays and ultraviolet rays in such cases justify great hopes for the future.

Poisoning from Cheese.—Hylkema reports instances of gastro-enteritis affecting persons who had eaten certain cheeses. By exclusion he comes to the conclusion that the disturbances were the result of the contents of vesicles on the udders getting into the milk, as the cows had foot-and-mouth disease at the time. None of the cheeses were factory made. This same explanation fits also seven cases of acute gastro-enteritis with bloody vomit in two families from two to four hours after eating boiled buttermilk, although the existence of foot-and-mouth disease could not be affirmed.

Finska Läkaresällskapets Handlingar, Helsingfors

September-October, 1920, **62**, No. 9-10

*Pathogenesis of Dupuytren's Contraction. A. Krogius.—p. 489.
*Familial Brachydactylia. G. Renvall.—p. 507.
General Principles for Combating Infectious Diseases. E. Roos.—p. 513.
*Present Status of Roentgen-Ray Treatment of Tuberculosis. G. A. Wetterstrand.—p. 525.

Pathogenesis of Dupuytren's Contraction.—Krogius reproduces the genealogic tree of a family showing four generations with from one to six members in each generation with Dupuytren's contraction. In the two latest generations only male members are affected, but the anomaly was transmitted through both female and male members in the second generation. He has found records at the surgical hospital at Helsingfors of twenty-two cases since 1888, bilateral in twelve. Histologic examination in thirteen cases and research in comparative anatomy have confirmed the assumption of an embryonal predisposition, but traumatism certainly has a share in rousing the slumbering anlage.

Familial Brachydactylia.—Renvall adds to his previous compilation of congenital malformations the case of two sisters with pronounced brachydactylia and depressed carpophalangeal joints.

Roentgen-Ray Treatment of Tuberculosis.—Wetterstrand concludes from his review of the literature of the last few years that radiotherapy is becoming a powerful aid for certain forms of tuberculosis.

Hygiea, Stockholm

Oct. 31, 1920, **82**, No. 20

*Resection of Stomach for Cancer. W. Möller.—p. 641.

Resection of Stomach for Cancer.—Möller reviews 147 cases of gastric cancer at Lund treated by resection between 1898 and 1918. This group formed 22.3 per cent. of the total 659 gastric cancer cases during the period. Of the entire resection group only 17 are still living; in 6 the operation dates from less than three years. The interval since the operation in the other 11 ranges from three and a fraction to sixteen years. This group forms 13.4 per cent. of the 83 patients who survived the resection. He adds that comparison of the outcome in the 147 resection cases with that in 229 gastro-enterostomy cases, shows the advantages of resection whenever it is technically possible. In 11 cases of long survival the second Billroth method had been applied in all but 3.

Ugeskrift for Læger, Copenhagen

Nov. 4, 1920, **82**, No. 45

*Hemoptysis. E. Als.—p. 1389.
*Doses for Children. A. B. Heering.—p. 1393.
War Undernutrition. K. Baagøe.—p. 1396.

Treatment of Hemoptysis.—Als comments on the importance of getting extravasated blood out of the lung. Coughing must be suppressed for fear of detaching the obstructing clot, but the blood and sputum must be expelled by cautious hawking. It is not necessary to keep the patient in bed if he moves about cautiously, unless there has been loss of over 100 c.c. of blood, or there is fever. But even then it is not best for him to keep absolutely still. The necessity for ample feeding of the tuberculous patient must not be forgotten when he has hemoptysis. The anemia entailed by the hemorrhage must be combated. Primary fatal hemoptysis is extremely rare, but a clot may obstruct the vocal cords and can be removed by hand. In many cases the tendency to hemoptysis can be combated with calcium chlorid or an extract of blood platelets by the mouth. Even a teaspoonful of common salt swallowed dry or in solution will draw the blood to the digestive organs and thus lower the pressure in the lungs. This can be prescribed by telephone. The blood can be tied off in the limbs, but in this case the limbs must be released separately afterward, not all at once.

The Doses for Children.—A pharmacist in Copenhagen recently appealed to the public health authorities for the correct proportional dose for a child, in a dispute with a physician. He received the reply that there was no formula which could be applied with absolute reliability to calculate the doses for children. The text books in Denmark give usually the formula as the adult dose, multiplied by the age (in years) plus 3, divided by 30. Another much used formula is the adult dose, multiplied by the age, divided by the age plus 12. Monrad's formula is the adult dose, multiplied by the child's weight, divided by the average adult weight. Heering shows the wide divergence of the dose with these different formulas. At the age of one year, the dose would be respectively, 13.3, 7.7 and 14.1 cg. to each 1 gm. in the adult dose. Heering has worked out a formula for infants under 6 months old, namely, the adult dose, multiplied by 5 plus the child's age in months, divided by 100. This gives 5, 6, 7, 8, 9, 10, 11 and 12 cg. from birth up to the seventh month.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 3 Chicago, Illinois January 15, 1921

THE MECHANISM OF SHOCK AND EXHAUSTION

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The man in acute shock or exhaustion is able to see danger, but lacks the normal muscular power to escape from it; his temperature may be subnormal, but he lacks the normal power to create heat; he understands words, but lacks the normal power of response. In other words, he is unable to transform potential into kinetic energy in the form of heat, motion and mental action, despite the fact that his vital organs are anatomically intact. His mental power fades to unconsciousness; his ability to create body heat is diminished until he approaches the state of the cold-blooded animal; the weakness of the voluntary muscles finally approaches that of sleep or anesthesia; the blood pressure falls to zero; most of the organs and tissues of the body lose their function.

It is evident, therefore, that in exhaustion the organism has lost its self-mastery. Self-mastery is achieved only by the normal action of the master tissue—the brain. In exhaustion, then, is the brain primarily exhausted; or has some other tissue or organ functionally broken down, and has that breakdown carried with it exhaustion of the brain? If the latter is the case, then what organs and tissues are vitally necessary to the brain for the performance of its function? Obviously, the exhaustion of any organ or tissue not vital to the performance of brain function need not be considered, since it probably would not be a direct cause of acute exhaustion.

I. Tissues and Organs Which Bear no Immediate Relation to the Problem of Acute Exhaustion

Among the tissues and organs that are not immediately vital to the brain within the period of death from *acute* exhaustion are the bones and joints, the connective tissue, the neutral fats, the skin, the genito-urinary system, the digestive system, the gallbladder and ducts, the lymphatic vessels and glands, the salivary glands, the spleen, the sweat glands, the pancreas, the thyroid, the thymus, the organs of common sensation, the nails, the hair. Want of activity of any of these organs or tissues individually or collectively cannot produce acute exhaustion in the sense in which that word is here used. That is to say, a man in exhaustion from the injury and the struggle of battle would not be restored if he were given rested eyes, rested ears, rested sweat glands, rested spleen, rested genito-urinary system, rested digestive system, rested bones and joints, rested connective tissue, rested skin, rested gallbladder, rested fat.

II. Tissues and Organs Whose Failure of Function May Produce Acute Exhaustion

The tissues and organs whose failure of function may cause acute exhaustion are the respiratory system, the circulatory system, the blood, the muscles, the suprarenals, the liver and the brain.

RESPIRATORY SYSTEM

Relation of the Respiratory System to Shock and Exhaustion.—The failure of the respiratory system to deliver sufficient oxygen to the blood or to take sufficient carbon dioxid from the blood exhausts and kills promptly. Failure of the respiratory system is not a universal, not even a common, cause of exhaustion, for in the great majority of cases of exhaustion, the respiratory activity is even increased and there is no interference in the lungs with the exchange of gases. The interference with the pulmonary mechanism of air exchange that may cause exhaustion is most commonly produced by edema of the alveolar walls; by pulmonary embolism; by the exudations of pneumonia; by fat embolism; by the inhalation of water or of pus or of free blood; by excessive pleural effusion; by emphysema, and by hemothorax and pneumothorax. In each of these conditions, there is interference with the intake of oxygen and the elimination of carbon dioxid which may be sufficient to cause exhaustion and death.

Theories Regarding the Relation of the Respiratory System to Shock and Exhaustion.—Fat Embolism Theory: Roswell Park[1] first suggested, and Bissell[2] demonstrated, the presence of fat embolism in the lungs of patients who were diagnosed as being in surgical shock. Porter[3] has extended Bissell's observations into an inclusive theory of shock. He concludes that shock is due mainly to diffuse fatty embolism of the lungs. There are several facts that apparently are not harmonized by the fat embolism theory:

(*a*) In cases of abdominal penetration, if there is no perforation of the hollow viscera and no hemorrhage, there is little shock; if there is either perforation or hemorrhage, or both, there is shock. Since, in either case, the same fat areas have been traversed, it follows that the traversing of the fat was not the determining factor.

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[1] Park, Roswell: New York M. J. **40:** 177-181, 1884.

[2] Bissell, W. W.: The Amount of Fat in the Blood Stream of Persons with Broken Bones, J. A. M. A. **67:** 1926 (Dec. 23) 1916; Surg., Gynec. & Obst. **25:** 8-22, 1917.

[3] Porter, W. T.: Boston M. & S. J. **176:** 248 (Feb. 15) 1917; **176:** 326-327, 1917; New York M. J. **106:** 894-895 (Nov. 10) 1917; Proc. Inst. Med. **2:** 24-29, 1918.

(*b*) In emotional shock, so common in battle, it is difficult to assign to fat emboli a causative rôle.

(*c*) In shock from burns, the difficulty is no less.

(*d*) In shock from chest and head injuries, it is almost as difficult to assign a causative rôle to fat emboli. Many other examples may be cited.

On the other hand, surgical literature contains many accounts of the presence of fat emboli in fracture cases, especially in fractures of the long bones; and these cases show no shock at first, but later develop a train of symptoms resembling shock.

Wiggers[4] performed a series of experiments to determine whether the mechanism which causes failure of the circulation after the intravenous injection of oil is the same as that which causes circulatory failure in surgical shock. He concluded that circulatory failure produced by fat emboli must be distinguished from circulatory failure due to surgical shock. The conclusions of Wiggers are in more complete accord with surgical experience than those of Porter. With respect to the carbon dioxid treatment which Porter proposes,[5] on the theory that the increased action of the diaphragm caused by the carbon dioxid would force the fat emboli out of the capillaries into the free circulation, it would obviously be difficult to determine how much of the clinical result might be due to pooling of the blood in the abdominal veins, for which Porter advises carbon dioxid inhalation, and how much to pulmonary fat embolism, for which also he advises carbon dioxid inhalation. That is, would the clinical result be due to the pumping of the blood out of the abdominal vessels by the increased respiration induced by the inhalation of carbon dioxid, or to the driving of the fat out of the lungs, or would it be due to the relief of acapnia (Henderson[6])? But since in practice the carbon dioxid treatment has yielded no advantage to the patient, this point will not be pursued further.

Henderson's Acapnia Theory: Yandell Henderson has plausibly advocated the view that excessive ventilation of the lungs—resulting in excessive elimination of carbon dioxid from the blood—is the cause of shock. Since the respiratory center is controlled largely by the carbon dioxid tension of the blood, it follows that in shock the respiratory exchange would be diminished, so that, as Henderson believes, there would result a state which is below the point of oxygen safety.

Henderson's theory is one which every surgeon would hope might be true, for apparently it would make both the prevention and the cure of shock easy and simple. There are many arguments in favor of this theory. The disturbing effect of excessive ventilation of the lungs is apparent. It is true that oxygen improves the condition of the patient in shock, that lack of oxygen leads to acidosis. Nevertheless, there are certain difficulties in the way of accepting fully Henderson's conclusions.

(*a*) As stated above, the clinical use of carbon dioxid in shock has not proved to be of much value. It is possible that this is due to the fact that serious intracellular damage has been inflicted on certain of the vital organs before the carbon dioxid treatment was begun.

(*b*) In my laboratory, animals under curare and continuous, adequate and even artificial respiration—thus eliminating the excessive ventilation (acapnia) factor—could still be killed by shock from trauma.

(*c*) Protracted consciousness—insomnia—in animals subjected to no other excitement causes complete exhaustion. Acapnia could scarcely be a factor here. It should be added that Henderson has not discussed this type of exhaustion.

Conclusion.—In exhaustion from running, from fevers, from trauma, from anesthesia, from excision of the liver, from excision of the suprarenals, from hemorrhage, from emotion, from insomnia, the exhaustion is not in any way related to the lungs. If there is a coexistent defect in the pulmonary function, so much the more readily is exhaustion produced by trauma, by emotion, by fever, by exertion, by hemorrhage, etc. We therefore conclude that the primary cause of exhaustion may be found in the *pulmonary system, but that this is not a common primary cause.*

CIRCULATORY SYSTEM

Failure of the circulation exhausts and kills inevitably, and failure of the circulation is established sooner or later in acute cases of grave or fatal exhaustion. This, therefore, is the question: Is the failure of the circulation a primary or secondary cause of exhaustion, or is the circulatory factor sometimes a primary and sometimes a secondary cause of exhaustion?

The Heart.—The heart may be unable to pump the blood stream forcibly enough to maintain adequate circulation, in which case general exhaustion will occur as the result of lack of oxidation of the tissues. Exhaustion occurs clinically in the myocarditis of acute or prolonged infections, as the result of excessive muscular exertion, in anemia, in the presence of valvular defects. But observations in both the clinic and the laboratory show that in surgical shock and exhaustion, the heart muscle has not failed.

Distribution of Blood.—Pooling in the Larger Veins: A number of observers have held the view that in shock the blood accumulates in various blood vessels, this pooling becoming in effect an intravascular hemorrhage. There are certain facts, however, which are not harmonized by this theory:

(*a*) In my laboratory, experiments showed that shock could be produced in animals in which the abdominal vessels or the thoracic aorta had been excluded by ligation, though not quite as readily as in the controls. Erlanger and others[7] have shown that excision of all the abdominal viscera does not lessen the liability to shock. In our experiments, we found also that if the intestine was so tensely distended with water as to drive out all the blood, then trauma of the peritoneum no longer caused a primary fall in blood pressure, but death from shock might occur. Many dissections before death, and many necropsies after death from trauma to other parts of the body than the abdomen, showed that the blood was held in the veins everywhere, as in death from other causes.

(*b*) As stated in a preceding paragraph, Porter[8] has proposed the inhalation of carbon dioxid for the purpose of increasing activity of the diaphragm, to the end that the supposed accumulation of blood in the abdomen would thus be put into more active circulation. No clinical advantage from this treatment has been reported.

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[4] Wiggers, C. T.: Circulatory Failure: The Differentiation Between That Due to Shock and That Due to Other Causes, J. A. M. A. **70**: 508-511 (Feb. 23) 1918.

[5] Porter, W. T.: Boston M. & S. J. **176**: 699 (May 17) 1917, and references in Footnote 3.

[6] Henderson, Yandell: Am. J. Physiol. **21**: 126-156, 1908: **23**: 345-373, 1908-1909; **24**: 68-85, 1909; **25**: 310-333, 385-402, 1909-1910; **26**: 260-286, 1910; **27**: 152-176, 1910-1911; **46**: 533-553, 1918; Bull. Johns Hopkins Hosp. **21**: 235-240, 1910.

[7] Erlanger, Joseph; Gesell, Robert; Gasser, H. S., and Elliott, B. L.: An Experimental Study of Surgical Shock: Preliminary Report, J. A. M. A. **69**: 2089-2092 (Dec. 22) 1917.

[8] Porter, W. T. (Footnotes 3 and 5).

(*c*) Treatment with intraperitoneal injections of pituitary extract, as suggested by Cannon, even more effectively facilitates the splanchnic venous circulation than does Porter's carbon dioxid inhalation, but this method has not proved to be a cure for shock.

From the evidence in hand, we are not warranted in concluding either that blood does or that it does not pool. We only infer that even of it does pool, this is an end effect—not a primary cause of shock.

Accumulation of the Blood in the Capillaries: Cannon[9] has advanced strong arguments in favor of the view that the smaller blood vessels—the capillaries—are dilated, and in dilating have engulfed so much of the volume of the blood as to interfere seriously with the circulation. If this were true, then the universal bandaging of the body alone, or blood transfusion alone, or bandaging and blood transfusion combined, should both prevent and cure shock. But both laboratory and clinical experience show that, although these measures are useful, they are not specific.

Vasomotor Mechanism.—Is the vasomotor mechanism a factor in shock? In 1897, I proposed the theory that shock was due to the impairment or breakdown of the vasomotor mechanism.[10] Owing to the fact that control of the blood pressure did not specifically cure shock, it soon became obvious that exhaustion and shock included much in addition to the failure of the vasomotor mechanism.

Opposing views as to the state of the vasomotor mechanism have been presented by various investigators:

(*a*) Seelig and Lyon[11] have concluded that the vasomotor mechanism is functionally intact in shock.

(*b*) Porter[12] has found that vasomotor stimulation produces a progressively diminished rise in blood pressure as shock deepens. This finding is in accord with our own data. Porter has interpreted the blood pressure change on the basis of a percental rise, and has concluded that the vasomotor mechanism is not altered in shock. It is open to question, however, whether Porter has not proved the opposite of his conclusions, for if, in shock, epinephrin be given intravenously, or pressure on a paw be made, the percental rise interpretation will be reversed. Applying Porter's percental interpretation to the effect of epinephrin, the rise would be more than 300 per cent.; that is, according to Porter's reasoning, the vascular state is three times better than normal, but nevertheless, the dog is dying. The error in Porter's reasoning may be made more clear by a homely illustration. If a goad be applied to a fresh horse, the resulting increase in speed may be stated as a percental increase. When the horse is in extreme fatigue and an equal goad is applied, the percental increase will probably be the same, but nevertheless the horse is exhausted.

(*c*) Erlanger and his associates[7] found that the vasomotor mechanism is exhausted late in shock. They suggest that the primary fall in blood pressure may be brought about by the effect of painful stimuli and hemorrhage.

(*d*) Pike and Coombs[13] believe that damage to the brain cells must be included as one of the conditions of traumatic shock.

(*e*) Wiggers[14] observed a steady fall in vasomotor tone in the early phases of shock. He concluded that the peripheral resistance was diminished, indicating diminished vasomotor tone.

Our experimental data show that there is no practical distinction to be made between external stimulation of the vasomotor center as in injury and operation, and internal stimulation by vasomotor stimulants, as strychnin. Each in sufficient amount produces exhaustion (shock), and each with logic might be used to treat the shock produced by the other. We conclude, therefore, that in traumatic shock the vasomotor mechanism is functionally impaired or exhausted.

Experience in the clinic, however, seemed to show that, whereas in shock the depression and fatigue of the vasomotor centers were very important, there must also be other important effects. This was all the more probable because of the time required for recovery; the long after-effects; the inadequacy of merely raising the blood pressure; the weakness and debility of the injured animal before a fall in blood pressure had occurred; and the facts that infection, loss of sleep, hunger and thirst predisposed to exhaustion and that ether anesthesia predisposed to exhaustion. All these clinical observations demanded renewed research. The work of Hodge on fatigue in bees and birds suggested such an investigation. To that end, the studies of the brain cells, which have been summarized in former publications, were undertaken. These studies immediately gave illuminating results. Our argument was that if the vasomotor center was fatigued in shock and exhaustion, other parts of the brain were probably fatigued also. If the brain cells were functionally altered, one would expect them to be physically altered, as Hodge had shown was the case in his studies of fatigue in the bee. We argued that in shock not only are the vasomotor cells exhausted, but the cells of the brain that preside over voluntary muscular action and mental action are also altered; in other words, that the brain as a whole is altered, and is altered independently of, as well as in consequence of, the low blood pressure due to the exhaustion of the vasomotor centers; that the higher centers may well be affected even more than the vasomotor.

The vasomotor mechanism alone, the blood pressure alone, is not sufficient to account for all the phenomena of shock; and although some of the causes of exhaustion may be found in the respiratory system, and some in the circulatory system, we must look elsewhere for the explanation of the vast majority of cases of shock and exhaustion. Are these due to some change in the blood?

The Blood.—Chemical Changes in the Blood: The blood is a vital fluid for all the tissues. If there is insufficient blood, or if the blood is sufficiently impure, exhaustion of every organ and tissue will follow. The acute exhaustion caused by hemorrhage is cured in a normal animal by immediate replacement of the lost blood by an equal amount of good blood from another animal. If impure blood is the primary cause of exhaustion, and no other primary cause exists, then the removal of impure blood and the substitution of

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9. Cannon, W. B.; Fraser, John, and Hooper, A. N.: Some Alterations in Distribution and Character of Blood in Shock and Hemorrhage, J. A. M. A. **70**: 526-531 (Feb. 23) 1918.

10. Crile, G. W.: An Experimental Research into Surgical Shock, 1897.

11. Seelig, M. G., and Lyon, E. P.: Surg., Gynec. & Obst. **11**: 146-152, 1910; The Condition of the Peripheral Blood: Vessels in Shock, J. A. M. A. **52**: 45-48 (Jan. 2) 1909.

12. Porter, W. T., and Storey, T. A.: Am. J. Physiol. **18**: 181-199, 1907.

13. Pike, F. H., and Coombs, H. C.: The Relation of Low Blood Pressure to a Fatal Termination in Traumatic Shock, J. A. M. A. **68**: 1892 (June 23) 1917.

14. Wiggers, C. J.: Am. J. Physiol. **45**: 485-499 (March) 1918; **46**: 314-328 (June) 1918.

pure blood should bring relief from exhaustion in proportion to the amount of impure blood exchanged for pure blood.

If exhaustion is due to some change in the blood, then if an acutely exhausted animal had its blood withdrawn as completely as possible and normal blood replaced, the same process being repeated several times so as to be certain that a sufficient amount of blood had been exchanged, demonstrable relief should follow. But experiments have shown that not many cases of exhaustion may thus be benefited or cured. Moreover, animals exhausted by insomnia show no change in the blood picture, as has been shown by our experiments. We have found, also, that in patients in whom exhaustion has developed gradually, there may be no change in the blood.

The common pathologic change in the blood in acute exhaustion is acidosis. If this were the primary cause of exhaustion, then infusion of sodium bicarbonate should prevent and cure; but both laboratory and clinical evidence shows that alkalis neither prevent nor cure shock.

Cannon [15] has found decreased reserve alkalinity in wounded soldiers in shock. He found that this decrease was more marked in operations under ether than in operations under nitrous oxid; he believes that a diastolic blood pressure of about 80 is a critical level at which acidosis rapidly develops. These phenomena are obviously secondary causes of exhaustion.

Cannon, Dale and Bayliss have recently found that the pulpefaction of muscles causes a fall in blood pressure when the nerve supply of the injured part is blocked, and that this is prevented when the circulation of the part is blocked. Even so, macerated muscle products could be only a minor factor in the production of shock, for (*a*) tourniquets minimize shock only as far as they minimize hemorrhage; (*b*) spinal and local anesthesia almost specifically prevent shock; (*c*) many causes of shock, such as abdominal operations, joint injuries, skin injuries, etc., have no relation to muscle poison, and (*d*) nitrous oxid anesthesia is all but a preventive of shock. How can these facts be reconciled with the view that the cause of shock is low blood pressure, the low blood pressure in turn being caused by muscle poisons? Even if under exceptional circumstances the presence of muscle toxins constituted a causative factor, their shock-producing value would be identical with that of toxemia from any other cause.

Concentration of the Blood: The blood volume is apparently diminished in shock. Has the plasma left the vessels and gone into the tissues? If so, is the process an adaptation or is it a pathologic effect? This point was investigated in our laboratory by Drs. F. W. Hitchings, A. N. Eisenbrey and C. H. Lenhart, who found that in shock the concentration of the blood was increased up to 20 per cent.; but other considerations made it obvious that this is not a primary cause of shock.

> In the blood of the "shock dogs" there was an increase in the red cells per cubic millimeter, while in the blood of the "hemorrhage dogs" there was a decrease in the number of red cells per cubic millimeter. . . .
>
> In the "shock dogs" there was a decrease in the number of white corpuscles, while in the "hemorrhage dogs" there was a preliminary decrease followed by a marked increase.[16]

Mann [17] conducted a more extensive research along the same line, and attributed greater importance to the increased concentration. Cannon [15] has shown further evidence of loss of plasma in shock, and supports Mann's estimation of the value of these data rather than ours. Now, if increased concentration were the cause of the small amount of blood, if circulatory failure were due to a "plasma hemorrhage" into the tissues, then adequate transfusion of blood should prevent and cure shock; but adequate transfusion of blood is not a specific cure. In addition, on this theory, the careful work of Hogan and Bayliss [18] on the infusion of colloidal solutions should have given us a cure, because it is known that these solutions do not leave the blood stream. But colloidal solutions fail to hold the blood pressure—fail to cure advanced cases. The transference of plasma is probably an adaptive protection.

Then, again, even granting that the blood contains impurities which cause exhaustion, where did the blood get those impurities? From the cells. And the cells? From their increased metabolism. What caused that increased metabolism? Certain of the excitants of exhaustion. We conclude, therefore, that in the absence of primary disease—causing changes in the blood, and in the absence of hemorrhage, changes in the blood or in the blood pressure are *secondary,* not a primary cause of exhaustion.

VOLUNTARY MUSCLES

If the voluntary system were exhausted primarily in shock, then there would be prostration, low temperature, lowered blood pressure, but not the extremely low blood pressure often seen in shock, no sweating, and no loss of mental symptoms. Therefore, it at once becomes apparent that primary exhaustion of the voluntary muscles could not be an adequate cause of *all symptoms of exhaustion.*

Is exhaustion of the voluntary muscles the cause of the lowered body temperature? Is the inability of the muscles to act due to a primary change in the muscles, while the brain is normal? This seems improbable, for the following reasons:

(*a*) To low blood pressure and anemia, the voluntary muscle is more resistant than the brain—more than fifty times as resistant (Crile and Dolley).

(*b*) The muscles in the acutely exhausted subject show no histologic change. They can be made to contract by electric stimulation of their nerve supply, or by electric stimulation of the muscle directly.

(*c*) It is a physiologic axiom that voluntary muscles are not as readily exhausted as are the nerve centers that govern them.

(*d*) If there is primary exhaustion of the muscles, then, according to Bayliss, it would probably be due to the overproduction of acid or other injuring by-products as a result of injury or of work performed. But in exhaustion from trauma under anesthesia, the muscles have done no work; in exhaustion from fear, the muscles have done little work; in exhaustion from overwhelming toxemia, there has been no muscular work. Finally, we know that in a vast number of the injuries which cause shock, no muscle is involved; for example, injury of the skin, of the brain, of the knee-joint, of the hands or feet may result in shock.

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[15] Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infection, J. A. M. A. **70**: 531-535 (Feb. 23) 1918.

[16] Crile, G. W.: Hemorrhage and Transfusion, 1909, pp. 82, 83.

[17] Mann, F. C.: Further Experimental Study in Surgical Shock, J. A. M. A. **71**: 1184 (Oct. 12) 1918.

[18] Bayliss, W. M.: Intravenous Injection in Wound Shock, London, 1918.

We must therefore conclude that the voluntary muscular system plays a secondary, not a primary rôle in exhaustion. We have seen that the respiratory and the circulatory systems and the voluntary muscular system are sometimes primary causes of exhaustion, and frequently secondary causes. We have seen that in exhaustion all these tissues suffer a variable amount of disability; but the primary common cause of shock remains to be disclosed.

THE SUPRARENALS

The criteria for the objective study of the suprarenals are epinephrin output, the electric conductivity and the histologic picture. Elliott,[19] Cannon [20] and others have found an increased epinephrin output and a diminished epinephrin content in certain cases of exhaustion, for example, in exhaustion due to inhalation anesthesia, to infections, and to emotion. Short [21] found no notable diminution in the epinephrin content in shock; Bedford [22] found no diminution of epinephrin output in shock; Mann [23] dissociates the suprarenals from shock. In our laboratory we found cytologic changes in the suprarenals in exhaustion from any cause, including insomnia, these changes being more marked in the cortex than in the medulla.

Relation of Suprarenals to the Liver and to the Brain in Exhaustion.—Apparently epinephrin alone can cause the brain greatly to increase its work. By cross-circulation experiments, we have found that epinephrin causes increased activity of the central vasomotor mechanism. Not only can epinephrin, as Cannon has shown, cause all the basic phenomena of exertion, emotion, infection, etc., but it also causes brain cell lesions identical with those produced by exertion, emotion, infection, etc., including the entire cycle of hyperchromatism, chromatolysis, swelling and even disintegration of the brain cells. The injection of epinephrin causes an immediate increase in the conductivity of the brain to above the normal, followed by a later decrease to below the normal; moreover, epinephrin causes an immediate increase in the temperature of the brain, as evidenced by thermocouple measurements. We know that when the suprarenals are excised, the brain cells undergo a progressive cytolysis; and there is no primary stage of hyperchromatism, but an immediate and progressive chromatolysis, edema and final breakdown.

From these facts, it would appear that the brain is profoundly, even vitally, dependent on the suprarenals; that without the suprarenals, the brain rapidly loses not only its functional power, but also its power of survival. How is the influence of the suprarenals on the brain exerted? Is it the result of direct action of epinephrin on the brain cells? Does epinephrin owe its effect on the brain cells to the resultant formation of an increased amount of oxyhemoglobin in the lungs, which was demonstrated by Dr. Menten;[24] or to its power of increasing the alkalinity of the blood? Or does epinephrin owe its remarkable effect on the brain cells to an intermediate effect on some other organ, such as the thyroid (Aschoff, Cannon) or the liver?

That the suprarenals exert also a vital influence on the liver has been demonstrated by the cytologic changes produced by the intravenous injection of excessive amounts of epinephrin — chromatolysis, edema, displacement of nuclei, loss of the power of differential staining. Similar cytologic changes in the liver cells follow double suprarenalectomy. When the liver cells are thus altered, from whatever cause, the brain is unable to do its work normally, and becomes exhausted. Assuming that the *absence* or the *excess* of epinephrin causes changes in the cells of the brain and the liver characteristic of exhaustion, then does epinephrin produce these changes in the brain cells *primarily* by acting directly on the brain, or *secondarily* by first acting on the liver? It is known that epinephrin facilitates oxidation; hence it facilitates energy transformation, and, therefore, the internal respiration of the cells of each organ would be speeded up by the presence of epinephrin and diminished by its absence. The brain, being dependent on the functional integrity of the liver, and the liver being dependent in part on the suprarenals, and each being dependent on oxidation, which in turn is, in part at least, dependent on the suprarenals, we must conclude that the liver and the brain are dependent not only on each other, but on the suprarenals as well.

We may conclude, therefore, that the suprarenals are factors in the primary cycle of exhaustion, though their rôle cannot be accurately defined.

THE LIVER

Is the primary cause of exhaustion to be found in the liver? That the liver is necessary to the functional activity of the brain is proved by the following data:

(*a*) After excision of the liver, the power of the brain to drive the organism, to transform potential energy into kinetic energy, such as heat or muscular or mental action, is rapidly diminished and completely lost at the time of inevitable death, usually within a few hours.

(*b*) The brain cells show changes in their cytologic structure which are progressive from the moment the liver is excised.

(*c*) After excision of the liver, the temperature of the brain falls progressively until death.

(*d*) In every type of exhaustion from whatever cause, the cells of the liver invariably show cytologic changes, such as diminished power of differential staining, edema, and eccentric position of the nucleus.

(*e*) *Granting adequate circulation and respiration in a decapitated animal,* the excision of the liver causes death earlier than decapitation or suprarenalectomy.

Some of the most important functions of the liver remain to be discovered, but there is one possible relation to which I may refer: The brain cells contain almost no stored carbohydrates or neutral fats; they contain almost no factors of safety against acidosis [25] They have almost no stored oxygen. The brain cells are almost wholly dependent on the blood for oxygen and for carbohydrate fuel to maintain their active and continuous metabolism; the blood is dependent on the liver for sugar for the brain. *Apparently,* for its protection against want of sugar, against intracellular acidosis, the brain is in part dependent on a long distance connection with other tissues, especially the liver. The liver cells are endowed with a great facility for autolysis; the brain cells are but slightly subject to autolysis. We may suppose that the keen, stable brain cells have a special chemical dependence on the remarkably unstable liver cells. For opposite reasons, then, the two organs that are most susceptible to acidosis are the brain and the liver—the brain because of its extreme activity in acid production and because of *its lack of intracellular defense against acidosis*, the liver because of its avidity for acids, possibly an adaptation for the protection of other vital organs, especially the brain. If the brain cells contained space for the storage of reserve supplies of energy-producing material and protection against acidosis, in proportion to the space provided for this purpose in the cells of other organs, not only would the size of the brain be greatly and awkwardly increased, but its power to do work would be correspondingly diminished.

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[19] Elliott, T. R.: J. Physiol. **32**: 401-467, 1905, **44**: 374-409, 1912.

[20] Cannon, W. B.; de la Paz, D., and Hoskins, R. G.: Bodily Changes in Pain, Hunger, Fear and Rage, 1915, Am. J. Physiol. **27**: 64-70, 1911; **29**: 274-279, 1911-1912.

[21] Short, A. R.: Lancet **1**: 731-737, 1914.

[22] Bedford, E. A.: Am. J. Physiol. **63**: 235-257 (May) 1917.

[23] Mann, F. C.: Shock During General Anesthesia, J. A. M. A. **69**: 371-374 (Aug. 4) 1917.

[24] Menten. M. L.: Am. J. Physiol. **44**: 176-195 (Sept.) 1917.

[25] Mathews, A. P.: Physiological Chemistry, 1916, pp. 586-589-592, 784-785.

The integrity of the liver is essential to the work of the brain; and the integrity of the liver is also essential to the elimination of the acid by-products of metabolism by the kidneys and the lungs. When the liver is excised, the blood tends to become acid as the animal approaches exhaustion. The transfusion of blood and the administration of epinephrin or of morphin exert not the least check on the exhaustion and death which follow excision of the liver. On the other hand, decapitation apparently does not interfere with the function of the liver. For its oxidizing and reducing power, the liver apparently depends, in part at least, on the suprarenals; for, as stated above, the excessive intravenous injection of epinephrin on the one hand, and suprarenalectomy on the other, cause marked cytologic changes in the liver cells—chromatolysis, edema, eccentric position of the nucleus.

In our electric conductivity studies, we found that in exhaustion from any cause the liver and the brain were affected in opposite directions, that is, in extreme exhaustion the conductivity of the brain was decreased, and the conductivity of the liver was increased. In the earliest stages of stimulation, these changes were reversed, the period of increased conductivity of the brain apparently corresponding to the period of hyperchromatism established by our histologic studies.

From these premises, we conclude that the liver is inseparably associated with the brain and the suprarenals in the production of shock and exhaustion; but as the liver has no means of immediate contact with the external excitants of shock and exhaustion, it apparently in some way is influenced indirectly through the mediation of the brain.

We have now seen that exhaustion may be produced both primarily and secondarily by anatomic and functional defects and disabilities of the respiratory system, of the circulatory system, of the blood, of the liver, of the suprarenals. We have seen that in exhaustion these organs and systems share in the general debility, but we have not been able to show that functional impairment of any one or of any combination of these is the sole cause of the exhaustion of the organism in exertion, in emotion, in injury, in infection, in enforced loss of sleep, etc. If, then, the primary cause of exhaustion is not disclosed in the study of these important organs and tissues, which are either directly or indirectly driven by the master tissue, the brain and the nervous tissue, we may then ask: Is the primary cause of exhaustion to be found in the brain? Has the brain inherent elements of weakness greater than those of any other organ or tissue of the body?

THE BRAIN AND THE NERVOUS SYSTEM

The Brain as an Energy-Transforming Organ.—Environment, external and internal, drives the brain; and the brain either directly or indirectly drives the entire organism. Is the brain tissue itself a transformer of potential energy into kinetic energy, and does it drive the body by means of some familiar form of energy which it creates, or does the brain drive the body as a mystery organ obeying no physical laws? Is the brain capable of exhausting itself primarily by its own excessive work, or is it only secondarily exhausted?

Do the brain cells transform much or little energy? Are they active or inactive cells? That the brain transforms potential into kinetic energy, and by means of that energy drives the body, is shown by the want of power of action when the head is cut off. That the brain is not only an active, but the most active energy-transforming organ of the body, is held by Mathews.[26]

The work of the brain is greater in proportion to the weight of its tissue than is the work of any other organ of the body. Alexander [27] and Cserna state that the brain shows a consumption of 0.360 c.c. of oxygen per gram minute, while voluntary muscle shows a consumption of only 0.004 c.c. of oxygen per gram minute. According to these observers, a given weight of brain tissue transforms energy about ninety times as rapidly as an equal weight of the voluntary muscles in the quiescent state. The volutnary muscles constitute 42 per cent. of the weight of the body, the brain 2 to 3 per cent. Hence, according to the findings of Alexander and Cserna, excepting when active, the brain has a total metabolism five times greater than the metabolism of all the voluntary muscles together.

From these facts, we conclude that the brain is an organ of intense metabolism. Are the brain cells safeguarded against the factors of exhaustion?

It would appear that the brain cell is evolved stripped to its decks, to fight the battle of life; as if its function as an energy-transformer were so important that certain means of defense are withheld from the brain cell and provided for it by other organs, for example, protection against intracellular acidosis, against want of oxygen, against want of food. It would seem, therefore, that these vital functions are committed to other organs. The vast volume and distribution of blood in the liver, in the lungs and in the kidneys provide for the rapid elimination of waste which is urgently necessary, especially for the safety of the brain. The extreme avidity of the liver cells for acid metabolites, coupled with the immense cellular surface exposed to the blood stream, we conceive to be one of the greatest safeguards to the brain against acidosis. The large storehouse of sugar in the liver serves as the fuel depot for the brain and as a protection against want of anaerobic oxygen. The blood stream carries oxygen and sugar to the brain; the buffer substances of the blood are a continuous protection to the brain against intracellular acidosis. *The brain cells may be conceived as having their protective and nutritive cytoplasm evolved to function at a distance.*

From the elaborate provision for its protection, we may infer that the energy-transforming function of the brain has such high selective value in the biologic sense as to confer a selective value also on the structure and function of the liver and of the blood; for if the brain cells thus stripped cannot transform energy fast enough to drive the muscles speedily enough to escape from the enemy, then the liver and the blood will perish as well as the brain. The more completely the liver and the blood and the lungs and the kidneys keep the brain cells free from the impairing by-products of their active metabolism, the cleaner pair of heels will the pursuing enemy see. It would seem that if the bulk of the brain cells were increased by stores of lifeless food, their power of attack and defense would be diminished.

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[26] Mathews, A. P.: Physiological Chemistry, 1916, pp. 563-565, 534-595.

[27] Alexander, F. G.: Biochem. Ztschr. **64**: 127, 1912.

The brain cannot work continuously, but a reversible process is necessary at regular intervals to restore it. This process in the higher centers is called sleep. The more intense the activation, the more needed is sleep. The brain is the only organ that sleeps conspicuously. Of great significance is the fact that the entire man spends one third of his time waiting for the brain to restore itself—to put itself again in the position of being able adaptively to transform potential into kinetic energy.

The dominating importance of the brain is further shown by the fact, as Mathews [28] has pointed out, that natural selection in the higher animals has centered on the brain and on the brain alone. Higher animals compete through their brains. Hence, in the brain cells we have the highest development of a mechanism for transforming energy, for securing survival through adaptation.

IS EXHAUSTION OF THE BRAIN PRIMARY OR SECONDARY, OR BOTH?

There is evidence that the brain is both primarily and secondarily involved in exhaustion. Experimental evidence of the primary involvement of the brain in the processes leading to shock and exhaustion is found (*a*) in the histologic picture of immediate hyperchromatism followed by progressive chromatolysis; (*b*) in immediate increased electric conductivity, followed by a progressive decrease below the normal, and (*c*) in immediate alteration in the temperature of the brain as evidenced by direct measurements with the thermocouple.[29] Common experience demonstrates that sudden bad news, intense fright, sudden severe pain, or acute overwhelming infection causes an immediate loss of muscular and mental power. Further evidence of the diminished power of the brain to do work in the presence of an adequate blood pressure and respiration is seen during the early stages of physical exertion, of emotion, of fever, of insomnia, etc. Athletes in the early stage of the contest show no diminution of blood pressure. but they do show diminished mental power.

In shock-producing trauma of animals under anesthesia, it was usually half an hour before the blood pressure began to decline. What would be the physical power of an animal thus traumatized and disemboweled were he allowed to recover from anesthesia, even though his blood pressure were normal? Captain Cowell [30] found that the average blood pressure of soldiers on active trench duty was above normal; but despite their high blood pressure these soldiers nevertheless had to be relieved for rest because of their fatigue.

In the course of fevers, the blood pressure is usually higher than normal, but the man is prostrated. In the midst of acute grief or worry, the blood pressure may not be reduced, but the power of the brain is reduced. A rabbit under intense excitation shows a blood pressure higher than normal, but its brain power is diminished. A brilliant student, a great military strategist, a highly trained executive may suffer a breakdown from mental overwork and be in a state of brain exhaustion, yet the blood pressure may be normal. In the experimental laboratory, in the clinic of life, in the stress of war, we have reliable data from which we conclude that the brain may be exhausted primarily while the blood pressure may be normal or even higher than normal. The brain is primarily exhausted in insomnia, in which doubtless acid by-products are not produced faster than the body is able to eliminate them. The brain is primarily exhausted by anesthetics, by cyanids, by acids, by lack of oxygen, by direct or reflex electric stimulation, by the excision of the suprarenals, by the excision of the liver, etc. On the other hand, neither the brain cells nor any other organ, nor the individual as a whole, is immediately exhausted by unlimited trauma inflicted on areas cut off from connection with the brain by blocking the nerve supply.

To a less degree, but markedly, is exhaustion from trauma or emotion controlled by large doses of morphin, or by nitrous oxid. Nitrous oxid diminishes the oxidation of the brain cells, and hence the brain is less driven by trauma. When exhaustion or shock from trauma is prevented by blocking the nerves, or when the nerves are intact, but the brain cells are prevented by nitrous oxid from being excited to action, not only is the brain protected, but the liver, the suprarenals, and other organs are equally protected; the blood pressure does not fall, and the individual as a whole is almost completely protected against exhaustion. But despite the fact that the brain is the primary factor in both work and exhaustion, the brain is affected also by many secondary causes of exhaustion—defective circulation, insufficient lung ventilation, low blood pressure, anemia, blood acidosis, hemorrhage, lack of oxygen, disease of the liver, disease of the suprarenals, etc.

Apparently the more chemically receptive and reactive the tissue, and the more highly it is evolved to transform energy, the more readily is it exhaustible. Only cells have the power of transforming energy. The cell being the unit of work, the cell equally is the unit of exhaustion, and the brain cell is the most readily exhausted.

We may conclude by repeating Sherrington's statement that the brain is the master tissue of the body. We have seen that the brain is the most active energy-transforming tissue of the body. We may conclude that when we speak of exhaustion of a man, we mean exhaustion of his brain. This is the central fact.

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[28] Mathews, A. P.: Physiological Chemistry, 1916, pp. 563-564.

[29] The protocols of the researches on the findings in which these statements are based will shortly be published.

[30] Cowell, E. M.: The Initiation of Wound Shock, J. A. M. A. 70:607-610 (March 2) 1918.

Influence of Chemistry on Medicine.—Chemistry has influenced medicine from the days of alchemy onward; Paracelsus and Van Helmont stand out as picturesque figures in its history. In England the rise of physics and chemistry began in Harvey's lifetime with those meetings of scientific men which later gave birth to the Royal Society. It must not be forgotten that the work of such men as Boyle, Hooke, Lower, and Mayow practically solved the problem of respiration not long after Harvey's death—a problem second only in importance to that of the circulation—though a century was to elapse for its full meaning to become clear with the discovery of oxygen. Every advance in physics and chemistry has borne fruit for us in its turn; today we can almost affirm that the chief issues in physiology and pathology are to be sought in the chemical activities of the human body. These, again, are bound up with physical conditions, and there is one recent branch of chemistry, the possibilities of which are only beginning to be appreciated in medicine. If we reflect that the body, from a chemical point of view, consists almost entirely of colloids, the behavior of which is still imperfectly understood, it will be realized that advances in colloidal chemistry are destined to throw a flood of light on the processes of vital activity.—F. W. Andrewes, *Lancet*, Oct. 23, 1920.

LEUKANEMIA

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In 1900, Leube,[1] under the designation of leukanemia, described a rapidly progressive disorder characterized by changes that suggested a combination of pernicious anemia and myelogenous leukemia, the alterations in the peripheral blood being marked by severe anemia, high color index, and the presence of excessive numbers of nucleated red cells and of large mononuclear cells, the latter belonging, apparently, to the myelocytic series. Leube believed that leukanemia was an independent disease and that it could not be included properly in the same category with either pernicious anemia or leukemia. Several years later, Drysdale,[2] in England, collected most of the cases then available in the literature, and added one of his own. He came to the conclusion that leukanemia belongs to a group of atypical myelocytic leukemias.

Analysis of those cases of leukanemia in which postmortem investigation was carried out reveals almost identical anatomic changes, namely, a combination of red and white transformation of the bone marrow, myeloid foci in the liver and spleen, and extensive infiltration and replacement of the lymph nodes by the same sort of large mononuclear leukocytes as are found in the blood and marrow. In addition, there are fatty changes in the liver, heart and kidneys, petechial or larger hemorrhages in the skin, mucous and serous membranes, and, in contradistinction to pernicious anemia, absence of siderosis of the liver.

During life, the number of leukocytes in the blood varies within wide limits, from hypoleukocytosis to hyperleukocytosis, and is consequently of negligible importance from the standpoint of diagnosis. In some cases the white cells throughout remain below, at, or slightly above the normal average; in others, the number is high from the beginning of observation, while still other patients display an abrupt increase in the last few hours of life. The stained film, on the contrary, invariably shows striking deviations from the normal differential quota, in the form of a high percentage of large mononuclear nongranular white cells corresponding, morphologically, to myeloblasts, together with nucleated red cells, most of which are megaloblasts. The polymorphonuclear neutrophils are relatively decreased in number, and in many instances are characterized by the absence of granules in the cytoplasm, their morphology in other respects remaining natural. Variable numbers of eosinophilic and neutrophilic myelocytes are sometimes to be found, but rarely do they constitute an important feature in the blood picture.

In the earlier contributions to the subject, discussion as to the nosologic position of leukanemia centered largely around the identity of the large mononuclear nongranular white cells to be found so abundantly in the circulation, bone marrow, spleen, liver and lymph nodes. In 1913, Treadgold,[3] on morphologic grounds alone, suggested that they were myeloblasts. In the following year, Meyer[4] recorded two clinically and otherwise typical cases of leukanemia in which, in the spleen and lymph nodes, he observed vast numbers of large mononuclear nongranular cells which morphologically resembled myeloblasts and which, moreover, gave a positive oxydase reaction. The application of this test was really the first scientific step taken to identify the cell—previously its status was entirely a matter of opinion.

Recently I have had occasion to study a case of leukanemia in which the preponderating white cell yielded a positive oxydase reaction, this fact, together with the morphology of the cell, serving to confirm Meyer's contention that it is a myeloblast.

REPORT OF CASE

History.—A woman, aged 32, was admitted to Bellevue Hospital, Aug. 11, 1920, and died nine days later. She stated that five weeks previous to admission she became suddenly ill with the symptoms of severe occipital headache and vomiting. At about the same time she noticed that she was growing weak and pale. At the moment of admission, the patient was extremely pale. The conjunctivae showed numbers of hemorrhagic petechiae. Ophthalmoscopic examination revealed flamelike hemorrhagic extravasations in both retinas. The edge of the liver was felt about 4 cm. above the level of the umbilicus, and the spleen was palpable slightly below the costal slope. The red cells numbered 630,000; white cells, 36,000; hemoglobin, 20 per cent.; color index, 1.6. The stained film revealed anisocytosis, polychromatophilia and poikylocytosis. The differential count showed megaloblasts, 15 per cent.; normoblasts, 2 per cent.; polymorphonuclear neutrophils, 10 per cent.; lymphocytes, 15 per cent.; eosinophilic myelocytes, 1 per cent.; neutrophilic myelocytes, 1 per cent., and 51 per cent. of large mononuclear cells with a round or indented nucleus staining rather deeply and occupying almost the whole of the cell body, and a slightly basophilic cytoplasm with few or no granules, the great majority of the cells being entirely free from granules. Blood cultures remained sterile. The patient's temperature varied between 101 and 102 F., reaching 103 on one occasion. The systolic blood pressure was 110; diastolic, 50. The urine was negative.

Necropsy.—The body was extremely pale but well nourished. There were a few petechiae in both ocular conjunctivae. The subcutaneous fat was well preserved and light yellow. The skeletal muscles were light reddish.

The heart was liberally sprinkled with light yellow spots lying beneath the endocardium and scattered throughout the muscle substance. These, on microscopic examination, were found to consist of foci of fat droplets in the muscle fibers.

The pleurae were spotted with hemorrhagic petechiae, and there was a large, solitary, hemorrhagic infarction in one of the lungs. Both lungs were edematous.

The liver was large and light yellowish brown; beneath the capsule and throughout the substance were myriads of small, yellowish points lying in the centers of the lobules. These, on microscopic examination, were found to represent fat. Stained by sudan III, it was seen that the cells of the inner half or two thirds of the lobule were completely replaced. In addition, section of the liver revealed a half dozen irregularly scattered foci which were finely mottled in yellow and red, the largest focus measuring about 1 cm. in diameter, all of them lying flush with the cut surface. These, on microscopic examination, were found to consist of myeloid formations, that is to say, of collections of large mononuclear cells with smooth cytoplasm, corresponding to the mononuclear cells found in such abundance in the circulating blood. These cells yielded a positive oxydase reaction. Scattered among them were considerable numbers of nucleated red forms. These foci lay in the periportal connective tissue or between the liver cells, forming collections of various shapes and sizes.

The spleen was distinctly enlarged, steel gray, and of increased consistency. On section, the cut surface was riddled with pinhead-sized, grayish pink foci lying so closely together as almost to obscure the reddish color of the pulp in which they were embedded. Microscopic examination disclosed that the greater part of the lymphoid follicles, together with the pulp, had been infiltrated by hordes of large, mononuclear, nongranular cells such as were encountered in the liver and elsewhere. Among them nucleated red cells were to be distinguished in considerable numbers. Both the liver and the spleen failed to react for iron.

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[1] Leube: Sitzungsber. d. phy. med. Ges., Wurzburg, 1900.
[2] Drysdale: Quart. J. Med. **1**: 89, 1908.
[3] Treadgold, C. H.: Lancet **1**: 94 (Jan. 11) 1913.
[4] Meyer: Frankfurt. Ztschr. f. Path. **15**: 40, 1914.

The kidneys presented no changes to the naked eye other than marked anemia and numerous petechiae in the mucosa of the pelves. On microscopic examination, however, numbers of myeloid foci of the same general description as those encountered in the liver and spleen were found to be present.

The mesenteric and retroperitoneal lymph nodes were more distinct than in ordinary circumstances, discrete, and firm in consistency, the largest approximating 2 cm. in length. Seen through the capsule, they were a dull grayish brown; on section, the cut surface was smooth and light brownish gray, with minute grayish or grayish yellow streaks or points. Microscopic examination revealed practically complete replacement of the lymphoid tissues by infiltrating large mononuclear cells that responded to the oxydase test.

The bone marrow of the lower end of the femur was of soft consistency, abundant in quantity, and composed of distinct reddish islands or streaks intermingling with and gradually fading into grayish or cream-colored foci, the whole combining to give the surface a velvety, mottled appearance. Smears of the bone marrow revealed markedly increased numbers of large mononuclear cells of the type already described in the circulating blood. The majority of these cells were nongranular. In addition, nucleated red cells, most of them megaloblasts, were visible in profusion. The polymorphonuclear neutrophils were relatively few; but, when seen, the cytoplasm in the majority of cases was entirely bereft of neutrophilic granules. An occasional eosinophilic or neutrophilic myelocyte was to be observed.

The remaining organs showed nothing worthy of record in the present connection, except for the presence of petechial hemorrhages in the mucosa of the larynx, hyperplasia of the lymphoid follicles at the base of the tongue and in the stomach, and petechial or patch-like hemorrhages into the pia mater.

COMMENT

From these observations and from those of Meyer, previously mentioned, it appears that the identity of the preponderating large mononuclear leukocyte in leukanemia has been established—that it is the myeloblast. Among hematologists, the consensus favors the view that the myeloblast is capable of differentiation into nucleated red cells, on the one hand, and into granular leukocytes, on the other—eosinophilic and neutrophilic myelocytes, polymorphonuclear neutrophils, and eosinophils. From the histogenetic standpoint, it appears that the provocative agent in leukanemia—whatever it may be—strikes the bone marrow with such force as to bring about almost instantaneous demoralization of its hematogenic centers, thus causing to be thrown into the circulation vast numbers of embryonal cells of both the erythroblastic and leukocytic series, leukanemia representing, therefore, a combination of changes of the same type as those encountered in pernicious anemia and myelogenous leukemia — diseases which ordinarily are regarded as antipodal, but which really represent, most likely, different responses to the same sort of stimulus acting on the same mother cell in the bone marrow with different degrees of intensity. For example, in pernicious anemia and in chronic myelogenous leukemia, the provocative agent acts with a measure of deliberation which permits differentiation of the metrocyte into erythroblast and myeloblast, respectively, while in leukanemia the hematogenic marrow is so completely and so suddenly thrown into confusion that regeneration proceeds without any attempt at orderly discrimination in favor of any particular variety of cell. In pernicious anemia, also, myelocytes are occasionally to be detected in the peripheral blood, but are completely overshadowed in numbers by the nucleated red cells, although in the bone marrow the presence of increased proportions of myeloblasts and myelocytes is common. Conversely, in chronic myelogenous leukemia the occurrence of nucleated red cells in the peripheral blood may constitute a striking feature, Gulland and Goodall[5] having recorded 52,000 per cubic millimeter in one of their cases. In other words, the same hematologic composites are sometimes to be found in the blood and bone marrow in pernicious anemia and chronic myelogenous leukemia as are constantly present in the same localities in leukanemia, but with the important difference that, in the latter condition, numerical distinctions are less sharply pronounced, although the primary reaction of the bone marrow is qualitatively the same.

Leukanemia, in some respects at least, is not inaptly comparable to certain rapidly progressive disorders of the blood in which the lymphocytes play the major rôle, notably the so-called acute lymphatic leukemia, Sternberg's leukosarcomatosis, and the leukemic transformation of mycosis fungoides. In acute lymphatic leukemia, the disease pursues an extremely rapid course, attended in some instances by pronounced increase in the total number of leukocytes in the blood, the majority consisting of small lymphocytes, while in other cases there is no leukocytosis or even leukopenia, although the differential count shows the same overwhelming preponderance of small lymphocytes. In Sternberg's leukosarcomatosis,[6] there is present in some part of the body—within the thorax or in the skin, breast, uterus, stomach or elsewhere—a lymphocytic or myelocytic tumor that persists for months or years, and suddenly commences to pour lymphocytes or myelocytes into the blood in such numbers as to constitute a form of acute leukemia, death occurring in a few weeks. The chloromas, apparently, belong in the same general category—that is to say, tumor-like growths in various parts of the bone marrow that are apt abruptly to throw enormous numbers of myelocytes into the blood and thus to terminate life in a few weeks. In the same way, mycosis fungoides[7] not infrequently ends with the blood picture of acute lymphatic leukemia. In fact, mycosis fungoides is no longer to be regarded as a primary affection of the skin, but as the cutaneous expression of changes in the lymph nodes, bone marrow and elsewhere that are closely comparable to those of Hodgkin's disease.[8] Clinically, however, Hodgkin's disease and mycosis fungoides are divergent in that, among other things, leukemic transformation of Hodgkin's disease has never been observed. The so-called lymphodermia perniciosa of Kaposi[9] is accompanied by changes in the skin so noticeably like those of mycosis fungoides that the French dermatologists are inclined to classify the condition as such—a view which is supported by the fact that, in both, terminal leukemic transformation is common.

As far as leukanemia is concerned, it is difficult, if not impossible, at this time to classify it or to state definitely whether it is or is not an independent disease. It seems to me that the most acceptable interpretation is that leukanemia and the acute leukemias occurring either spontaneously or as a terminal event in association with previously existing lesions of the hemopoietic apparatus, are manifestations of sepsis.

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[5] Gulland and Goodall: The Blood, 1912.

[6] Sternberg: Wien klin. Wchnschr. **21**: 475, 1908; Beitr. z. path. Anat. u. z. allg. Path. **61**: 75, 1916.

[7] Fraser, J. F.: J. Cutan. Dis. **35**: 793 (Dec.) 1917. Symmers, Douglas: Ibid. **37**: 1 (Jan.) 1919.

[8] Symmers, Douglas: A New Interpretation of the Pathologic Histology of Hodgkin's Disease, Arch. Int. Med. **19**: 990 (June) 1917.

[9] Kaposi: Med. Jahrb. **15**: 129, 1885.

SUMMARY

1. Leukanemia is characterized clinically by an extremely rapid course and by changes in the blood, bone marrow, spleen, liver and lymph nodes that partake both of the nature of pernicious anemia and myelogenous leukemia, the causative agent acting on the hematogenic centers of the bone marrow in such fashion as to produce marked numerical increase in those primitive cells which represent the precursors of both the erythroblasts and the granular leukocytes. The primitive cells in question are myeloblasts, as shown by their morphology and by the fact that they respond to the oxydase test.
2. Histogenetically, pernicious anemia, myelogenous leukemia and leukanemia are closely related conditions, and represent different quantitative responses on the part of the bone marrow to regenerative stimuli acting on the same metrocyte, namely, the myeloblast.
3. Leukanemia is probably not an independent disease but one of a group of rapidly progressive derangements of the blood-forming tissues due to infection.

CARCINOMA OF THE PANCREAS WITH ULCERATION INTO THE GASTRO-INTESTINAL TRACT [*]

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PHILADELPHIA

Carcinoma of the pancreas is usually recognized by its effects on adjoining structures, either by mere pressure, as in the case of common bile duct obstruction, or by direct extension of the malignant process. As a result of involvement of the gastro-intestinal tract in the latter process ulceration sometimes occurs, although Friedreich is quoted by Opie [1] as including this occurrence among the rare pathologic findings.

If one consider the anatomic relations of the pancreas to surrounding structures, one is at once impressed that such ulceration might be expected to be a common finding. The only structure that intervenes between pancreatic tissue and the surrounding viscera is peritoneum, since the pancreas has no true capsule. The head of the gland is molded on the side of the duodenum; the anterior surface is in contact above and on the right with the beginning of the transverse colon, without even the interposition of peritoneum, as a rule. The anterior surface of the body forms a considerable portion of the stomach bed, and is in relation with the pylorus. The left end of the body is in relation with the splenic flexure of the colon. The tail is in contact with the spleen, and is in close relation with the left suprarenal gland and the left kidney.

Furthermore, the symptoms of carcinoma of the pancreas are mainly symptoms arising from the surrounding structures, which speaks strongly for their early physiologic if not anatomic involvement in the growth. Thus, pain, jaundice and the various gastro-intestinal symptoms that occur do not arise from the pancreas itself, but from those structures which surround it. The pathognomonic signs and symptoms arising from the pancreas itself are generally acknowledged to be far less frequent than most of the handbooks and manuals of medicine would have us believe.

Through the kindness of Dr. Allen J. Smith, I have been able to review records of the cases of primary carcinoma of the pancreas which came to necropsy from the wards of the University and the Philadelphia General Hospitals, from 1874 to 1916. There were eleven cases in which the diagnosis was confirmed histologically. Of these there were six in which was found an ulcerating cavity leading from the tumor mass into one or more of the hollow viscera.

RELATIVE FREQUENCY WITH WHICH PARTS OF GASTRO-INTESTINAL TRACT WERE INVOLVED IN ELEVEN CASES OF CARCINOMA OF PANCREAS

Organ into Which Ulceration Took Place	Case Number 1	2	3	4	5	6	7	8	9	10	11	Total No.
Stomach	0	0	0	+	0	0	0	0	0	+	0	2
Duodenum	+	+	+	0	0	+	0	0	0	0	0	4
Jejunum	0	0	0	0	0	0	0	0	0	0	0	0
Ileum	0	0	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	+	0	0	0	0	0	0	0	0	0	1
Colon	+	+	0	+	+	0	0	0	0	0	0	4
Total number in each case	2	3	1	2	1	1	0	0	0	1	0	11

The accompanying table shows the relative frequency with which the various parts of the gastro-intestinal tract were involved. It will be noted that the greatest number of ulcerations occurred into the duodenum and transverse colon, which might be surmised from the close proximity of these organs to the pancreas. This study suggests, furthermore, that ulceration of the abdominal viscera by pancreatic carcinoma is of frequent occurrence, and that it deserves consideration in order to arrive at a true understanding of the clinical picture and course of this disease.

REPORT OF CASE

As an illustration of this complication of pancreatic carcinoma, a case record is presented:

History.—Robert K., aged 63, white, entered the men's medical ward of the University Hospital, Dec. 22, 1919, with the chief complaint of pain in the stomach. Five weeks before he was suddenly seized with severe abdominal pain of a colicky nature, located in the hypogastrium. This pain lasted about two hours, and required morphin for its relief. Following this a burning pain developed in the epigastrium, and persisted constantly until his entrance to the hospital. During this time he was constantly nauseated, but he never vomited. He had no other symptoms.

He had had similar attacks, though not so severe, coming about once every year for the last six years. Seven years before he had an attack of acute inflammatory rheumatism, which kept him in bed five weeks. Other than this the past medical history was negative. The family and social history were insignificant.

Physical Examination.—The patient was well developed, with an excess of adipose tissue. The mucous membranes and conjunctivae were pallid. There was a generalized vascular sclerosis. His mental state was the most striking feature about him; he was very apathetic, answered questions incoherently, and talked in a wandering fashion. He was apparently suffering pain. The face was sallow, with a slight subicteroid tint. There was a marked arcus senilis, and the eyegrounds showed sclerotic tortuous vessels. The gums showed a great deal of pyorrhea, the tongue was coated, and the breath foul. The posterior cervical and epitrochlear glands were palpable. The fingers were cyanosed. The chest was emphysematous in shape. Physical findings in the lungs were entirely negative. The area of cardiac dulness was somewhat widened: right base, 4 cm.; left base, 13 cm. The heart sounds were weak. No murmurs were present. The second aortic sound was accentuated. The abdomen was covered with a thick panniculus adiposus, interfering with examination. The right rectus was slightly more resistant than the left. There was tenderness over the gallbladder region. No masses could be felt. The legs and feet were normal. The superficial and deep reflexes were normal. The blood pressure was 132, systolic, 70 diastolic. The blood showed a slight anemia and 12,400 leukocytes, with a polymorphonuclear increase. The urine showed a specific gravity of 1.015, a trace of albumin, and a few light and dark granular casts. The temperature on admission was 101.6 F.; pulse, 108; respiratory rate, 24.

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[*] Read before the Pathological Society of Philadelphia, March 10, 1920.

[*] From the Service of Dr. Alfred Stengel, Hospital of the University of Pennsylvania.

[1] Opie, in Osler and McCrae: Modern Medicine 3: 650, 1914.

Based on the history, and the tenderness over the gallbladder region, a tentative diagnosis of empyema of the gallbladder, with gallstones, was made.

Clinical Course.—The urine continued to show albumin and light and dark granular casts in varying amount. The specific gravity ranged from 1.008 to 1.023. One specimen showed a trace of sugar, but this was never repeated, even with twenty-four hour samples. The blood continued to show a slight anemia, increasing as time went on. The leukocyte count ranged from 6,000 to 23,000. Blood urea nitrogen, plasma carbon dioxid and plasma chlorids were normal. A rectal examination was negative. A gastric analysis revealed: 320 c.c. of contents forty-five minutes after an Ewald meal with a total acidity of 10, and no free hydrochloric acid; no lactic acid; occult blood, positive. Examination of the stools was negative until Jan. 5, 1920, when occult blood was reported strongly positive for the first time. The Widal reaction on two occasions was negative for typhoid, paratyphoid A, and paratyphoid B.

In spite of the diagnosis of empyema of the gallbladder, it was decided that the patient's condition precluded operation. He remained much the same as on admission, save for the increasing loss of flesh and strength. At times he would be clearer mentally, but would soon relapse into his lethargic state. January 19, he vomited a large quantity of blood early in the morning. Three or four times following this he vomited large quantities of fresh, bright red blood. By the afternoon he had ceased vomiting, but he continued to grow progressively weaker, and he died that evening.

Necropsy.—The peritoneal cavity contained no free fluid, and the peritoneum was smooth and glistening. The thorax was negative. The aorta showed atheromatous plaques, and sclerosis. The heart showed marked cloudy swelling and interstitial fibrosis. The lungs were normal. There was a chronic perisplenitis, with fibrosis and passive congestion. The kidneys showed a chronic parenchymatous nephritis. The liver showed cloudy swelling, with slight fatty infiltration. The posterior wall of the stomach was adherent to a large ulcerating mass, but not infiltrated by it. The duodenum contained large quantities of brownish, bloody fluid. The lower duodenum was firmly adherent to a large mass, apparently arising from the head of the pancreas, which appeared to have eroded into the duodenum just below its curvature at the head of the pancreas. The head and anterior half of the body of the pancreas was transformed into a huge, necrotic, foul smelling mass, 15 cm. in its greatest diameter. This mass was firmly attached to the posterior wall of the stomach, and the lower part of the duodenum and transverse colon. The lower pole of the spleen and the under surface of the diaphragm were likewise adherent. In the middle portion of the transverse colon two large openings were present, the larger one about 3 cm., the smaller 1.5 cm. in diameter. The openings of the intestine connected with the ragged ulcerating mass, the boundaries of which were stated above. The center of this mass formed a cavity in which blood clots and necrotic material lay free.

A gross diagnosis was made of "ulcerating cancer of the head of the pancreas, with erosion into the transverse colon, and probably erosion into the lower portion of the duodenum. Adhesions of the cancer to the posterior wall of the stomach, the transverse colon, lower part of the duodenum, the pole of the spleen, and the peritoneal surface of the right diaphragm."

The histologic examination disclosed a primary carcinoma of the pancreas, medullary in type.

FAMILY OUTBREAKS OF EPIDEMIC POLIOMYELITIS *

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AND
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The occurrence of many cases of an infectious disease in the same household is generally considered as indicating the degree of contagiousness of the disease. In epidemic poliomyelitis, the occurrence of multiple cases is the exception rather than the rule. Instances of multiple cases have been reported in some of the larger epidemics, and no doubt more such cases would have been observed had the present diagnostic methods been used and abortive cases recognized.

One of the earliest instances, in which four or more cases of poliomyelitis were observed in a single household, was reported by Wickman[1] in his study of the epidemic in Sweden in 1905. In this epidemic of 1,031 cases, there were fourteen households in each of which four cases of poliomyelitis occurred; seven households in each of which five cases occurred, and one household in which eight cases occurred. No record, however, is given of the number of families or children in any of these households, but he states that the onset is often simultaneous. When infection is not simultaneous, the symptoms of the secondary cases appear in from six to twelve days. Shidler,[2] in a report on the epidemic in Nebraska consisting of 144 cases, observed four cases in each of three families, and six cases in another family. In the epidemics in Austria between 1909 and 1913, three instances of four in a single family, and one instance of five in a family are recorded by Stiefler.[3] Six instances in which four members of the same family developed poliomyelitis are recorded in the New York epidemic[4] of 1916, in which there were more than 8,000 cases. Few other accounts of four or more cases in a single family in smaller epidemics are on record, but the clinical records in all multiple cases are so meager that in some, at least, doubt might be raised as to the diagnosis.

Last summer we observed an instance in which four cases of poliomyelitis developed in one family. This family consists of the father, mother and eleven children, whose ages range from 5 to 23 years. The family lives in a two story frame cottage of eight rooms, the three adjacent lots being used for garden and chicken yard. It is not a congested part of the city, and the sanitary conditions of the house and surroundings are good. No definite source of infection could be determined, since there were no cases of poliomyelitis in the vicinity or in the places the children visited during the summer. The children played frequently with a pet dog and in the yard where the chickens and ducks were kept, stable manure being brought in each week for the chickens to scratch in. An older brother returned from the navy two weeks prior to the onset of the first case, and Mary, the first one to become ill, had been swimming once during the summer (a month prior to the onset) and, together with her sister Irma, the second to become ill, had visited Lincoln Park a week prior to the onset of her illness, and no doubt in going to and from the park on the street car came in contact with a large number of people.

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* From the John McCormick Institute for Infectious Diseases.

[1] Wichman: Acute Poliomyelitis, Nervous and Mental Disease Monograph, Series No. 16, New York, 1913.

[2] Shidler, G. P.: The Epidemic of Spinal Disease in Nebraska, J. A. M. A. **54**: 277 (Jan. 22) 1910.

[3] Stiefler: Wien klin. Wchnschr. **28**: 1079, 1915.

[4] The Epidemic of Poliomyelitis, New York City, 1916.

REPORT OF CASES

Mary, aged 13, become ill with a headache on the morning of August 15, and morning headaches continued for the next three days. On the evening of the third day, after coming home from an amusement park, she had a chill, and on the following day she had chills, fever, nausea and vomiting. She felt quite well for the next few days except for coryza, but on the 22d she vomited again and felt worse. She felt better after this for four days, but on the morning of the 26th she felt a heaviness of the right arm, and paralysis developed during the day. She entered the Durand Hospital on the 29th, not appearing acutely ill and with a normal temperature. There was a complete paralysis of the deltoid, partial paralysis of the biceps, weakness of the pronators and supinators of the forearm, and of the flexors and extensors of the wrist and fingers of the right arm. The neck was slightly rigid, and forced flexion of the head caused pain. The right patellar reflex was absent, but all other reflexes and movements were normal. A few days later a slight paralysis of the right side of the face developed. When the patient left the hospital, October 28, there was a slight return of power in the deltoid, more return of power in the biceps, and the muscles of the forearm were still weak. The facial paralysis showed no change.

Irma, aged 9, the second to become ill, was taken sick, August 19, with fever and headache, but felt better the next day and was up and around until the 22d, when severe headache, fever, and pain in the upper portion of the spine developed. The following day the fever subsided, but the headache was more severe and there was a nasal discharge. This condition continued until the 26th, when she noticed pain and weakness of the right leg. The next day the left leg became painful, and two days later the arms also became painful. The patient entered the hospital, August 29, with a temperature of 99.4, and did not appear acutely ill. The neck was rigid, and forced flexion was painful; the shoulders could be moved, but movement caused pain; the legs were partialy flexed, and forced extension caused so much pain that the extent of the paralysis could not be determined. The abdominal and patellar reflexes could not be elicited. Spinal fluid, August 30, was clear, under slight pressure, with cell count of 40, mostly mononuclear leukocytes, the Ross-Jones and the Heller tests were positive, and Haines' solution was reduced. Cultures were negative. The pain in the legs subsided, and paralysis of the recti femoris, iliacus, and the aductors of the right leg were definitely determined; no paralysis of the left leg was evident. The abdominal muscles were paralyzed. The patient was discharged, October 6, with apparent improvement of the paralyzed muscles.

Harry, aged 12, the next to become ill, was taken sick, August 31. He complained of slight pain in the fingers of the right hand, and later this subsided and pain developed in the back of the neck. He entered the hospital the same day with a temperature of 101.8, appearing quite ill. There was some injection of the eyes, a flushing of the face, and considerable rigidity of the neck, forced flexion causing pain. All the reflexes were present, and all movements were apparently normal. A spinal puncture was made, September 1, and the fluid was opalescent, under moderate pressure, had a cell count of 460 (53 per cent. polymorphonuclears, 43 per cent. lymphocytes), the Ross-Jones and Heller tests were positive, and Haines' solution was reduced. Cultures were negative. No paralysis ever developed, but the patient cried with severe pain in the legs which lasted until September 5. The patient was discharged in good condition, September 28.

John, aged 15, the last to become ill, was taken sick, September 1, with pain in the back of the neck. This disappeared within twenty-four hours, but four days later the patient complained of severe pain in the left iliac region, and the following day shooting pains were felt in the left leg. This pain continued and was present when the patient entered the hospital, September 8, with a temperature of 100.8, and slight rigidity of the neck, forced flexion being painful. Flexion of the legs on the abdomen caused pain. The patellar reflexes were absent, but all other reflexes were present. There was no definite paralysis. The spinal fluid was clear, the cell count 108, mostly mononuclear lymphocytes, the Ross-Jones test negative, Heller test positive, and Haines' solution was reduced. Cultures were negative. September 12, the patient complained of heaviness in the right leg, and two days later both legs were affected and the patient could not hold the legs more than a few seconds when raised from the bed. The condition of the right leg improved, but the left leg became worse and, September 26, the patient could not raise the left heel more than 2 feet from the bed when the leg was extended. There was some impairment of flexion at the knee and hip. When the patient was discharged, October 6, there was no improvement of the left leg.

COMMENT

It would appear that Mary and Irma were simultaneously infected, and that Harry and John were also simultaneously infected about two weeks later. This apparent simultaneous infection of the girls and also of the boys is in accordance with observations in other family outbreaks; but whether the source of infection for all four cases was a common source, or whether the boys became infected from the girls, cannot be determined definitely.

AN EXPERIMENTAL STUDY OF THE LATENT SYPHILITIC AS A CARRIER

PRELIMINARY COMMUNICATION *

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AND
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Need has been felt for more extensive study of the latent syphilitic as a possible source of infection in relation to hereditary and congenital syphilis. A large experience with this disease suggests the importance of the so-called latent stage. A careful survey of the literature dealing with the infectivity of the blood and other material taken from syphilitics in all stages of infection has shown a surprisingly small amount of experimental investigation. With regard to the problem of latency and its bearing on the transmissibility of syphilis, the work reported is meager, and questionable as to the accuracy of the term "latent."

PREVIOUS INVESTIGATIONS

The blood from latent cases has been injected into rabbits in thirty-eight instances with four positive results (Uhlenhuth and Mulzer,[1] Frühwald[2] and others). Of these, three cases described by Frühwald cannot be regarded as latent syphilis, since active lesions were present in all of them. The other instance

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* Work done under a grant from the U. S. Interdepartmental Social Hygiene Board, Washington, D. C.

* From the Department of Dermatology, Washington University School of Medicine, and the Barnard Skin and Cancer Hospital.

[1] Uhlenhuth and Mulzer: Berl. klin. Wchnschr. **49:** 153, 1912; ibid. **50:** 2031, 1913: Zentralbl. f. Bakteriol., Orig. **64:** 165, 1912.

[2] Frühwald: Wien. klin. Wchnschr. **25:** 584, 1912; Dermat. Wchnschr. **59:** 1319, 1914; ibid. **60:** 513, 1915.

mentioned by Uhlenhuth and Mulzer is subject to the same criticism. The patient, although asymptomatic, had been delivered of a frankly syphilitic child, eighteen days before the specimen of blood was obtained, and her husband was actively syphilitic. The inguinal glands in the early stages of syphilis have been found to contain *Spirochaeta pallida* (Schaudinn and Hoffmann,[3] Metchnikoff and Roux,[4] and Finger and Landsteiner [5]). Buschke and Fischer [6] have demonstrated the organisms by direct puncture of the inguinal gland of a woman who showed no signs of syphilis and gave birth to a syphilitic child. This is, so far as is known, the only instance on record in which a latent syphilitic has been found to harbor *Spirochaeta pallida.* The value of this finding, however, cannot be interpreted with accuracy owing to the fact that no actual inoculation experiments were performed, and furthermore, owing to the recent delivery of an infected child. The semen from *latent* syphilitics has never been found to contain *Spirochaeta pallida.* One experiment has been recorded (Uhlenhuth and Mulzer).

THE PRESENT INVESTIGATION

The object of this investigation was to determine the infectivity of (1) lymphatic glands, (2) semen, (3) blood, (4) spinal fluid, and (5) nasal washings obtained from persons known to have syphilis in a latent form. The tonsils and postmortem testes were studied in too few instances to merit a detailed report of the results at this time.

The cases studied were grouped in accordance with the following classification of latency, which was devised with a view to include all possible sources of suspicious material:

Group 1. Syphilitics who have had no treatment in the last two years, with no symptoms, but with a positive blood Wassermann reaction.

- A. Same as Group 1, with a negative Wassermann reaction.
- B. Syphilitics who had become serologically "well" according to the following definition:
  - (*a*) Two successive well-spaced negative blood Wassermann reactions.
  - (*b*) A negative spinal fluid Wassermann reaction, three months after a rest period.
  - (*c*) Normal cell count in spinal fluid.

Group 2. Those who have a distinct clinical history of syphilis, who have never had any treatment and who have no symptoms, but who have a positive blood Wassermann reaction.

- A. Same as Group 2, with a negative blood Wassermann reaction. All cases in this group must have given a history under any or all of these heads:
  - (*a*) Primary sore at some time in the past.
  - (*b*) Marriage to a syphilitic.
  - (*c*) Miscarriages.

Group 3. Those with visceral syphilis, such as aortic aneurysm or cerebrospinal syphilis, and the like, any form other than skin and mucous membrane involvement, with a positive blood Wassermann reaction.

- A. Same as Group 3, with a negative blood Wassermann reaction. This classification was supplemented further with those women who would be classed according to Colles' law and children according to the law of Profeta, that is, mothers who were themselves clinically asymptomatic but whose children were syphilitic, and children who were clinically asymptomatic but whose mothers were syphilitic, respectively.

Out of a total number of 500 syphilitics seen at the Washington University Clinic during the year, seventy-five definite latent cases could be selected (15 per cent.). Whenever possible, several different materials were taken from each patient. From the time when first symptoms were noticed according to the patient's history, and the date of obtaining specimens, from one to forty years had elapsed, so that the groups we examined represented all stages of latency.

TECHNIC

Healthy, full-grown male rabbits, with well-developed testes, were used in the inoculation experiments. The species were chiefly white and gray, although Rufus Reds and a few Flemish Giants were included in the series. No difference in susceptibility could be found by control inoculations. Fluid materials, such as the blood, semen, spinal fluid and nasal washings, were injected in amounts of from 1.2 to 2 c.c. Glands and testes were first macerated with sterile quartz sand, suspended in 5 c.c. of salt solution, filtered through gauze and injected similarly into the rabbits' testes by inoculating along the long axis and expelling the material as the needle was being withdrawn slowly from the body of the testis. All materials, with the exception of a series of bloods which were incubated for periods varying from three days to four months, were injected in from about fifteen minutes to one-half hour from the time they were obtained.

Blood was obtained with scrupulous care from the median vein of the arm after cleansing the area with iodin and alcohol. From 10 to 15 c.c. were drawn with a Luer syringe, part of the blood was then defibrinated with glass beads in a test tube, and a portion was set aside for incubation in sealed tubes to be employed in a separate series which included specimens kept at 37 C. for periods of time ranging from three days to four months. Spinal fluid, free from blood, was obtained in the usual manner by lumbar puncture. Semen was collected in sterilized condoms by manual friction after the penis and meatus had been thoroughly cleansed. Inguinal glands were excised under local anesthesia from patients in whom the glands were not too deeply situated. Nasal washings were obtained by spraying 4 or 5 c.c. of sterile salt solution into the nose of the patient so that the fluid passed out through the opposite nostril into a Petri dish. Rinsings from both nostrils were made available for injection in this manner.

Inoculated rabbits were examined carefully at frequent intervals within three weeks after injection. Dark field examinations of the testicular fluid material were made at least every two weeks, even when no visible changes occurred, in order to safeguard against missing minute lesions within the body of the testes. Punctures were made with sterile glass pipets drawn out and broken off at the end so as to leave a sharp cutting edge. By means of gentle pressure and a slight boring motion, laceration was avoided. Observations were continued over a period of eight months, and in many instances for a year. Animals that have remained negative to date are still under observation.

I. INFECTIVITY OF LYMPHATIC GLANDS FROM LATENT SYPHILITICS

Fourteen inguinal glands from as many patients were inoculated into rabbits' testes. Of this entire series of rabbits, three died within three months after inoculation, showing no signs of infection.

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[3] Schaudinn and Hoffmann: Arb. a. d. k. Gsndhtsamte **22**: 527, 1905.

[4] Metchnikoff and Roux: System of Syphilis **1**, 1914.

[5] Finger and Landsteiner: Arch. f. Dermat. u. Syph. **81-82**: 147, 152, 1906.

[6] Buschke and Fischer: Compt. rend. Soc. de biol. **58**: 845, 1905; Berl. klin. Wchnschr., 1906, No. 13, p. 383.

Positive results were obtained with glands from three patients, two female and one male.

Experiment 1.—F. D., a woman, aged 33, had had one miscarriage eleven years before. The blood Wassermann reaction was ++. There had been no pregnancies since the last miscarriage. She had taken no treatment at any time, and her husband was well.

Oct. 13, 1919, the right testis of Rabbit 116 was injected with 5 c.c. of salt solution suspension of inguinal gland from the patient. Dark field examination of the original suspension was negative for *Spirochaeta pallida.* The animal remained negative until December 6, when the testicle appeared slightly swollen and indurated. No definite nodules could be detected on palpation. Diffuse orchitis was present. Dark-field examination of a small amount of material obtained by capillary puncture demonstrated enormous numbers of *Spirochaeta pallida.* The incubation period was fifty-four days. The strain was lost in the second generation.

Experiment 2.—M. G., a woman, aged 19, with no history of syphilis, and a negative family history, gave a ++ blood Wassermann reaction. She had never had any treatment.

Oct. 27, 1919, the left testis of Rabbit 137 was injected with 3 c.c. of salt solution suspension of inguinal gland.

December 15, the left testis was markedly indurated and somewhat enlarged. Dark-field examination of testicular fluid revealed numerous spirochetes The incubation period was fifty days. Subsequent generations of this strain developed after an incubation period of four or five weeks.

Experiment 3.—D. C., a man, aged 21, had had a chancre on the penis one year before, of two weeks' duration. He took two treatments of arsphenamin at that time. The inguinal glands were enlarged during the course of treatment. There was no history of skin eruption. Following treatment, the Wassermann reaction was negative after two months. Intensive treatment was again begun with mercury and arsphenamin. The Wassermann reaction was + in the cholesterin antigen only at the time the gland was excised for this experiment.

April 12, 1920, the right testicle of Rabbit 226 was injected, with 1.5 c.c. of salt solution suspension of the inguinal gland.

April 26, the testis was enlarged and firm in the upper pole; puncture disclosed slight secondary infection.

July 6, secondary infection had almost entirely receded.

August 23, a small, fluctuating mass was palpable at the upper pole of the right testis. Puncture proved positive for *Spirochaeta pallida* in the dark field. The incubation period was 133 days. Owing to early secondary infection during which *Spirochaeta pallida* may have been missed, this incubation period is doubtful. In the second generation the period of incubation was reduced to about five weeks.

It is important to note that in one of these cases, the Wassermann reaction had remained negative after antisyphilitic treatment, and was found to be + in cholesterin antigen only at the time the gland was shown to contain active, virulent spirochetes.

It is of interest in this connnection to observe that animal inoculations with the blood specimens from these three patients resulted negatively.

II. INFECTIVITY OF SEMEN FROM LATENT SYPHILITICS

Seventeen specimens of semen from different patients were inoculated. In this series, four rabbits died within one month and two within three months after injection, showing no signs of syphilis.

Semen was found to contain active, virulent spirochetes in two instances. The blood from these patients was injected into rabbits with negative findings.

Experiment 4.—J. D., a man, aged 39, with a history of chancre on the penis thirteen years before, at which time he took pills for a period of three years, together with two doses of arsphenamin, had had no treatment since then. At the time the specimen of semen was obtained, the patient was found to have a stricture of the rectum. The blood Wassermann was ++ in the cholesterin antigen only. One week previous, the Wassermann test had proved negative.

Oct. 15, 1919, the left testicle of Rabbit 117 was injected with 2.5 c.c. of semen containing normal spermatozoa, and microscopically negative for *Spirochaeta pallida.* Two testicular punctures made, December 10 and January 27, respectively, were negative, and the rabbit was apparently normal. The animal was not examined again, through an oversight, until February 16, when a lesion was noticed on the left testis. There was an area of induration surrounding a dried crust about 1 cm. in diameter, and the general appearance was that of a typical receding chancre on the scrotum. Dark-field examination of the serous exudate from beneath the dried crust was negative. Puncture fluid from the testis was negative also.

Feb. 16, 1920, the excised testis was macerated and injected into the testes of Rabbits 255 and 256. Rabbit 256 died within two weeks without showing any lesions. Rabbit 255 received 3 c.c. of suspension into the right testicle and 1 c.c. into the left.

Between March 18 and June 18, thirteen testicular punctures were made and found negative for spirochetes. The testicles were normal. July 1, a small nodule, the size of a pea, was found at the upper pole of the right testicle. Puncture yielded a serosanguineous, sticky fluid containing enormous numbers of *Spirochaeta pallida* of a very thin type. The incubation period was four months in the first generation and about the same in the second.

Experiment 5.—S. L., a man, aged 18, gave a history of chancre on the penis one year before, followed by secondaries. No treatment was taken at any time. The blood Wassermann was ++.

Oct. 20, 1919, the left testis of Rabbit 131 was injected with 1.5 c.c. of semen containing normal spermatozoa and microscopically negative for *Spirochaeta pallida.* The animal remained normal, and dark-field examinations on puncture fluid from the testis were entirely negative throughout a period of more than six months.

May 19, 1920, the left testis was indurated at the upper pole, with a circumscribed orchitis and no marked enlargement. Puncture material contained numerous spirochetes. Two rabbits were inoculated intratesticularly with puncture fluid from this rabbit. Both animals died within one month showing no signs of syphilis. Rabbit 131 was found dead, July 6. The incubation period was seven months. Later generations of this strain developed in about three weeks, on an average. The speed of an initial "take" may be influenced by the number of spirochetes present in the original specimen and by the abrupt change of environment, so that too great stress cannot be placed on differences in the incubation period observed in the first generation of strains isolated.

Again it should be noted that a positive inoculation was obtained with semen from a patient whose Wassermann reaction was positive only in the cholesterin antigen. He had received treatment for three years, a considerable time prior to excision of the gland for the experiment, shortly before which the Wassermann test proved negative. In view of the fact that this man had syphilis thirteen years previously, and in the light of the findings we have reported in this instance and in one of the experiments made with inguinal glands, it is important that more stress than ever should be placed on the necessity for a series of successive negative Wassermann reactions as a guide to cure in syphilis.

III. INFECTIVITY OF BLOOD FROM LATENT SYPHILITICS

A total of seventy-three specimens have been examined with negative results. A series of thirty-six specimens defibrinated as well as clotted, duplicating a number of the entire group, was incubated for a period of from three days to four months. Inoculations with these bloods resulted negatively.

IV. INFECTIVITY OF SPINAL FLUID FROM LATENT SYPHILITICS

Thirty-one specimens of spinal fluid were injected into rabbits' testicles, with entirely negative results. The fluids showed lymphocytosis in ten cases with a negative Wassermann reaction in all but one instance. The corresponding blood Wassermann reactions were positive in all but two instances, and in these the cell count was less than eight.

V. INFECTIVITY OF NASAL WASHINGS FROM LATENT SYPHILITICS

Twenty-four specimens of nasal washings were injected and resulted negatively.

VI. INFECTIVITY OF TONSILS FROM LATENT SYPHILITICS

Owing to the highly infectious nature of the secondarily invading organisms present in tonsils, it was impossible to make an intensive study of tonsillar material. Streptococci invariably killed the rabbits of a series made with tonsils that were obtained from six different patients. The Wassermann reaction in each instance was positive, and the family history pointed definitely to syphilis. In one instance, a child, aged 10, whose father was syphilitic, a dark-field examination of a suspension prepared from the tonsils showed what appeared to be typical *Spirochaeta pallida* in considerable numbers. The other specimens were negative microscopically. Since the rabbits did not survive more than four days after intratesticular inoculation, this single observation is of doubtful value.

SUMMARY AND CONCLUSIONS

In this study, *Spirochaeta pallida* has been isolated in five instances from latent syphilitics—three times from inguinal glands (in two women and one man) and twice from the semen. The strains produced typical syphilitic lesions in rabbits' testicles and could be recovered and propagated for an indefinite number of generations. The incubation periods of the spirochetes isolated from the glands were, respectively, fifty, fifty-four and 133 days, the last being doubtful owing to an early secondary infection in the experimental animal. The two strains that were isolated from the semen developed after four and seven months, respectively.

Spirochaeta pallida was isolated from patients who gave a history of syphilis dating back eleven and thirteen years in two instances, and one year in three instances. An inguinal gland and the semen proved positive for spirochetes in the two cases first mentioned, and the glands and semen in the last named. In this series of positive results, a gland was found to be infectious in the case of a man whose Wassermann reaction had been negative, following treatment, and at the time of taking the specimen for the experiment gave a + + reaction only in the cholesterin antigen. A second instance of this nature was found in the case of a specimen of semen which proved positive for *Spirochaeta pallida.*

As far as studies with these different strains have progressed, there is no indication that *Spirochaeta pallida* has lost in virulence for the rabbit. Detailed experiments on infectivity and other phases of experimental syphilis with these and other strains will be reported subsequently.

It appears from this investigation, and that of others, that the blood and other body fluids, excepting semen, are not infectious in latent syphilis, or if so, but rarely.

Incubation of blood from latent syphilitics did not favor any infectious property that might have existed. Thirty-six specimens, duplicates of those in the series, were incubated at 37 C. for from three days to four months before being injected into rabbits' testicles. The results were negative.

One third of the total number of spinal fluids from latent syphilitics evidenced lymphocytosis, and one gave a positive Wassermann reaction.

Tonsils could not be studied, owing to severe secondary infections that were set up in the experimental animals. In one case, a dark-field examination showed what appeared to be *Spirochaeta pallida* in an emulsion of a tonsil taken from a child with a family history of syphilis, who gave a positive Wassermann reaction, although free from symptoms or visible lesions. The rabbits failed to survive injection of material.

GENERAL SUMMARY OF EXPERIMENTS

Source of Material	Number Injected	Positive Inoculations
Blood	73	0
Blood (incubated series)	36	0
Spinal fluid	31	0
Nasal washings	24	0
Inguinal glands	14	3
Semen	17	2
Testes (postmortem)	2	0
Tonsils	6	0*

* Experiments incomplete.

The groups of patients studied were composed of those that were untreated as well as those that had received no treatment within the last two years. Between the time of taking specimens for inoculations of rabbits and the first symptoms of a suggestive history of syphilis in these patients, from one to forty years had elapsed.

Out of a total of 500 cases of syphilis which were seen at the clinic, seventy-five, or exactly 15 per cent., were definitely latent.

These investigations demonstrate the fact that those persons that give a history of an old syphilitic infection may harbor active virulent *Spirochaeta pallida* for years, and this, in the face of irregular negative Wassermann reactions or slight reactions only in the cholesterin antigen.

214 Wall Building.

Medical Social Work as a Therapeutic Factor.—Unless medical social service has a therapeutic value it does not belong in hospitals and dispensaries. The primary business of a medical institution is the cure of, or care of, patients. It can waste no time nor money on any other activity. No matter, however, how good the social worker is nor how needed social work may be in any community, no medical institution which does not give a high type of medical service should waste time or money on the maintenance of social work. And no institution will make a proper use of such a social worker unless there are on its staff physicians who understand how a social worker may be used to further their own purposes. It is the physician's business to see that his patient gets well. It is the social worker's business to bring to his aid all of her social and community knowledge, and at the same time to ask herself what other essentials are missing in the patient's life. To the physician health is all-important. To the social worker, health is of importance only as a means to an end. Without health the patient can be of no use to his family or to his town. With it he may still be worthless. In order to act justly and efficiently the social worker must understand the physical condition of the patient and be prepared to help the doctor carry out any plan for him. But in order to do this she must know more of the patient than his physical condition.—E. G. Henry, *Hosp. Social Service Quart.* **2**:443, 1920.

DIAGNOSIS OF GONORRHEA IN THE FEMALE BY STAINING METHODS

THEIR PRACTICAL VALUE

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In all inflammatory lesions of the female genital tract the causative agent should always be determined, for on this factor the prognosis and treatment are largely dependent; it also shows the necessity of instituting prophylactic measures in certain varieties of infection. In most cases the etiologic factor can be determined with a fair degree of certainty by the clinical evidence alone.

During the acute stage of gonorrhea the diagnosis, both in the adult and in the child, is generally easy. The history, the symptoms, and especially the appearance of the affected areas are usually sufficient grounds on which to base the diagnosis. In doubtful cases the profuse discharge will be found to contain numerous typical gonococci which can easily be demonstrated by staining methods.

During the chronic stage the diagnosis is much more difficult, since the subjective symptoms are often mild, or may be virtually absent, and the lesions that are present are frequently ill defined. Because of the fact that in a considerable proportion of the cases among adults the infection spreads upward and produces serious disturbance, as well as for prophylactic reasons, the necessity for treatment is evident. The difficulty in making the diagnosis during this stage of the disease, and the necessity for determining when a cure has been effected after a course of treatment, are of equal importance. It is the general practice to depend chiefly on the result of film examinations for diagnostic purposes. It is with a view to ascertaining the actual value of this method that the cases tabulated herewith have been analyzed.

During the chronic stage of gonorrhea, both in the adult and in the immature female, many difficulties present themselves, chief among which are: (*a*) The discharge is scanty—often insufficient to permit satisfactory films to be made. (*b*) Gonococci are few in number. (*c*) They are often atypical, both morphologically and tinctorially. (*d*) In the female genital tract, especially in the adult, numerous micro-organisms are constantly present, a number of which are similar morphologically to the gonococcus. As a rule, these organisms can be differentiated by Gram's method of staining, but preparations made by the ordinary anilin dyes, such as methylene-blue, are valueless for this reason. (*e*) Errors in the use of Gram's stain are easily made, and overstaining or understaining and insufficient or the too prolonged use of the alcohol will cause misleading results. Even the most carefully prepared films vary somewhat in thickness, and the amount of stain required will likewise vary according to their density. Furthermore, our observations lead us to believe that some strains of gonococci are more susceptible than others to certain stains, and some seem to decolorize more readily than others.

It can be seen, therefore, that during the chronic stage of gonorrhea the detection of gonococci by means of film preparations is by no means easy in all cases, and that many errors, the results of which are prone to be extremely misleading, may occur. For these reasons it is our belief that, in this class of cases, attempts to demonstrate the gonococcus by means of film preparations are of no value unless performed by one especially skilled in this line of work. Unless this is done the results are not only valueless, but often actually harmful, owing to the likelihood of error. Even in the hands of the most experienced, too much weight should not be placed on the findings. As we shall presently show, negative results have no significance unless they are frequently repeated, and even positive results are occasionally open to doubt. One of us has recently seen a case of vulvovaginitis in a child which exemplifies the latter point. Diplococci that were similar morphologically to gonococci had been repeatedly demonstrated in the vaginal secretions by Gram's method, and the patient had received vigorous treatment for nearly six months without result. While, clinically, a well-marked chronic inflammation was present, it was not entirely typical of gonorrhea. A further study of the case revealed the fact that the micro-organism that had previously been present was *Diplococcus catarrhalis,* an organism that is almost nonpathogenic and that closely resembles the gonococcus, both morphologically and tinctorially. In this case the inflammation had been protracted by too vigorous treatment, and as soon as this was suspended the symptoms disappeared. We have no desire to depreciate the diagnosis of gonorrhea by means of staining methods, but merely wish to point out the difficulties attendant on them in the average chronic case, and to emphasize the necessity for having skilled assistance in this department.

AIDS TO THE DIAGNOSIS OF GONORRHEA BY STAINING METHODS

In the adult the discharge obtained from the vagina is of but little value, since it often literally swarms with other micro-organisms, and even if gonococci are present, they are prone to be extracellular and atypical in both morphologic and staining properties. For this purpose much more satisfactory material can be obtained from the cervix, urethra and Bartholin's glands, since these are the structures in the lower genital tract that are especially attacked by the gonococcus. In chronic cases particular attention should be paid to the cervix, since it is from this region that the greatest number of positive film preparations are obtainable. The urethra, and particularly Skene's glands, are of next importance. An effort should be made to secure the material for examination from the depths, rather than from the surface, of the glands.

For collecting the material nothing equals a medicine dropper, the nozzle of which has been drawn out in the flame to about 6 or 8 cm. in length, and to the thickness of a fairly coarse capillary tube. This enables the operator to wipe the surface discharge from the suspected area, press out the desired material from the depths of the glands, and secure even a very minute drop of secretion that may thus be exuded. In addition to the advantage of being able to secure the exact droplet of secretion desired, this instrument insures the nontraumatization of the secretion. The drop in the capillary-like tip of the medicine dropper can be transferred to the slide and spread evenly and satisfactorily. It has previously been pointed out by one of us[1] that the frequently used method of employing a dry cotton swab for securing material is unsatisfactory, since one of the points in the identification of the gonococcus depends on the intracellular demonstration of the micro-organism. The dry cotton tends to enmesh the solid particles of the discharge, and thus retains the pus and epithelial cells within its substance. In this way the most important part of the specimen to be examined is retained in the swab. Furthermore, in rubbing the swab over the slide in the effort to transfer the secretion the solid particles in the discharge are likely to be broken up, and thus intracellular micro-organisms are transferred into those of the extracellular type.

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[1] Norris, C. C.: Gonorrhea in Women, Philadelphia, W. B. Saunders Company, 1913.

For securing material for examination from Bartholin's glands, Feis [2] recommends the use of a fine wire probe, the end of which has been roughened. This probe is passed into the gland, and any secretion adhering to the end of the instrument is examined. The ordinary platinum loop is useful, but in our hands it has been less satisfactory than the medicine dropper.

For obtaining the secretion from cases of vaginitis in infants and young children, washings have given the most satisfactory results. The hips of the child should be elevated. A soft rubber eye syringe is filled partly with a weak mercuric chlorid solution and the tip is introduced through the hymen; the solution is then sucked in and forced out a number of times. At the same time the nozzle is moved around in the vagina in an effort to dislodge any particles of discharge that may be adherent to the vaginal walls. The washings are then centrifuged at slow speed and the sediment is examined. By this method the operator is enabled to secure all the discharge that is present; it is also particularly useful in chronic cases in which there is little discharge, and in determining when a cure has been effected. Its only disadvantage lies in the fact that it is time consuming. A cotton swab wet in mercuric chlorid solution, moved about in the vagina, and subsequently rolled, not rubbed, over a slide may be tried first, or the aforementioned medicine dropper, equipped with the long capillary nozzle, may be used, and if gonococci are not found, the method of examining the washings can then be employed. The wet swab rolled over the glass slide is less objectionable than the dry one, for the rolling forces out the excess of solution, and with it many solid particles are expressed. The wet swab method has the advantage of simplicity and speed. The addition of mercuric chlorid to the solution has a tendency to fix the solid particles in the discharge and facilitates subsequent staining. We are indebted to Dr. John A. Kolmer for the latter suggestion.

Mention has previously been made of some of the difficulties that are likely to be encountered in the staining and identification of the gonococcus. It is of the utmost importance that good films be obtained. The slide should be clean, and the material should be spread evenly and thinly over it. It is advisable to make a number of slides, and to select the best for staining. In the case of adults, the slides should be labeled with the area from which the suspected material was secured. Unless gonococci are demonstrated, a number of slides should be stained and examined.

A preliminary slight traumatization of the suspected area and the application of a 10 per cent. solution of silver nitrate, or, in the case of the cervix, the solid silver stick, greatly increases the likelihood of securing gonococci for staining purposes. This method of treatment causes an irritation and increases the amount of discharge. The material for examination should be secured from twelve to twenty hours later. If too long a time is allowed to elapse after the preliminary application of silver, the object will be defeated, and gonococci will be found to be reduced in number. Sufficient time should, however, be allowed to elapse for a reaction to take place, and for the major part of the silver to disappear. Our records show that the preliminary irritation increases the possibilities of demonstrating the gonococci in chronic cases very materially. Material obtained immediately after the cessation of a menstrual period or just as the lochia begins to diminish after a pregnant uterus has been emptied is especially likely to contain gonococci. At these periods the secretory activity of the glands is increased, and gonococci from the depths of the glands are swept to the surface and thus more readily secured.

ANALYSIS OF SEVEN HUNDRED AND NINETY-FOUR EXAMINATIONS FROM CASES PRESENTING CLINICAL EVIDENCES OF GONORRHEA

	Positive	Negative	Total
ADULTS			
1. All cases except those comprising Section 4:			
Acute	54	9	63
Chronic	27	180	207
Total	81	189	270
2. From the gynecologic dispensary of the Hospital of the University of Pennsylvania:			
Acute	22	6	28
Chronic	9	106	115
Total	31	112	143
3. Private cases:*			
Acute	32	3	35
Chronic	18	74	92
Total	50	77	127
4. Cases showing the advantage of preliminary irritation:			
(*a*) Cases with preliminary chemical and traumatic irritation: Chronic	20	44	64
(*b*) Cases (from Section 1) with no preliminary chemical or traumatic irritation: Chronic	27	180	207
VULVOVAGINITIS			
5. Children and infants (all cases except those in Section 7): Acute and chronic	169	230	399
6. Private cases:			
Acute	37	4	41
Chronic	31	69	100
Total	68	73	141
7. Cases showing results of a preliminary irritation compared with the ordinary method of securing material:			
(*a*) With preliminary chemical and traumatic irritation: Chronic	28	33	61
(*b*) Cases (from Section 6) with no preliminary irritation: Chronic	31	69	100

* Compared with Section 2, Section 3 emphasizes the advantage of care in this work. In nearly all the cases in Section 3 the material was obtained, stained and examined by one of the authors. Special effort was made to obtain material from the depths of the glands, and a number of slides were examined before the smears were pronounced negative. In this series there were a certain number of what may be termed doubtfully positive results: i. e., specimens that contained organisms suggestive of gonococci, but not entirely typical. These have been classified under the negative group, although they are generally treated as if they were positive. Numerous pus cells, especially in the absence of many micro-organisms, are always suggestive of a gonorrheal infection.

Findley [3] studied a large series of cases, in all of which the condition was ultimately proved to be gonorrhea. In only 30 per cent. of these women was the gonococcus demonstrated by staining methods at the first examination, and in isolated cases it was not found until the eighth to the fifteenth successive daily examination. King[4] was able to demonstrate the gonococcus in film preparations in only 60 per cent. of a series of 500 women, all of whom presented clinical evidences of gonorrhea. In a number of positive cases gonococci were found only after repeated examination.

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[2] Feis, O.: München. med. Wchnschr. **67**: 755 (June 25) 1920.

[3] Findley, P.: Am. J. Obst. **80**: 421 (Oct.) 1919.

In reviewing these results it should be remembered that in both Findley's and King's series no attempt was made to separate the acute from the chronic cases. It is probable that both series contained a definite percentage of acute cases, and as gonococci are easily demonstrated in the acute stage, this fact should be considered. If, in these series, the cases had been so separated, the proportion of positive film examinations among the chronic cases would without doubt have been much lower. Furthermore, in both series the bacteriologic tests were performed by an expert. It can readily be seen how little reliance can be placed on a single negative finding in the office examination as generally performed.

In the accompanying table the figures refer to the number of individual examinations and not to the number of patients.

In the hands of a trained bacteriologist, cultural methods of diagnosis are satisfactory. As a general rule, the gonococcus is grown with difficulty in artificial mediums, and this is especially true of material obtained from the female genital tract during the chronic stage of the infection, owing to its contamination by other micro-organisms. Swartz and Davis[5] and others have reported excellent results from cultural methods, but special training is required for their performance. The complement fixation test in its present stage is of little or no practical value in ordinary cases. It is possible that the precipitin test recently reported by Meader and Robinson may prove of great practical aid.

CONCLUSIONS

1. When dealing with inflammatory lesions of the lower genital tract, it is advantageous to determine the type of infection present.

2. During the acute stage of the gonococcal infection the diagnosis is generally made without difficulty, as the clinical signs are more or less significant; if doubt exists, film preparations can be depended on.

3. Because of the certainty with which a positive diagnosis by staining methods can be made in the acute stage, and the many difficulties encountered in the chronic stage, it is especially important that the variety of infection present be ascertained during the acute stage. Unfortunately, many cases are not seen during the early stages, and a positive diagnosis is therefore arrived at only with difficulty.

4. During the chronic stage the clinical signs are less characteristic than during the acute stage.

5. The examination of film preparations is less satisfactory.

6. The presence of gonococci can be demonstrated by film preparations from every case if a sufficient number of correctly performed examinations are made.

7. A single negative smear examination is without significance. In such a case the chances of demonstrating gonococci are about three or five to one according to the skill of the examiner.

8. Even under the most favorable circumstances, positive film examinations can be obtained in only a relatively small proportion of cases.

9. Unless safeguarded by the Gram stain or one of its modifications, smear examinations are valueless.

10. Even with Gram's stain, errors in diagnosis may occur. Differences in the thickness of the preparations, slight overstaining or understaining, etc., may lead to extremely misleading results.

11. Owing to the many difficulties surrounding this form of diagnosis, we believe that unless the test is performed by one experienced in the work, its results are of no value, and are often actually misleading.

12. Clinical evidence is of far greater value than staining methods, even when the latter are performed by an expert.

13. From a practical standpoint all cases should be regarded as of gonococcal origin until proved otherwise.

14. Without desiring to underrate the value of staining methods in diagnosis, we nevertheless believe that their usefulness has been considerably overestimated.

THORNWALDT'S DISEASE AND CHOREA

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A report of this case is of interest not alone because of the rarity of the pathologic lesion involved, but also because the latter was found to be the source of focal infection which bore a direct etiologic relationship to chorea, as was proved clinically by the fact that removal of the chronic focus of infection resulted in the cure of the chorea.

That chorea is due to an infection is manifested clinically by the frequent sequence of tonsillitis and acute rheumatic fever with chorea or endocarditis. Chorea has also been produced experimentally in animals by intravenous injection of various strains of streptococci, together with the production of endocarditis and acute articular rheumatism.

Floyd[1] found a much higher percentage of carriers of certain types of virulent streptococci in the substance of the tonsils and about the teeth in cases of chorea than occur in normal controls.

REPORT OF CASE

History.—A girl, aged 15, referred to me by Dr. F. R. Derengowski for the removal of tonsils and adenoids on account of nasal obstruction and chorea, dated the onset of her trouble eighteen months before, when there were involuntary movements and twitching involving the head and face. During the last six months they involved practically the whole body and had been especially exaggerated during the last month, the patient being unable to lie quietly in bed. During all this time she had been under efficient medical supervision, but there had not been noticeable improvement.

Physical Examination.—The patient was well nourished. There were involuntary, purposeless movements and twitching of the face, head and the upper and lower extremities. She was a mouth breather, and spoke with a distinct nasal twang. The tonsils were small and embedded. Pressure over the tonsils did not cause the expression of any material from the tonsillar crypts. Digital examination of the postnasal space revealed the presence of adenoids. The physical examination was otherwise negative.

Operation.—The indication for the removal of adenoids was apparent, but I doubted the necessity for removing the tonsils.

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[4] King, W. W.: Brit. M. J. **1**: 364 (March 13) 1920.

[5] Swartz, E. O., and Davis, D. M.: Methods of Cultivating the Gonococcus and of Testing Germicidal Agents Against It, J. A. M. A. 75: 1124 (Oct. 23) 1920.

[1] Floyd, C.: A Study of Streptococci Obtained from the Mouth in Cases of Chorea, J. M. Res. **41**: 467 (May) 1920.

as they presented no evidence of disease, nor was there any history of throat trouble. Nevertheless, owing to the wishes of Dr. Derengowski, both the tonsils and adenoids were removed under general anesthesia, July 9, 1920. In the removal of the adenoids, the La Force adenotome was used. On examining the adenoid mass contained in the adenotome, I found that it completely filled the cavity of the adenotome, together with a substance the color of brick dust and the consistency of thick cream. In the middle of the cut surface of the adenoid mass were the remains of what appeared to be a canal which had been incised longitudinally by the knife blade of the adenotome. The canal was cut hemispherically. It measured 3 mm. transversely and 15 mm. longitudinally. The lining of the canal was 0.5 mm. thick, and was smooth and white. The canal contained a whitish, purulent fluid. Microscopic examination of a smear of this fluid revealed many pyogenic organisms. Cultures were ordered, but no report was obtained. The specimen was sent to the pathologic laboratory for microscopic examination with instructions to make the section through the canal. Owing to a misunderstanding, the section was not made as ordered, and therefore failed to show anything except adenoid tissue. The anatomic diagnosis was that of Thornwaldt's disease, which is characterized by the presence of a suppurating canal or sinus, in the recessus medius, which is the groove between the lateral halves of the adenoids.

Postoperative Course.—Three days after the operation, the choreic movements became progressively improved, until the seventh day, when all involuntary movements and twitching completely disappeared and have not since returned, a period of more than five months to date. Following the operation no medicinal treatment was given.

CONCLUSIONS

1. The chorea was due to focal infection.
2. The removal of the focus of infection resulted in the cure of the chorea.
3. In every case of chorea, a complete investigation should be made with regard to focal infection; and when this is found it should be eliminated thoroughly.

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THE TREATMENT OF HEREDITARY SYPHILIS

DESCRIPTION OF METHOD, WITH DISCUSSION OF RESULTS AFTER FOUR YEARS' USE *

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My chief purpose in this article is to outline a plan of treatment for hereditary syphilis which has been in use in the children's clinic of the Washington University Dispensary and in the St. Louis Children's Hospital for a period of four years. The value of this report lies not in any uniqueness of the plan, but rather in the fact that we have used the plan for a sufficient period and in a sufficient number of cases to make certain estimates as to end-results and also in the fact that it concerns *hereditary* syphilis, about which so little has been recorded recently in regard to successful therapy.

THE ROUTINE PLAN

The child attends the clinic once a week. At each visit, 0.03 c.c. (½ minim) of a 1 per cent. solution of mercuric chlorid for each kilogram (2⅕ pounds) of body weight is injected intramuscularly. Mercury with chalk is prescribed three times daily by mouth in doses ranging from 13 mg. (⅕ grain) for small infants to 100 or even 130 mg. for the largest children. A laxative effect is avoided by decreasing the dose when necessary.

Every two months there is started a course of three intravenous injections of arsphenamin given at weekly intervals. The dosage is 0.01 gm. for each kilogram of body weight. Mercury administration is not interrupted for the arsphenamin course.

A rest period of from four to eight weeks is given during the first year of treatment, provided the attendance has been sufficiently regular.

Infants are required to continue such a routine for at least one year, and older children for at least two years, regardless of what the Wassermann reaction shows. Treatment is continued in the same manner for as much longer than this as seems indicated by the clinical signs or the Wassermann reaction. We have thought it desirable to continue treatment for six months or longer after all evidences of activity, including the Wassermann reaction, have disappeared.

It has been our custom to precede any arsphenamin therapy by examination of the cerebrospinal fluid. One object of such examination is the prevention of a Herxheimer reaction in the central nervous system. Though we have never witnessed such a reaction, we have no reason to doubt its possibility. When the physical examination or the cerebrospinal fluid reveals evidence of central nervous system involvement, or when for any reason the spinal puncture is delayed, arsphenamin therapy is preceded by several weeks of mercury medication alone. Herxheimer reactions elsewhere than in the central nervous system are relatively unimportant.

A fact that was revealed by routine cerebrospinal fluid examination is that practically one third of all infants or children with hereditary syphilis have involvement of the central nervous system.[1] Our experience in the treatment of hereditary neurosyphilis is similar to that published by a number of observers in the case of acquired neurosyphilis. The earlier the treatment is begun, the more likely is the central nervous infection to respond to such a plan as is outlined above; and, generally speaking, the later it is begun, the less likely is it to respond satisfactorily. As a consequence, a further addition to our routine has been the administration of intraspinal medication to those patients whose central nervous infection failed to show any evidence of response after a period of several months of intravenous and intramuscular therapy. We realize that the rationale and efficacy of intraspinal treatment is in dispute. It is not desired to enter here into the merits of the arguments except to state that in my opinion some of the arguments are founded on inadequate or conflicting fundamental evidence. We have used this route for medication as a routine and have no regrets. In fact, it has been our impression that much good has been accomplished. We have relied chiefly on the Swift-Ellis method of administering inactivated serum arsphenamized in vivo, occasionally using mercurialized human serum according to the method of Byrnes. Recently we have alternated these two methods in each case. We have adhered fairly closely to the accepted interval of one week between injections, and have given a course of three injections at each admission to the hospital. The routine systemic treatment has not been interrupted for the intraspinal treatments. Our ideal has been to repeat the courses of intraspinal therapy every two or three months. This has not always been attained. The physical disability of those patients of school age who are not more or less hopeless cases for expectation of benefit has been such that school has been possible and profitable. For this reason, so far as practicable, advantage is taken of the holidays and vacations. To the present we have never attempted intraspinal therapy without having the patient in the hospital.

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* From the Department of Pediatrics, Washington University School of Medicine and the St. Louis Children's Hospital.

[1] Jeans, P. C.: Cerebrospinal Involvement in Hereditary Syphilis, Am. J. Dis. Child. **18**: 173 (Sept.) 1919.

An essential part of the management of a syphilitic clinic is one or more good social workers. Such a worker checks delinquency in attendance, insures that children of the family, and, if possible, the parents, are examined, and if necessary treated, and is useful in innumerable ways to make the treatment continuous to the point of effectiveness. Some parents are indifferent, and a few even antagonistic to what the physician thinks is for the child's welfare. After a due amount of persuasion has failed of effect, it has been and is our custom to refer such families to the Juvenile Court for action on the basis of child neglect. This phase was dealt with at some length in a former publication.[2]

EXCEPTIONS TO THE ROUTINE PLAN

In former publications[3] we have stressed the importance of breast feeding in syphilitic infants. Malnutrition occurs with such frequency in syphilitic infants that it may be classed as one of the symptoms of the disease. In resorting to artificial feeding, the utmost care and patience are necessary. For this reason syphilitic infants, so far as possible, should be under the care not only of one who is proficient in the treatment of syphilis, but also one who is expert in the management of infant nutrition. Often the nutrition improves coincidently with the initiation of antisyphilitic treatment. On the other hand, occasionally it will be found that treatment, even of the intensity here advocated, will have a harmful effect on the nutrition. Under such circumstances the malnutrition has been considered as of greater importance than the syphilis, and the treatment has been greatly modified or even suspended for a time.

In starting treatment in infants with florid syphilis, it has been found unwise to begin with full doses of arsphenamin. Theoretically, the ill effects are due to the sudden killing of large numbers of spirochetes. Practically, what may happen is the death of the infant within a few days of the injection. In florid cases, if arsphenamin is used in the first few weeks of treatment, it should be used in fractional doses. A little later, full doses as advocated may be given.

In certain instances the institution of more intensive arsphenamin therapy has seemed desirable, as, for example, in the case of patients with neurosyphilis whose parents refuse to permit intraspinal treatment. Such patients are often required to attend the clinic three times weekly for arsphenamin, receiving from three to five full doses at two or three day intervals.

The exceptions to the usual routine here cited serve to emphasize the fact that if human patients are to be fitted into a routine, it must be done guardedly and with a certain amount of judgment. Local treatment of affected parts is often of considerable importance, as, for example, in the case of iritis, parenchymatous keratitis, or broken down bone gummas with secondary infection.

COMMENT ON THE ROUTINE PLAN

In 1914 we published a plan of treatment,[4] in which we said:

> The course of treatment varies somewhat, but, with the usual case presenting an acute lesion, is in general as follows: Three or four intravenous injections of neosalvarsan are given with a gradually increasing dosage two or three days apart. Then mercury (gray powder) is started, with small doses, which are gradually increased until the patient is taking a fairly large dose. In a few weeks this is interrupted for a short time and then repeated. . . . The mercurial treatment is continued for an indefinite period of time according to the requirements of the individual case, and in general until a negative Wassermann reaction is obtained, if this is possible.

By means of this working plan we were successful in promptly clearing up all clinical manifestations of active disease in most instances. Certain cases of parenchymatous keratitis were slow to respond, and some cases of neurosyphilis were not benefited in the least. We not infrequently obtained persistently negative Wassermann reactions in infants but not in older children. Further, the plan was an ideal which could be and was attained in the wards, but which was in some respects difficult in the clinic and consequently was not often realized. Remaining from school for attendance at the clinic three times a week is usually seriously opposed by the parents and the child. No doubt the alert attendance officer is a strong moral force back of the objection. As a rule, dispensary patients cannot be relied on to take medicine regularly over a long period, whether it is by inunction or by mouth. They frequently admit that they have taken none of the prescribed remedy for a long time. As a result of the objection to absence from school we resorted to the weekly visit, the schoolchild coming on Saturday. Because of the uncertainty of oral medication we used intramuscular injections of mercury, with which we had the satisfaction of knowing that the patient received at least a certain amount of mercury. In addition to these changes, arsphenamin is now given more systematically over a longer period. Intraspinal treatment in selected cases has been a further addition to our routine.

The present routine has been used in the treatment of approximately 250 syphilitic children. It has proved to be practical and has been followed by a very large proportion of our patients. It represents a gradual evolution in an eight year period of more or less intensive observation of hereditary syphilis. Our conclusion from a review of the literature is that relatively few clinics for children in this country have in operation a system as effective. No special credit is due our clinic or any similar clinic. Rather, the wonder is that in general the treatment of hereditary syphilis has lagged so far behind the accepted methods for treating acquired syphilis. There are really no essential differences between the two infections. I have discussed these differences elsewhere.[5]

My own criticism of the routine here presented is that it probably is not yet sufficiently intensive. For a number of years in selected cases we have administered arsphenamin in full doses at forty-eight hour intervals, and more recently at twenty-four hour intervals, and have observed no ill effects. The published evidence as to the rate of excretion of arsphenamin is still too conflicting to use such a basis for the determination of a proper interval. The twenty-four hour interval is not new. It has been used by several clinicians, apparently without harm. However, such intensive therapy is not to be advocated for general routine use until it rests on a better scientific basis in regard to safety for the patient, though it already is indicated for the purpose of penetrating to "dark corners" and more effectively reaching and killing spirochetes.

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[2] Jeans, P. C., and Butler, Elsa M.: Hereditary Syphilis as a Social Problem, Am. J. Dis. Child. 8: 327 (Nov.) 1914.

[3] Veeder, B. S., and Jeans, P. C.: Observations on One Hundred Cases of the Infantile Type of Hereditary Syphilis, Am. J. Dis. Child. 11: 177 (March) 1916. See also Footnote 2.

[4] Veeder, B. S., and Jeans, P. C.: The Diagnosis and Treatment of Late Hereditary Syphilis, Am. J. Dis. Child. 8: 283 (Oct.) 1914.

[5] Jeans, P. C.: The Reactions of Syphilis in the New-Born and Growing Child, Am. J. Syph. 4: 473 (July) 1920.

There is a current clinical impression of wide circulation that neo-arsphenamin is somewhat inferior to arsphenamin. I know of no well controlled observations as to their relative values. We have given hundreds of injections of both drugs and have been able to discern no difference in their action clinically. Neo-arsphenamin is usually given in 50 per cent. greater dosage than arsphenamin. Granting that the two drugs are of equal value therapeutically in proper dosage, the choice between them becomes merely a matter of preference on the part of the administrator. The advantages of neo-arsphenamin are its greater ease of solution, the lack of necessity for neutralization, and the fact that it can be administered safely in small bulk. It is asserted that reactions are less frequent after neo-arsphenamin than after arsphenamin. However, the only fatal reaction we ever had (hemorrhagic encephalitis) followed a second injection of neo-arsphenamin, and the most alarming immediate reactions we have seen have occurred after neo-arsphenamin. In intravenous medication in infants and young children, the mechanical difficulties are much more easily overcome by the use of a syringe than by a gravity method. In order to use a syringe for arsphenamin administration it has been our custom to use a 1:40 dilution. Though many good authorities hold that there is a danger in giving such a concentrated solution, we never yet have had reason to regret its use. For those who object to such a concentration and at the same time wish to use a syringe, neo-arsphenamin is the drug of choice, since all agree that it can be given safely in a small volume.

Because of the current practices in certain clinics it seems desirable to discuss briefly the route of administration of arsphenamin and allied products. In our clinic the intravenous route exclusively is used. We have given the intramuscular route a trial, using neo-arsphenamin, and completely discarded it about seven years ago. It is suggested to those who wish to use neo-arsphenamin intramuscularly that before trying it on infants they first use it for adults or older children in order to determine the amount of pain inflicted. It is our experience that exceedingly painful reactions develop, and many times have we had to resort to morphin for relief after such an injection. In some instances extensive infiltrations occurred which remained for months or even a year or more. In one case an abscess and in one a slough developed at the site of injection.

In the intravenous administration, any visible vein of sufficient caliber may be used with impunity. In older children the arm veins are just as accessible as in the adult. In most young children and infants the external jugular veins are readily available when the child lies with the shoulders elevated and the head extended and rotated. Suitable scalp veins are almost always present, especially in syphilitic infants. Though some of our patients have presented difficulties because of obscure veins, none have been deprived of arsphenamin for that reason; nor have we ever found it necessary to cut down to find a vein. One secret of success is a good outfit, especially a sharp needle; another is good assistance in the case of the struggling child. Not unimportant also is a certain amount of mechanical ability on the part of the operator. Some operators remain inexpert despite long practice, and often in the case of easily visible veins. The use of the longitudinal sinus in the treatment of infants is mentioned only to condemn it or at least to sound a warning. The sinus is readily accessible, and it is relatively an easy matter to enter it fairly with a needle. The danger lies in the possibility of an "unfair" entry. We have given many arsphenamin injections by way of the longitudinal sinus. We were stopped finally by an accident resulting from the injection of part of the solution outside the sinus. This occurrence was at least in part due to rachitic asymmetry of the head. A similar accident eventually has happened to every one using this route with whom we have exchanged experiences.

We have used iodid medication in only a few instances. Though iodids presumably have no effect on spirochetes, they are often useful in certain types of tertiary lesions, such as for the relief of pain in osteoperitonitis and as an aid in the resorption of gummatous deposits. As to pain, we have found that arsphenamin gives rapid and adequate relief in arthritis and osteoperiostitis. Likewise, resorption of gummatous processes apparently has taken place sufficiently rapidly without iodid.

RESULTS

It is obviously impracticable to record here a large number of case reports with the necessary accompanying details. Some of our clinic staff are actively engaged at present in looking up and examining all patients who have been under treatment in the last eight years in order to determine their present condition. This survey, with accurate statistical data, will be available in the near future.

Some of our infant patients died, a not uncommon occurrence despite the method of treatment. The prognosis of infantile syphilis as to life has been dealt with at some length in a former publication.[6] Other patients have been lost from view for various reasons. Some, who have continued treatment faithfully, though becoming Wassermann negative remain in a hopeless mental state. Others are handicapped by blindness, deafness, paralysis, ankylosis or facial deformity. But there is a brighter side also. Many of our patients have been made Wassermann negative and are as bright, healthy and strong as though they never had been affected. Leaving out of consideration the infant mortality of syphilis, it is my opinion that possibly with rare exceptions all patients with hereditary syphilis can be made Wassermann negative with sufficient patience and perseverance. This is much more readily accomplished in infancy than in later childhood. Whether or not a continuously negative Wassermann with absence of all signs of activity signifies a cure of the infection is still an open question. Our own observations include no renewed signs of activity in any patient after the Wassermann test has become continuously negative under treatment.

Since it is within the realm of possibility that all or nearly all patients with hereditary syphilis may be entirely freed from their infection, the prognosis then depends on the amount of damage done by the infection prior to its eradication. The only damage which is completely and utterly irreparable is that involving the central nervous system. Damage elsewhere usually causes little or no real handicap. Though one third of all syphilitic infants give laboratory evidence of involvement of the central nervous system, only one ninth of them give clinical evidence. All of those with merely laboratory evidence, and many of those with clinical evidence, respond readily to the method of treatment here advocated. Intraspinal treatment ordinarily is unnecessary under 2 years of age. If the syphilis is well treated in infancy, the number of syphilitic defectives will be so small as to be almost negligible.

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[6] Jeans, P. C.: Syphilis and Its Relation to Infant Mortality, Am. J. Syph. 3: 114 (Jan.) 1919.

The situation with older children is somewhat less hopeful. Laboratory evidence of central nervous involvement is found in about one third of the older children, and of these two thirds show clinical evidence of such involvement. These respond with greater difficulty to ordinary methods of treatment than do infants. By more persistent treatment, and occasionally by the aid of intraspinal treatment, all or nearly all can be freed from laboratory evidence of infection. However, in those with clinical evidence of infection the damage has been progressing for a number of years, and irreplaceable specialized tissue has been destroyed or permanently impaired. Such children may be left with mental defect, paralysis, blindness, epilepsy or deafness.

SUMMARY

With the exception of intraspinal medication required in but relatively few cases, the treatment here advocated is simple and easy to carry out. It has been in use in our clinic for the last four years, and has been demonstrated to be effective as judged by our present standards.

PRENATAL INFESTATION WITH PARASITIC WORMS *

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In the literature there are few records of prenatal infestation with parasitic worms. I have found indisputable records of such infestation in sheep with the lung worm, *Dictyocaulus filaria,* and in man with the hookworm and the Oriental blood fluke, *Schistosoma japonicum.* Since the larvae of a number of the parasitic worms of man wander widely in the body before finding their final location, and are in many cases carried in the blood stream, prenatal infection might be expected to occur often. It seems probable to me that such infestation is not so rare as the small number of case records would suggest, and that the small number of records is due to a failure to look for infestation in very young infants. It is a fact that where fecal examinations for hookworm disease are carried on, examinations are rarely if ever made of very young babies. Therefore it seems worth while to call the attention of physicians to the possibility of prenatal infestation in man by certain species of parasitic worms, with the hope that some of those who are carrying on work in places where parasitic worms are frequent will look carefully into the matter. Howard,[1] in reporting a case of prenatal hookworm infestation, has already emphasized the importance of further investigations on prenatal infestation in hookworm disease. In the present paper I will outline the cases in which I have found reported prenatal infestation with parasitic worms, and will call attention to those parasitic worms of man in which such infestation would be possible on account of the character of the life cycle.

The species in which prenatal infestation has been most carefully worked out is *Schistosoma japonicum,* the Oriental blood fluke. Since I have not found this work taken up outside the Japanese [2] language, I will discuss it here in some detail. Fujinami and Nakamura,[3] in 1911, reported the finding of *Schistosoma japonicum* in the fetus of a dog suffering from schistosomiasis. Narabayashi,[4] in 1914, caused pregnant animals to become infested with the cercariae of *S. japonicum.* In one dog thus infested he found the parasites in five out of seven embryos. In a later series of experiments, Narabayashi [5] was able to find fourteen young specimens of *S. japonicum* in the placentas of two pregnant guinea-pigs that had been experimentally infested. To find these worms it was necessary for him to examine about 20,000 sections of the placenta. He found the young schistosomes most frequently in the blood vessels running from the placenta to the embryo. He concluded, therefore, that the larvae of *S. japonicum* in prenatal infestation are carried to the placenta in the blood stream, migrate through the thin membrane separating the circulation of the mother from that of the fetus, and are carried to the embryo by its own blood vessels. The shortest time after infestation in which the worms were found in the fetus was seventeen hours. This author [5] also examined the feces of twenty-two new-born babies in an endemic area and found the eggs of *S. japonicum* in three. The mothers gave a history of having worked in the rice fields during their pregnancy.

Neveu-Lemaire [6] reported two cases of prenatal infestation in lambs with the common lung worm, *Dictyocaulus filaria.* In the first case the adults of this species were found in the trachea of a lamb that died four days after birth, and in the other they were found in the trachea of a fetus taken from a mother heavily infested with the parasites.

Howard,[1] in 1917, reported an undoubted case of prenatal infestation with hookworm in a negro child in British Guiana. The hookworm eggs were found in the feces of the child fourteen days after birth, which is entirely too short a time for the development of the hookworm, even if infestation after birth had been possible. The mother had a severe case of hookworm disease and gave a history of ground itch during pregnancy. Howard also notes that in 1916 there was called to his attention a considerable number of cases of hookworm disease in infants aged 1 year or less in

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* From the Department of Medical Zoology of the School of Hygiene and Public Health of the Johns Hopkins University.

[1] Howard, H. H.: Prenatal Hookworm Infection, South. M. J. **10:** 793-795 (Oct.) 1917.

[2] The Japanese investigations on this subject were made available to me through the help of Dr. Sadamu Yokogawa, professor of pathology of the Medical School of Formosa.

[3] Fujinami, A., and Nakamura, H.: On the Prophylaxis of Schistosomiasis and Some Investigations on Infection with This Disease (Japanese), Chugi Iji Shimpo, 1911, No. 753.

[4] Narabayashi, H.: On Prenatal Infection with Schistosoma Japonicum (Japanese), Verhandl. d. jap. path. Gesellsch. (Japanese) **4,** 1914.

[5] Narabayashi, H.: A Contribution to the Knowledge of Schistosomiasis in Japan (Japanese), Kyoto Igaku Zassi **13,** Nos. 2, 3, 1916.

[6] Neveu-Lemaire: Strongylose bronchique congénitale du mouton, Compt. rend. Acad. d. Sc. **154:** 1211-1312, 1912.

Ceylon. He writes in this connection: "In these cases the apparent clinical manifestations were out of proportion to the degree of infection and the length of time these children could have had the disease had they acquired it in the usual way and postnatally."

It would seem possible that prenatal infestation might occur with any parasitic worm in which there is a wandering of the larvae in the body of the final host. The recent discoveries of the wandering of the larvae of *Ascaris lumbricoides* and related forms have suggested that migrations of nematode larvae in their final hosts are more common than has been suspected. These data serve to increase the significance of studies on prenatal infestation. It is worth while in this connection to mention briefly those of the parasitic worms of man in which the life history is such that prenatal infestation is a possibility.

Among the trematodes of man besides those of the schistosome group there is only one, *Paragonimus westermanii,* in which there is wandering in the final host. Since the larvae of *P. westermanii* are much larger than those of the schistosomes, grow rapidly as they wander, and migrate by way of the tissues rather than the blood stream, prenatal infestation with this form, while it might be possible, would seem to be very improbable.

Among the cestodes, the wandering habit is found only in the development of the bladder worm stage. Since the onchospheres are very small and are carried by the blood stream, the infestation of a fetus with the bladder worm stage would not seem to be difficult. In man, the possibility of such infestation would be limited to those species of which the larval stages invade the tissues, as the echinococcus and occasionally the larval stage of *Taenia solium.* I have found no references to prenatal infestation with echinococcus, but there is every reason to believe that such infestation could come about.

It is among the nematodes that prenatal infestation seems to me to offer the most important problem. I believe that with further studies it will be found to be not infrequent with hookworm. Other species in which such infestation might occur on account of what we know of the migrations of the larval stages are *Strongyloides stercoralis, Ascaris lumbricoides* and possibly the various species of the *Filaridae.* It seems possible also that the wandering habit of the larvae is a part of the life cycle of *Trichuris trichiura*[7] and other human nematodes, which would make possible prenatal infestation in these forms also.

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[7] Neshi has recently demonstrated in a paper in Japanese that the larvae of Trichuris depressiscula, the dog whipworm, wander in the final host.

Queensland (Australia) Health Report.—In the Queensland Government Lazaret for Lepers, on Peel Island, the number of inmates varied from forty-six to forty-one during the year, and comprised nineteen colored persons and twenty-two whites of which eighteen were natives of Australia. Six new cases were admitted; eight died in the course of the year and three escaped. Four types of the disease were classified, namely, tubercular, nodular, anesthetic, and mixed. In regard to venereal diseases, a system of notification is in force in consequence of which over 2,000 cases have been brought to the notice of the department, while over 400 certificates of cure have been issued. Registration of nurses is in full operation, and according to the report of the registration board a total of 134 certificates, as against 149 in the preceding year, have been presented after examination for midwifery and mental nursing.—*Med. Officer* **24:**223, 1920.

Clinical Notes, Suggestions, and New Instruments

A NEW PROCEDURE FOR DIAGNOSING URETERAL STRICTURES IN THE MALE

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Since the introduction of my technic, two years ago,[1] for diagnosing ureteral strictures in the male, various problems have presented themselves, whereby an improvement has become necessary. The technic here described will meet all obstacles and allow for accuracy in the diagnosis of ureteral strictures in the male.

I use either a No. 19 F. or 26 F. Brown-Buerger indirect, close vision, operating cystoscope and a 6 F. dry roentgenographic catheter with a pin in the proximal end to keep the wax from dropping in the proximal eyelet of the catheter. Some melted beeswax is dropped on the catheter about 0.5 cm. from the proximal end, and then the catheter is twisted between the fingers until the wax hardens (about one or two seconds) and there is a smooth, even wax bulb. The desired size can be made by the addition or subtraction of wax. I use for diagnosis an 8 + or 9 F. bulb, and for treatment increase the size up to an 18 F. bulb (Fig. 1). The catheter is then placed in cold mercuric chlorid solution, 1 : 1,000, for ten minutes. The urethra having been thoroughly cleansed and anesthetized with 5 per cent. procain, the catheter is then passed retrograde into the cystoscope, the distal end of the catheter first being passed into the proximal end of the cystoscope, through the sheath with the telescope in it. The catheter therefore is passed in the groove of the telescope and then through the cap with a single opening for the catheter, as shown in Figure 2. The wax bulb catheter is next passed into the bladder and then followed by the cystoscope containing the distal end of the catheter. The catheter curls up in the bladder and is gradually withdrawn until the bulb is seen. The ureteral opening is next located and the wax bulb catheter is passed into the desired ureter. If no obstruction is encountered, the catheter is passed up for about 8 inches and gradually withdrawn, the location of any "hang" being noted.

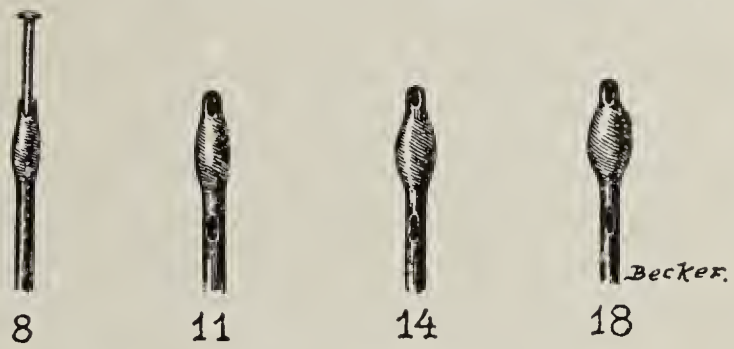

Fig. 1.—Various sizes of wax bulbs employed in diagnosis and treatment.

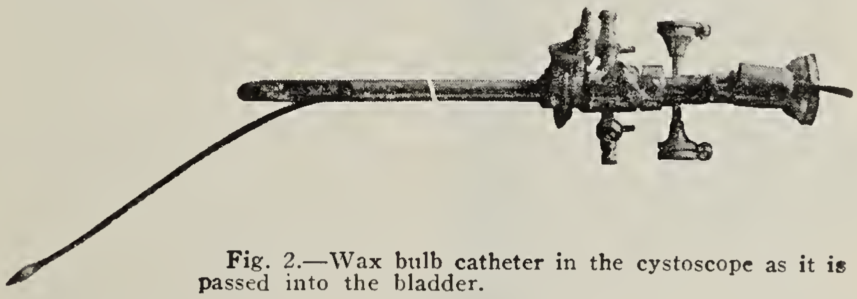

Fig. 2.—Wax bulb catheter in the cystoscope as it is passed into the bladder.

The method is ideal, as it serves these purposes:

Urine can be collected for examination. A renal functional test can be given, if this is desired. Since a roentgenographic catheter is employed, a roentgenogram can be taken and the line of the ureter obtained. The pelvic capacity can be determined by injecting fluid into the kidney. A shadow-casting substance may be injected and a pyelogram made to verify the diagnosis of a stricture (an important procedure) made by withdrawing the bulb and obtaining a "hang." Finally, the wax not having been disturbed, should a calculus be present, a scratch will be observed.

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[1] Goldstein, A. E., in discussion on Braasch, W. F.: Dilatation of the Ureter and Renal Pelvis, J. A. M. A. **73:** 731 (Sept. 6) 1919.

In the employment of this method, if a definite stricture is present, the "hang" is not only felt but seen; that is, as the catheter is withdrawn and the bulb caught at the obstruction, all tissues in front of the stricture are drawn forward, and this can be seen through the cystoscope.

330 North Charles Street.

A CLINICAL METHOD FOR THE DETERMINATION OF BLOOD SUGAR IN MINUTE QUANTITIES OF BLOOD *

Israel S. Kleiner, Ph.D., New York

This method is based on Benedict's[1] most recent technic, modified for use with a new microcolorimeter. The instrument was developed by Mr. R. E. Klett, based on suggestions by Prof. S. R. Benedict. My work was begun at Professor Benedict's suggestion and with his cooperation.

The instrument (Fig. 1) carries a vertically sliding eye-piece in front of a diaphragm having two vertical slits, through which the light passes. The eye-piece carries with it, in back of the diaphragm, a round clip in which one places a standard graduated test tube containing the unknown solution. Alongside of the test tube is a wedge, made by grinding a test tube and fusing it on to a ground-glass plate (Fig. 2). The wedge contains the standard color and is sealed by fusion. As the wedge is behind one slit and the unknown solution behind the other, the two can be compared by observation through the eye piece, which contains a lens and prism. By moving the eye piece (and with it the unknown) up and down, an exact match is found and a reading is made on the scale. Figure 3 shows a cross-section.

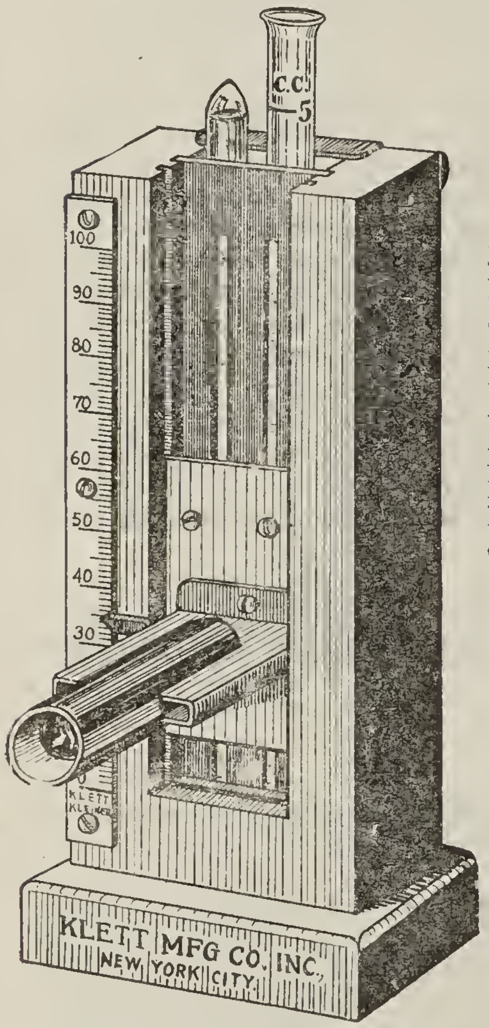

Fig. 1.—The microcolorimeter with wedge and graduated test tube in place, ready for use.

The apparatus required are: a microcolorimeter with sugar standard and 5 c.c. graduated test tubes; a 0.2 c.c. blood pipet; a 2 c.c. Mohr pipet in tenths; two 1 c.c. Mohr pipets in tenths; funnels (from 2.5 to 3 cm. in diameter); thin filter paper[2] (5 cm. in diameter); a centrifuge and tubes (not absolutely essential); a water bath (e. g., a beaker) and stand or tripod, and a Bunsen burner.

The reagents required are: 20 per cent. potassium oxalate solution; Benedict's picrate-picric acid solution,[3] and 20 per cent. sodium carbonate solution.

PROCEDURE

The 0.2 c.c. pipet is washed and then rinsed with 20 per cent. potassium oxalate solution. The residual fluid should now be blown out well; enough oxalate will remain to prevent clotting. The finger or ear lobe is then pricked and 0.2 c.c. of blood drawn up in the pipet and discharged into a centrifuge tube. The pipet is then rinsed twice with exactly 0.2 c.c. of water each time and the washings added to the blood. After a minute or two has been allowed for laking, exactly 1.9 c.c. of picrate-picric acid solution is added and the fluids thoroughly mixed. The tube is now centrifuged and the clear supernatant fluid poured off into a clean, dry test tube. Instead of centrifuging, the mixture may be filtered through a very small thin filter paper; with reasonable care, twice as much filtrate as is necessary may be obtained. With a clean, dry, 1 c.c. Mohr pipet, 0.8 c.c. of the supernatant fluid or filtrate is transferred *to the bottom* of the graduated test tube, *which must be dry*. To this should be added 0.1 c.c. of 20 per cent. sodium carbonate solution, and the tube should be well shaken and placed in a boiling water bath for ten minutes. It is now cooled under running water and diluted to either the 1.5 c.c. or 3 c.c. mark (or rarely 5 c.c.), depending on whether it is a light or deep orange color. It is now shaken again, placed in the colorimeter and matched to the standard "sugar" wedge. The reading is now made on the scale and the percentage of sugar found directly by consulting the proper table (1.5, 3 or 5 c.c.). If there is any doubt as to which dilution to use, the 1.5 c.c. should be tried first; if this proves darker than the highest point on the scale, one should dilute to the 3 c.c. mark, mix and compare. As this dilution permits of readings up to 0.37 per cent., the highest dilution (5 c.c.) will seldom be required.

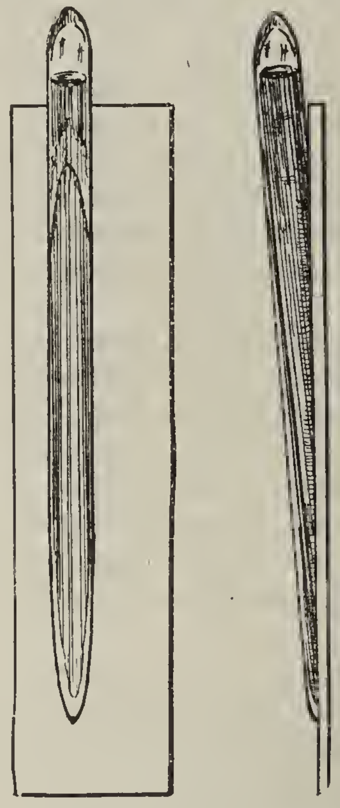

Fig. 2.—The wedge containing the standard color: *a*, front view; *b*, side view.

TABLE 1.—BLOOD SUGAR, DILUTION TO 1.5 C.C.

Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.
20	0.06	30	0.09	40	0.11	50	0.13	60	0.15	70	0.16
21	0.07	31	0.10	41	0.11	51	0.13	61	0.15	71	0.16
22	0.07	32	0.10	42	0.12	52	0.13	62	0.15	72	0.17
23	0.07	33	0.10	43	0.12	53	0.13	63	0.15	73	0.17
24	0.08	34	0.10	44	0.12	54	0.14	64	0.15	74	0.17
25	0.08	35	0.10	45	0.12	55	0.14	65	0.15	75	0.17
26	0.08	36	0.11	46	0.12	56	0.14	66	0.16	76	0.17
27	0.09	37	0.11	47	0.12	57	0.14	67	0.16	77	0.17
28	0.09	38	0.11	48	0.13	58	0.14	68	0.16	78	0.18
29	0.09	39	0.11	49	0.13	59	0.14	69	0.16	79	0.18

TABLE 2.—BLOOD SUGAR. DILUTION TO 3 C.C.

Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.
20	0.14	30	0.21	40	0.25	50	0.28	60	0.31	70	0.34
21	0.15	31	0.22	41	0.26	51	0.29	61	0.32	71	0.34
22	0.16	32	0.22	42	0.26	52	0.29	62	0.32	72	0.35
23	0.17	33	0.23	43	0.26	53	0.29	63	0.32	73	0.35
24	0.18	34	0.23	44	0.27	54	0.30	64	0.32	74	0.35
25	0.18	35	0.23	45	0.27	55	0.30	65	0.33	75	0.36
26	0.19	36	0.24	46	0.27	56	0.30	66	0.33	76	0.36
27	0.19	37	0.24	47	0.28	57	0.30	67	0.33	77	0.36
28	0.20	38	0.25	48	0.28	58	0.31	68	0.34	78	0.36
29	0.21	39	0.25	49	0.28	59	0.31	69	0.34	79	0.37

The pipet to be used for measuring 0.8 c.c. of the filtrate should either be dry or be rinsed with 0.1 or 0.2 c.c. of the fluid. There is usually enough to permit this to be done.

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* From the Department of Physiological Chemistry of the New York Homeopathic Medical College and Flower Hospital.

[1] Benedict, S. R.: A Modification of the Lewis-Benedict Method for the Determination of Sugar in the Blood, J. Biol. Chem. **34**: 203 (April) 1918.

[2] The "Whatman No. 1" (5 cm. in diameter) has been found to be serviceable.

[3] Benedict's picrate-picric acid solution is thus prepared: To 500 c.c. of 1 per cent. sodium hydroxid solution are added 36 gm. of purified picric acid and 400 c.c. of hot water. The mixture is shaken until the picric acid is dissolved. After cooling it is diluted to 1,000 c.c.

Neither this pipet nor any other apparatus used should be dried with alcohol and ether, as the minutest traces of certain organic impurities contained in them will give marked color reactions with picric acid and sodium carbonate, and the results will be correspondingly high. The standard test tube likewise should be dry, or at least the water should be well shaken out.

TABLE 3.—BLOOD SUGAR. DILUTION TO 5 C.C.

Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.	Reading	Per Cent.
20	0.24	30	0.38	40	0.45	50	0.50	60	0.53
21	0.26	31	0.39	41	0.45	51	0.50	61	0.53
22	0.28	32	0.40	42	0.46	52	0.50	62	0.53
23	0.30	33	0.40	43	0.46	53	0.51	63	0.54
24	0.32	34	0.41	44	0.47	54	0.51	64	0.54
25	0.33	35	0.42	45	0.47	55	0.51	65	0.54
26	0.34	36	0.42	46	0.48	56	0.52	66	0.54
27	0.35	37	0.43	47	0.48	57	0.52	67	0.55
28	0.36	38	0.44	48	0.49	58	0.52	68	0.55
29	0.37	39	0.44	49	0.49	59	0.52	69	0.55

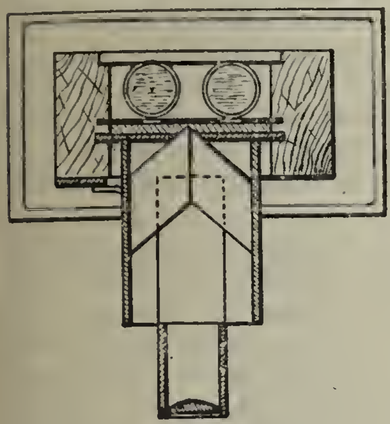

Fig. 3.—Cross section of instrument.

The wedge is filled with 2.5 per cent. potassium dichromate solution and is, of course, relatively permanent.

I prepared the tables from curves plotted from the results of a large number of determinations carried out with solutions containing known percentages of glucose.

Results obtained with this method have agreed very closely with the figures obtained by simultaneous analyses in which the ordinary methods, requiring 2 c.c. of blood, were employed. As this method is simple, quick and accurate, and requires only 0.2 c.c. of blood, it is evident that it should prove valuable to the clinician.

I hope to investigate further uses for the microcolorimeter described above.

A SIMPLIFIED METHOD OF PREPARING SOLUTIONS OF NEO-ARSPHENAMIN

Jay Frank Schamberg, M.D., Philadelphia

The use of neo-arsphenamin has become so widespread in Europe and in the United States that it is now employed at least five times more frequently than arsphenamin. From the public health standpoint it is obviously desirable that every practitioner in the country should be able to administer this important drug. Any procedure tending toward a simplification of the technic of preparation operates in the direction of rendering its use more facile by country practitioners who are not possessed of laboratory facilities. It is possible to prepare a solution of neo-arsphenamin for use without any other apparatus save a sterile glass syringe and needle, and 5 c.c. of sterile distilled water. The glass ampule itself may be used to dissolve the contained powder.

TECHNIC[1]

1. The ampule is shaken or knocked so that the powder flows easily and is not lumped.

2. The tip of the ampule is filed off, as illustrated in Figure 1. The opening should be large enough to permit the introduction of the needle to be used.

3. With the ampule almost in a horizontal position, 5 c.c. of sterile distilled water is introduced by means of the syringe (Fig. 2).

4. The ampule is then agitated for from thirty seconds to a minute, when the powder should be in complete solution. To avoid spilling the solution, the finger, covered with a rubber glove or rubber finger stall, should be held over the tip of the ampule.

5. The solution is then drawn up into the syringe (Fig. 3) and is ready for injection.

COMMENT

The advantage of this method is that it dispenses with the use of a mixing cylinder and renders oxidation less liable, since only a little air remains in the ampule. It likewise decreases the chances of getting glass into the solution in the syringe.

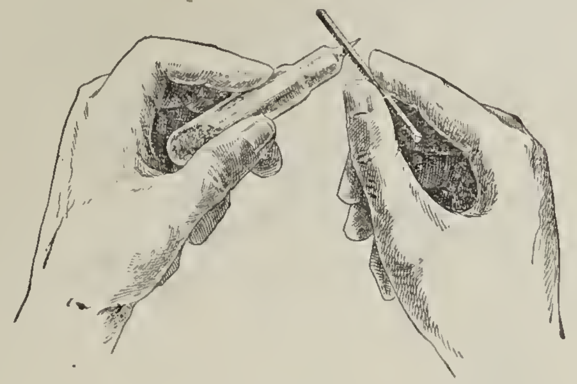

Fig. 1.—Filing tip of ampule.

The ampule will readily receive 5 c.c. of water; if one desires to use more water for the injection, 5 c.c. of solution or as much as is desired can be placed in the syringe before sucking up the solution from the ampule.

I am not sure that all makes of neo-arsphenamin can be easily dissolved in 5 c.c. of water, but there are available brands that can be. For physicians in the country who cannot secure sterile distilled water, laboratories could supply a sealed container, holding 5 c.c. of water, to accompany the ampules. As regards the degree of concentration of neo-arsphenamin mentioned, I am satisfied, from a large experience, that there is no greater liability to reactions than when a larger quantity of water is used.

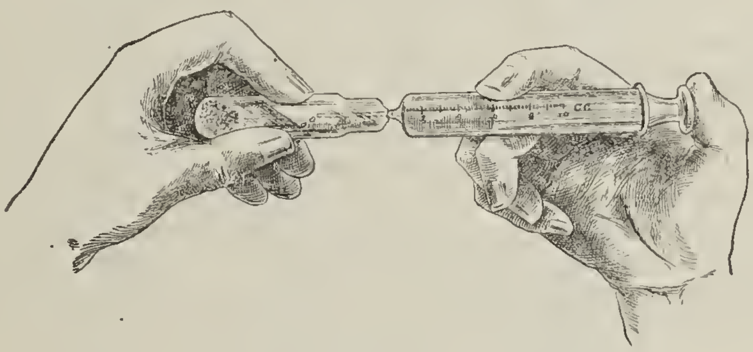

Fig. 2.—Injecting distilled water into ampule.

To be sure, when concentrated solutions of neo-arsphenamin are employed, any extravasation outside the vein will cause a correspondingly greater tissue reaction than when more dilute solutions are used. Great care must therefore be exercised to make certain that the needle is in the vein. Pain, tumefaction or resistance to flow suggests that the solution is not going into the vein. When one is in doubt, the tourniquet should be again applied and traction made on the piston; if blood freely enters the syringe, then the needle is in the vein. The injection should not be given with too great speed, as immediate reactions are more likely to be induced than when the fluid is

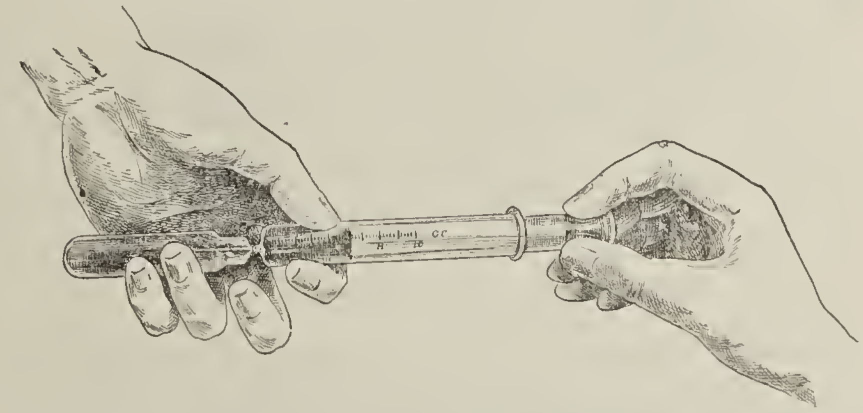

Fig. 3.—Drawing solution of neo-arsphenamin into syringe.

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[1] Since this was written, the author's attention has been directed to an almost identical technic described by Fordyce and Rosen (J. A. M. A. **75**: 1385 [Nov. 20] 1920) for the preparation of neo-arsphenamin for intramuscular use.

infused more slowly. At least from one to one and one-half minutes should be consumed to inject 5 c.c. of solution.

It is hardly necessary to state that a solution should never be used unless it is *brilliantly clear.*

1922 Spruce Street.

A PRACTICAL BANDAGE FOR THE THORAX

Constantine L. A. Odén, B.S., M.S., M.D., New York

A bandage that will stay in place and still be comfortable when applied to the thorax is especially desirable in surgical conditions of the chest, breast, back and allied areas. The one described herein has been demonstrated to possess all of these qualities. After searching the literature at my command, and finding no similar bandage for this region described, I venture to present it.

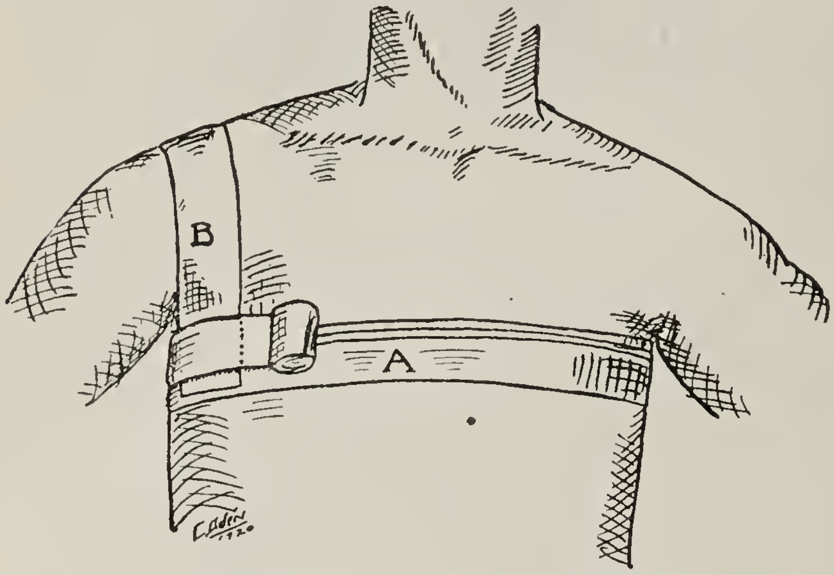

Fig. 1.—Method of applying bandage to thorax.

Two 3-inch gauze bandages are used. With one bandage (Fig. 1 *A*), three circular turns are made horizontally around the chest to a point at the pectoral region where the end of the second bandage, *B*, is caught in its fold. This bandage, *B*, is then carried up over the shoulder and down to the scapular region, where it is again caught by a circular turn of *A*. This process is continued until the desired area is covered (Fig. 2).

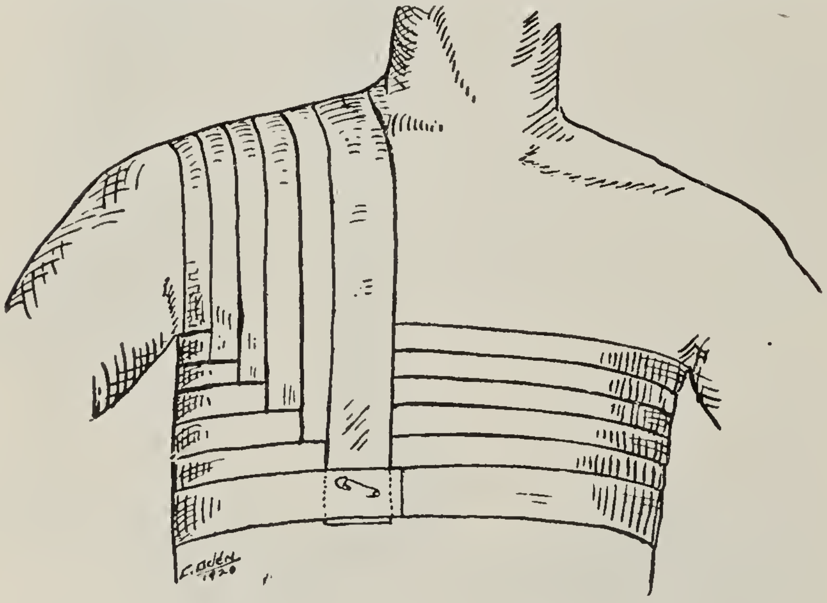

Fig. 2.—Bandage covering desired area.

In case it is desired to cover both scapulopectoral areas, a third bandage can be applied simultaneously like *B* on the opposite shoulder. The folds of these bandages *B* and *C* are caught and held with the same circular turns of *A*. In this manner the entire chest and both shoulders can be covered at one time, a factor often desirable.

This bandage has a distinct advantage over any other used for a similar purpose. It will not work loose, but will stay in place until taken off. As stated, it is especially useful, and fills a long felt want where large areas are to be covered and it is necessary to have a dressing to remain in one place. It has been used with pleasing results as to both permanence and function.

ADVANTAGES OF PROCTOCLYSIS BY THE FLUSH METHOD

B. V. McClanahan, M.D., Galesburg, Ill.

During my tour of duty at Christiansted, St. Croix, Virgin Islands of the United States, I had occasion to use rectal fluids in a large majority of my operative cases, and we were constantly troubled by soiled beds, kinked tubing and inability to keep the solution warm.

THE FLUSH METHOD

These reasons, combined with the utter lack of responsibility of the native nurses in managing the rectal drip method, caused the patients a vast amount of discomfort and ourselves a continual annoyance. In a short time I discontinued the use of the drip method entirely, and commenced to use what may be called a flush method of proctoclysis. The apparatus is extremely simple, consisting only of an irrigating can and a rectal tube with the end cut off. The can rests on a small table at the bedside at about the level of the patient's rectum. The rectal tube extends from the can, under the bedclothes, into the rectum of the patient. No regulation of flow is needed, and thus a constant to and fro communication is maintained between the large bowel and the container of fluid at the bedside. I soon found that this apparatus had advantages over virtually every other method of administration of rectal salines that I had ever used or had seen used: (1) It was practically fool proof; (2) it gave greater comfort to the patient; (3) it allowed passage of feces, gas and returned solution through the rectal tube instead of around it. I say it is fool proof because we were able to instruct the native nurses in the first few weeks of their training to manage this method successfully, and they were able to use it with uniform success though they had utterly failed in their efforts with the drip method.

The comfort to the patient is twofold: He does not complain of a sense of pressure in the rectum, for as soon as the rectum is at all distended with fluid its muscles may contract involuntarily and force the fluid, which is not under pressure, back into the can. His bedclothes are not continually soiled, as the fluids which he does not absorb, and cannot care for, are not forced out around the tube on his bedding, but are forced back into the irrigating can. The passage of gas and feces is accomplished whenever necessary and without any control of the sphincter muscles whatever.

COMPARISON OF METHODS

In comparing this method with the old drip method that I had been using formerly, I find that it has all the advantages of the drip method with virtually none of its disadvantages. It is impossible to force the mucosa of the rectum to absorb more fluids by having those fluids under pressure, and I dare say if the average drip method in operation is examined there will be found to be at least a head of 1½ to 2 feet of water pressure in the tube leading to the rectum. Rectal mucosa needs only contact with physiologic sodium chlorid solution or tap water for absorption. The tension which is caused by the head of pressure in the tube of the average drip method apparatus is a detriment rather than an advantage to absorption.

I find it much easier to keep the fluid in the flush method apparatus of an even temperature than I did in the drip method apparatus used, for the simple reason that the tube is larger and shorter in the flush method and is virtually all under the bedclothing and therefore at about body temperature. It is a simpler matter, also, to renew the fluid in the can of a flush method apparatus than it is in the drip method apparatus.

In the flush method apparatus, almost the full length of the tube is under the bedclothing, for the can rests on a small table at the bedside, the height of the can being regulated in accordance with the height of the fluid, care being taken at all times that the top of the level of the fluid in the can is not more than 4 inches above the level of the rectum of the patient. In this way it will be seen that there never can be more than a head of 4 inches of pressure on the fluid in the rectum.

If at any time an enema or low flushing is desired, the raising of the can forces more solution into the rectum. Either the can may be lowered again, allowing the fluid with any dislodged feces to return into it, or the patient can be placed on a bedpan, the tube removed, and the patient allowed to empty the rectum himself.

CONCLUSIONS

To summarize the situation we must take into consideration these facts:

1. Fluids, and especially salines, are of great importance in the body.
2. Fluids can be given by rectum over a longer period of time and with less discomfort to the patient than in probably any other way except their administration by mouth.
3. In a great many conditions, principally abdominal and those in which fluids can be administered successfully by rectum, it is not advisable to administer these fluids by mouth.
4. Fluids, whether tap water or physiologic sodium chlorid, glucose or alkaline solution, can be administered just as efficiently and a great deal more satisfactorily by this method than by the commonly used drip method that has been in vogue for so many years.
5. Almost any one, either in a home or in a hospital, will be able to use this method effectively. It gives the patient no discomfort; the rectal tube is larger than the catheter, but there is no sphincter action brought into play at any time; the patient's bed is seldom, if ever, soiled by fluids passing out around the tube, and the passage of gas and feces is accomplished involuntarily through this tube. I have used the method as long as three weeks continuously in a given case, and never once was the bed soiled or did the patient complain of any discomfort.

249 East Main Street.

A SIMPLE APPARATUS FOR THE ALKALIZATION OF SOLUTIONS OF ARSPHENAMIN [*]

J. E. LANE, M.D., NEW HAVEN, CONN.

The use of a standardized solution of sodium hydroxid in the preparation of arsphenamin solutions presents some advantages over the methods at present generally employed. The content of sodium hydroxid being accurately measured, the exact amount of the solution necessary for neutralization or for the desired degree of alkalization may be added at once—a procedure that facilitates solution of the precipitate.

This method has long been used by many of the French syphilologists. A few of those in this country have used it, and recently some of the manufacturers of arsphenamin have recommended it. I have found the method very satisfactory, but for some time have felt the need of a simple measuring apparatus more convenient than the ordinary graduated pipet, which is rather awkward to use when a number of solutions are to be prepared. The automatic burets on the market are too cumbersome and complicated to be commonly adaptable for this purpose. The apparatus here described appears to fulfil the requirements of simplicity, inexpensiveness and sufficient accuracy to make it generally useful.

The Herbert E. Smith easy-filling buret is used.[1] Its construction is easily seen in Figure 1. The inner tube, *A*, is continuous with the tube *B*, which goes into the bottle containing the solution. The outer tube, *C*, is closed at the bottom, and its outlet, through the tube *D*, to which a glass tip is attached by a piece of rubber tubing, is controlled by a pinchcock. At the top of the tube *C* is attached a rubber bulb in which a small opening has been made. To fill the tube the bulb is compressed, the hole is then covered with the finger, and the bulb is allowed to expend. This draws the fluid through the inner tube *A-B*, filling the outer tube *C*. When the finger is removed from the opening in the bulb, any excess of the solution runs back into the bottle through the tube *A-B*, leaving the outer tube filled to the point *O*, at which point the graduations begin.

The adaptation of this buret to the present purpose is seen in Figure 2. A calcium chlorid tube, filled with soda lime between two layers of cotton, is fitted to a second hole in the rubber stopper of the container, and another is attached by means of a perforated rubber stopper between the top of the buret and the bulb. This effectually prevents the deterioration of the solution by the entrance of carbon dioxid and moisture, dust and bacteria.

The inside of the bottle containing the solution is coated with paraffin of a high melting point, which prevents the solution from being affected by the glass and permits it to be kept without change for some time. Part of the action of the solution on the glass of the buret may be prevented by coating the tube *B*, which stands in the solution, inside and out with paraffin, and by emptying the outer tube after using. If these precautions do not appear sufficient, the action on the glass may be entirely prevented by removing the apparatus, with the stopper, emptying the outer tube, flushing the buret by drawing sterile water through it, replacing it, and allowing it to stand empty till again needed.

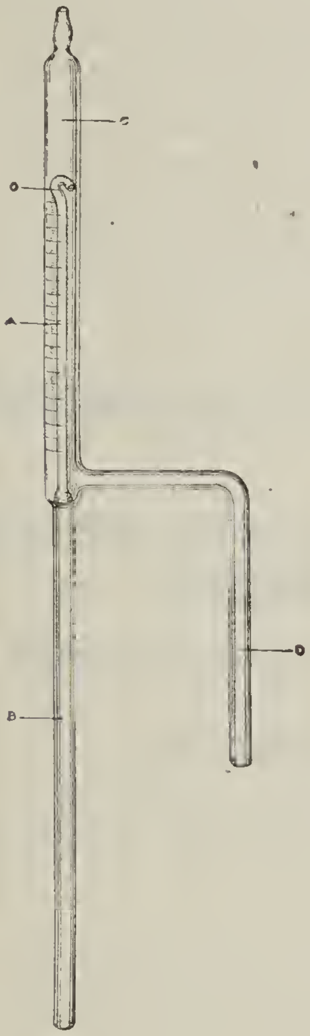

Fig. 1.—Construction of buret.

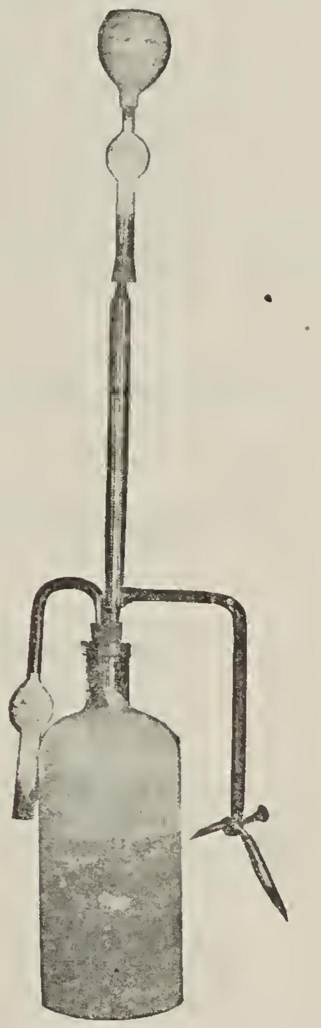

Fig. 2. — Modified measuring apparatus.

A buret of 10 or 20 c.c. capacity is a convenient size for ordinary use.

59 College Street.

Preventive Medicine a State Function.—Certain forms of medical activity cannot be undertaken individually by the medical practitioner. The problem of the prevention of disease can only be solved by the coordinated work of many agencies. For this purpose the proper authority to bear the responsiblity is the constituted health authority under the control of the government. Success depends on the degree of compulsion that can be exercised, and it is admitted that legal compulsion alone suffices for the purpose of preventive medicine.—*Med. J. Australia*, July 3, 1920.

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[*] From the Department of Dermatology, Yale University School of Medicine.

[1] For the design of the buret I am indebted to my former teacher, Dr. Herbert E. Smith of Los Gatos, Calif. Many years ago, when he was dean and professor of chemistry in Yale University School of Medicine, he showed me this buret, which he designed for his own use. It has never been on the market, but has recently been reproduced for me by Eimer and Amend of New York.

AN IMPROVED URETHRAL INSTILLATING SYRINGE

Neil Moore, M.D., St. Louis

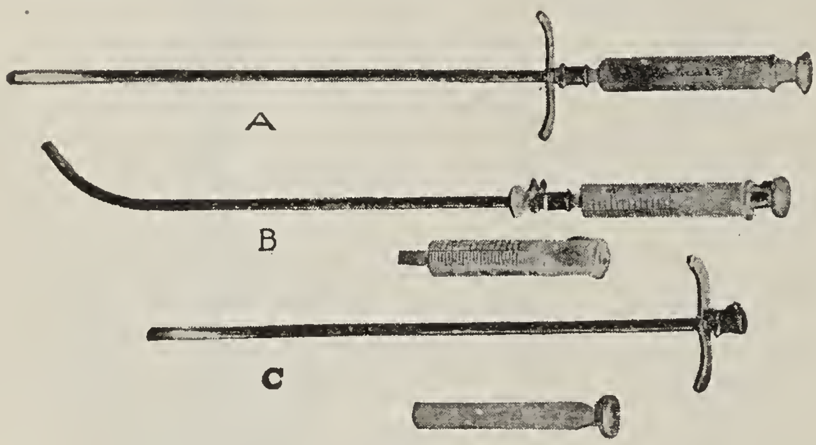
Priority for such an instrument as the one here described is not claimed, though the idea is entirely original with me. Since the completion, however, of this syringe by Mr. W. A. Phillips, an expert medical instrument mechanic, another similar in many respects has been observed in a dealer's show-case, apparently the result of a mechanic's experiment with no particular idea in view.

ESSENTIALS OF ASEPTIC CATHETERIZATION

Keyes[1] says: "The asepsis of catheterism, using the term broadly to cover every passage of an instrument into the urethra, implies three requirements, viz.: (1) asepsis of the physician's hands; (2) antisepsis of the patient's urethra; (3) asepsis of the instrument introduced." With this I fully agree, and it was such an idea that stimulated the perfection of the instrument in question.

Keyes presents an illustration of his instillating syringe. It contains a leather washer-piston fitted into a glass tube, which lies within a metal barrel and has screw connections with leather washers. None of these will withstand heat in any form sufficient to sterilize as often as a busy urologist must use such a syringe without irreparable damage, necessitating frequent replacement of parts.

A syringe that fulfils the sterilizing requirements without injury to its parts, so well as the one to be described, has not come under my observation, though it is not denied that such a one has been perfected. The all metal syringe with slip-on connection certainly comes nearest to it; but it has the disadvantage of not working smoothly when hot, of being very heavy, and of rusting easily.



Improved urethral instillating syringe: *A*, anterior view; *B*, lateral view, showing pointer in center of guard directed toward distal point of cannula; *C*, syringe disconnected, as it should be when placed in sterilizer.

DESCRIPTION OF INSTRUMENT

My syringe consists of a small silver cannula similar in size and shape to the one used on the Keyes-Ultzman syringe. To the proximal end of this is welded a slip-on connector which can easily be detached from any old, wornout Luer needle of 19 or 20 gage. At the junction between the connection and the cannula is inserted a metal cross guard with a pointer in the center which always points toward the concavity of the curved cannula. This makes it easy to know the direction in which the intra-urethral end is pointing. The remainder is a simple 1.5 c.c. Luer glass syringe which will fit the slip-on connection on the end of the cannula.

The advantages are: 1. The instrument can be boiled indefinitely or sterilized under pressure with other instruments without injury. 2. It is comparatively light in weight and is simple to manipulate. 3. The original cost is about a dollar less than other instruments with similar uses. The glass barrel and piston may be used for other purposes. 4. It never fails to work; there is nothing to get out of repair. The disadvantages are virtually nothing if reasonable care is exercised to prevent breaking the glass parts.

550 Century Building.

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[1] Keyes: Urology, 1919, p. 26.

Special Articles

BIOLOGIC THERAPY *

(*Continued from page 113*)

IX. ACNE VACCINE THERAPY

MARTIN F. ENGMAN, M.D.
ST. LOUIS

Although there are various controversial opinions as to the value of acne bacillus suspensions in the treatment of acne vulgaris, we are justified in saying that in certain types of this disease vaccines are of considerable value and act with specific effect. It must be admitted that *B. acnes* is the specific causative organism of the disease known as acne vulgaris, or "polymorphic acne" of Sabouraud. The histologic and bacteriologic study of the lesions of this disease demonstrates its causative relationship.

The specific effect of the acne bacillus suspensions (vaccines) are best seen in the types of acne vulgaris known as acne indurata, and certain forms of cystic acne in which the lesions lie deeper in the cutis. These vaccines have less effect on the more superficial types known as acne simplex and acne pustulosa, owing probably to the protection offered to the organisms by the walls of the follicles, as in these types they lie more superficially and are less accessible to immune bodies.

Acne vaccines should be used in the types just mentioned. In my opinion, failure to obtain proper therapeutic results in the use of this method has been due to the administration of too large doses or to too frequent administration of the vaccine.

The acne bacillus is a difficult organism to cultivate on artificial mediums; autogenous vaccines, therefore, are almost prohibitive for common use in most instances on account of the time lost in making the preparation. Stock vaccines, properly checked and controlled, have been just as efficient.

The initial dose should be from 3 to 5 million, to be repeated in from five to seven days. The interval should be gaged according to the reaction to the dose, which is usually exhibited by the appearance of a few new lesions within forty-eight hours after the injection. On the third day after the injection, comedones may be expressed and the lesions opened if necessary. The manipulation of the lesions at this time helps bring the immunizing blood to the part and it is at the height of the "tidal wave of immunity." Local hyperemia in the form of hot towels or that resultant from manipulation should be used on the third day after each injection and not before then.

If, after a few such doses, new lesions continue to appear after the third day, a larger dose of from 7 to 10 million should be given and continued until a proper therapeutic result is obtained, when the interval of administration should be lengthened to two weeks, then three weeks, and finally four weeks, thus continuing the remedy in a prophylactic manner.

If there is an outcrop of many new lesions within forty-eight hours after injection, the dose should be lessened and the interval of dosage extended. However, if many new lesions appear after the third day, it is an indication for a much larger dose. In no instance should more than 15 million be administered in any injection.

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* This is the third instalment of a series of articles dealing with serums, vaccines and nonspecific therapy.

The staphylococcus vaccine in acne vulgaris is of little if any value. The same thing may be also said of the staphylococcus part of mixed acne bacillus and staphylococcus vaccines. Acne varioliformis, which occurs later in life than acne vulgaris and is of staphylococcus genesis, is markedly influenced by vaccines of *Staphylococcus albus* when given in suspensions of from 50,000 to 100,000 every five to seven days. Therapeutic effects in the deeper forms of acne vulgaris with properly prepared stock vaccines are, in some instances, remarkedly beneficial.

In the treatment of many hundreds of cases of acne vulgaris by this method, I have seen no untoward effects from treatment with the exception of a slight local reaction at the point of subcutaneous injection.

Wall Building.

X. VACCINATION AGAINST TYPHOID AND PARATYPHOID FEVERS *

F. F. RUSSELL, M.D.
AND
H. J. NICHOLS, M.D.
WASHINGTON, D. C.

The value of antityphoid vaccination has been repeatedly demonstrated, and there is no question of its power to prevent infection. The protection is not absolute; some cases occur among the vaccinated, but their number is small. The results in the army are fully as good as if not better than those obtained against smallpox with vaccinia.

Antityphoid vaccine, as usually administered, is a suspension in physiologic sodium chlorid solution of killed typhoid bacilli, together with their soluble products from young agar cultures. A thick suspension is first made and is then standardized so that 1 c.c. contains 1,000 million bacteria.

The paratyphoid bacilli A and B are treated similarly to produce the paratyphoid vaccine. At present a triple typhoid vaccine is used which contains 1,000 million typhoid bacilli and 750 millions of each of the two paratyphoids in each cubic centimeter.

Sensitized living vaccines or serovaccines have been advocated by Besredka and others, but since they all contain living bacteria capable of multiplication under suitable conditions outside the body, there is some danger from their general use; experience has shown that ample protection may be obtained from killed bacteria, which are entirely safe.

Lipovaccines have recently been advocated by Le Moignic, Whitmore and others because of the simplicity of the single dose; this would be a great advantage if the amount of protection conferred were equal to that given by the saline vaccine; but as gaged by the presence of agglutinins, the response is greatly inferior.

The vaccine is regularly given in three doses, a week to ten days apart; no harm arises from longer or shorter intervals, but they are less convenient and the resulting immunity may not be so high. The best time of day for administration is about 4 in the afternoon, because if a general reaction supervenes, the greater part of it will be over before the next morning.

The best site for the vaccination is the upper arm at the insertion of the deltoid, where the subcutaneous tissue is loose. The vaccine must always be administered subcutaneously, and never into the skin or into the muscles or veins. In the latter localities, absorption is rapid and the general reaction may be severe.

A local reaction is almost invariably present, usually consisting of a red and swollen area, the size of the palm of the hand. The redness and swelling may extend to the wrist or upward to the clavicle; the axillary lymph nodes may be swollen. Nothing more than symptomic treatment is necessary, as the aseptic inflammation subsides within a day or two. Occasionally, induration or fluctuation may be detected, but no incision or drainage is necessary. The general reaction may be absent or mild or severe. It consists of headache, malaise, a rise of temperature, in severe cases to 104 or 105 for a short time, accompanied by nausea, vomiting and perhaps diarrhea and temporary albuminuria. These reactions ordinarily subside in a few days, and leave no sequelae.

A week after the first dose, agglutinins and other antibodies begin to appear in the blood, and increase to a maximum about three weeks after the third dose, after which time they gradually diminish. The immunity, however, does not disappear at the same time, but continues to be present, no doubt in a diminishing degree for years. After typhoid fever itself, which gives immunity for life, the antibodies in the blood are no longer detectable after about six months.

The duration of the immunity is difficult to establish, but it seems to be a matter of years rather than months. Much depends on the amount of exposure. For soldiers, who must have the maximum immunity obtainable, since in campaign they may have no other protection, revaccination should be carried out on the appearance of any typhoid fever among them. The same rule should apply to campers, contractors' gangs, lumbermen, civil engineers' forces, and the like. Revaccination among nurses, attendants and physicians constantly exposed to infection should be carried out annually. Children, 2 years old or more, bear the vaccination better than adults, and should be revaccinated at two to three year intervals, the best time being just before going to the country on their summer vacation.

INDICATIONS FOR VACCINATION

Typhoid fever is still a common disease, particularly among young persons, and the possibilities of infection from water, milk and from temporary and permanent bacillus carriers are always present. The chances of infection are greater in the country districts than in the larger cities, and in backward than in highly civilized countries. Travelers are more exposed than natives, even in the same locality. In addition, the indications point to the wisdom of vaccinating all contacts of typhoid fever cases, in the same way that smallpox contacts are vaccinated.

CONTRAINDICATIONS

Since the basis of any vaccination is to obtain protection against a possible danger, the vaccination is contraindicated when the danger from the vaccine itself is as great as the danger from the fever. Mortality tables indicate that the danger of infection is everywhere present, although the chances are much greater in some localities than in others. The danger from the vaccine itself is greatest in the case of applicants suffering from chronic disease of the kidneys. No one suffering from acute illness should be vaccinated until his temperature has returned to normal and convalescence is well established. In the presence of an epidemic, tuberculosis of the lungs, either latent or active is not a contraindication. Neither typhoid fever nor vaccination seems to have any harmful effect on the progress of the tuberculosis.

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* From the Army Medical School.

XI. PNEUMOCOCCUS VACCINE

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Pneumococcus vaccine is a suspension of killed pneumococci in broth or salt solution. When the suspension is composed of a single strain of pneumococcus, the vaccine is "monovalent"; when the vaccine consists of several different strains, or types, of pneumoccocus, it is "polyvalent." Autogenous pneumococcus vaccine is usually monovalent; most of the stock pneumococcus vaccines on the market are polyvalent.

METHOD OF PREPARATION

Pneumococci are cultivated from eighteen to twenty-four hours on plain or glucose broth. The culture after killing may be used directly or it may be centrifuged, and the sediment of bacteria be suspended in physiologic sodium chlorid solution. Finally it is heated at 55 C. for one-half hour to kill the pneumococci, and the vaccine standardized by the Wright method or by means of a nephelometer. Cultures are taken to test the sterility of the vaccine, and tricresol is added to a concentration of 0.3 per cent. as a preservative.

Pneumococcus lipovaccine is a modified vaccine, very similar to the saline, except that the bacteria are suspended in some vegetable oil instead of salt solution. It possibly is more slowly absorbed than the saline vaccine, and the reactions are not so sharp. Its antigenic value, however, has been questioned, and it is not being manufactured at present by the army, nor has a government license been issued for interstate sale.

METHOD OF ADMINISTRATION

Pneumococcus vaccine is almost always administered subcutaneously. The proper method of giving the vaccine is to pinch up the skin, and insert the needle well under the dermis. Intracutaneous injections may excite severe local reactions.

Pneumococcus vaccine, if injected intravenously, induces a sharp constitutional reaction (chill, fever, leukocytosis, etc.) similar to that following the intravenous injection of typhoid vaccine. This is the so-called "nonspecific protein reaction," which follows the intravenous injection of any foreign protein, and is occasionally employed in the treatment of certain forms of arthritis. Under ordinary circumstances, however, the intravenous injection of pneumococcus vaccine is strongly contraindicated.

DOSAGE

For therapeutic purposes, pneumococcus vaccine is administered in doses varying from 10 to 1,000 million pneumococci, or even more. For prophylaxis, much larger doses are used. In the U. S. Army from 3 to 9 billion was the dose of saline vaccine; from 30 to 40 billion of the lipovaccine. In the case of saline vaccine, three injections were given at seven day intervals, the first dose 3 billion, the second, 6 billion and the third, 9 billion. The lipovaccine was administered in one dose.

REACTIONS

Both the local and the general reaction vary greatly in different individuals. The smaller the dose, the milder the reaction. It is therefore desirable to divide the total dosage into as many inoculations as circumstances make practicable. It should always be remembered, however, that up to a certain point, the larger the total dose, the higher will be the immunity conferred.

In general it may be said that reactions to pneumococcus vaccine are similar to those following injections of typhoid vaccine. Within twenty-four hours following the injection an area of redness and induration appears at the site of the inoculation, which is usually 2 or 3 cm. in diameter, but may be larger. Occasionally small sterile infiltrations, which disappear spontaneously, follow the injection of large doses. Such reactions appear to be an expression of cutaneous hypersusceptibility.

The constitutional reaction to pneumococcus vaccine is usually insignificant. In many cases it is entirely absent. In a small percentage of cases, vaccination is followed by headache or backache, general malaise, chilly sensations and rise in temperature. These symptoms, however, are of short duration.

INDICATIONS FOR USE

Prophylactic vaccination against pneumonia is indicated whenever large groups of individuals are living together under abnormal conditions. Pneumococcus vaccine has been used with succcess among the mine workers of South Africa and more recently in the United States.

During the late war, pneumococcus vaccine was used extensively in some of the American army training camps as a prophylactic against lobar pneumonia. At Camp Upton, New York, Cecil and Austin [1] vaccinated 12,519 men against pneumococcus Types I, II and III. Three or four doses of saline vaccine were given at intervals of five to seven days with a total dosage of 6 to 9 billion of Types I and II, and 4 to 6 billion of Type III. The men were under observation ten weeks after vaccination, and during that time, no cases of pneumonia of the three types vaccinated against occurred among the men who had received one or more injections of vaccine. In a control of approximately 20,000 men, there were twenty-six cases of pneumonia, Types I, II and III, during the same period. Altogether, there were seventeen pneumonias of all types among the vaccinated 40 per cent. of the camp, and 173 pneumonias of all types among the unvaccinated 60 per cent. of the camp.

Following the Camp Upton experiment, Cecil and Vaughan [2] undertook to vaccinate the troops at Camp Wheeler, Ga., against lobar pneumonia, using, in this instance, pneumococcus lipovaccine in place of the saline vaccine which had been employed at Camp Upton. The dosage employed in all cases was 1 c.c. of lipovaccine containing approximately 10 billion each of pneumococcus Types I, II and III. Of the entire camp strength, 13,460 men, or about 80 per cent., were vaccinated. The men were under observation from two to three months following vaccination. During this period, there were thirty-two cases of pneumococcus Types I, II and III pneumonia among the vaccinated four fifths of the camp, and forty-two cases of pneumonia of these types among the unvaccinated one fifth of the camp. The weekly incidence rate for pneumonia of all types among the vaccinated troops was conspicuously lower than that for the unvaccinated troops. It will be seen from these figures, however, that the results of pneumococcus vaccination at Camp Wheeler were not so striking as those obtained at Camp Upton the previous winter. This difference was probably due to several factors, among which might be mentioned the influenza epidemic, which swept over the camp before vaccination against pneumonia had been completed, and the use of a lipovaccine instead of a saline vaccine. Since this experiment was carried out, it had been shown by Lewis and Dodge [3] that typhoid lipovaccine has less antigenic power than typhoid saline vaccine.

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[1] Cecil, R. L., and Austin, J. H.: J. Exper. Med. **28**: 19 (July) 1918.

[2] Cecil, R. L., and Vaughan, H. F.: J. Exper. Med. **29**: 457 (May) 1919.

Cecil and Blake [4] have tested the value of pneumococcus vaccine as a prophylactic against experimental lobar pneumonia in monkeys. They found that small subcutaneous doses of vaccine were not sufficient to protect monkeys against a subsequent pneumonia, though they did modify favorably the course of the disease. More recently, Cecil and Steffen [5] have found that when large subcutaneous or small intravenous doses of pneumococcus vaccine are used, the immunity against experimental pneumonia in monkeys is complete. Reports of the latter experiments have not yet been published.

Industrial workers who are exposed to the cold and wet, also firemen and policemen, might be vaccinated against pneumonia with advantage. Certain persons are susceptible to pneumonia and suffer from repeated attacks of the disease. It is probable that a polyvalent pneumococcus vaccine might prevent further attacks of the disease.

THERAPEUTIC USE OF PNEUMOCOCCUS VACCINE

Pneumococcus vaccine has been recommended by some investigators in the treatment of lobar pneumonia. There is very little experimental evidence, however, in favor of such vaccination. Rosenow and Hektoen,[6] and more recently Rosenow,[7] have advocated the use of partially autolyzed pneumococci in the treatment of pneumonia. The antigen is prepared by growing virulent strains of pneumococci of the different types in glucose broth from eighteen to twenty-four hours, centrifugalizing, and suspending the sediment in salt solution so that 1 c.c. contains about 15 billion pneumococci. The suspension is shaken with ether and then incubated at 37 C. until autolysis has occurred, that is, until 95 per cent. of the organisms have become gram negative, and 5 c.c. of the suspension produce few or no toxic symptoms in guinea-pigs. The dose of this vaccine for adults is 1 c.c. administered subcutaneously every day until the temperature reaches normal.

In a disease of so varied and uncertain a clinical course as lobar pneumonia it is a matter of great difficulty to be certain that a favorable or unfavorable outcome in a given case is the result of the giving or withholding of vaccine or other proposed remedial agent, and not to the many factors which may possibly determine the question of death or recovery.

It is therefore believed that the greatest caution should be observed in recommending the treatment of pneumonia by vaccines of whatever modification, until the results are confirmed by large and well controlled series of cases.

In subacute pneumococcus infections, such as unresolved pneumonia, sinusitis or bronchitis, pneumococcus vaccine may be of therapeutic value.

CONTRAINDICATIONS

Pneumococcus vaccine is contraindicated in acute infections and in chronic pulmonary tuberculosis and nephritis. It should not be administered in large doses to patients with chronic cardiac disease, or to invalids, or to pregnant women after the fifth month.

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The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

PNEUMOCOCCUS VACCINE (See New and Nonofficial Remedies, 1920, p. 285).

Beebe Laboratories, Inc., St. Paul, Minn.

Pneumococcus Vaccine No. 14.—Contains Types I, II, III and IV Diplococci pneumoniae, in equal proportions, respectively, suspended in physiological solution of sodium chloride; each Cc. contains 500 million killed bacteria. Marketed in vials of 6 Cc., 10 Cc. and 20 Cc., respectively.

TYPHOID VACCINE (See New and Nonofficial Remedies, 1920, p. 291).

Beebe Laboratories, Inc., St. Paul, Minn.

Typhoid-Paratyphoid Vaccine No. 39.—Marketed in packages of three 1 Cc. vials, each Cc. containing 1,000 million killed typhoid bacilli, 500 million killed paratyphoid A and 500 million killed paratyphoid B bacilli, respectively, suspended in physiological solution of sodium chloride; also marketed in 30 Cc. vials.

COLON BACILLUS VACCINE (See New and Nonofficial Remedies, 1920, p. 282).

Beebe Laboratories, Inc., St. Paul, Minn.

Colon Vaccine (Acne) No. 11.—Marketed in packages of six 1 Cc. vials, each Cc. containing 1,000 million killed colon communis bacteria suspended in physiological solution of sodium chloride; also marketed in packages of one 10 Cc. vial and in packages of one 20 Cc. vial.

MIXED BACTERIAL VACCINES (See New and Nonofficial Remedies, 1920, p. 295).

Beebe Laboratories, Inc., St. Paul, Minn.

Acne Bacterin Mixed No. 10.—Marketed in packages of six 1 Cc. vials, each Cc. containing 500 million killed B. acni vulgaris, 1,000 million killed staphylococci albi and 500 million killed staphylococci aurei, suspended in physiological solution of sodium chloride; also marketed in packages of one 10 Cc. vial and in packages of one 20 Cc. vial.

Adalin (See New and Nonofficial Remedies, 1920, p. 63).

The following dosage form has been accepted:

Adalin Tablets 5 grains.—Each tablet contains Adalin, 5 grains.

Veronal-Sodium (See New and Nonofficial Remedies, 1920, p. 84).

The following dosage form has been accepted:

Veronal-Sodium Tablets, 5 grains.—Each tablet contains Veronal-Sodium, 5 grains.

Novaspirin (See New and Nonofficial Remedies, 1920, p. 248).

The following dosage form has been accepted:

Novaspirin Tablets, 5 grains.—Each tablet contains Novaspirin, 5 grains.

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[3] Lewis, P. A., and Dodge, F. W.: J. Exper. Med. **31**: 169 (Feb.) 1920.

[4] Cecil, R. L., and Blake, F. G.: J. Exper. Med. **31**: 519 (May) 1920.

[5] Cecil, R. L., and Steffen, G. I.: Unpublished experiments.

[6] Rosenow, E. C., and Hektoen, Ludwig: Treatment of Pneumonia with Partially Autolyzed Pneumococci, J. A. M. A. **61**: 2203 (Dec. 20) 1913.

[7] Rosenow, E. C.: Partially Autolyzed Pneumococci in the Treatment of Lobar Pneumonia, J. A. M. A. **70**: 759 (March 16) 1918.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 15, 1921

NICOTIN AND TOBACCO

The passage of the eighteenth federal amendment having duly removed alcohol from its position of prominence as a menace to human welfare, we may confidently expect that the health reformer will soon direct his attention toward other dangers to life and longevity. Tobacco is certain to become a topic of vigorous debate—perhaps it would be more logical to say the object of renewed attack—on the part of those whose ideals contemplate a hygienic millenium. As the foods that we eat are nowadays so frequently paraded before the eyes of the nutrition experts that no item of inferiority, not to say actual detriment, can escape his scrutiny and condemnation, the defenders of the "weed," even though they are legion, can scarcely hope that tobacco will be immune from critical consideration. This is especially true in view of the enormous quantities of tobacco used in manufacturing. Thus, in 1916, the last year for which we happen to have the statistics at hand, the leaf tobacco involved more than six hundred million pounds of the product. In 1917, according to the data of the commissioner of internal revenue, more than nine billion cigars and thirty billion cigarets, not to mention snuff, chewing tobacco and smoking tobacco, were reported tax paid for consumption. Little wonder that there are persons whose thoughts turn in these days to tobacco.

Like alcohol, tobacco has been the subject of most extravagant exaggeration. The extremes of comment range for either substance from terms of blessing, on the one hand, to expressions of unmitigated execration, on the other. One reason for this diversity of opinion is to be found, here as elsewhere in the popularization of scientific problems, in the admixture of admitted fact with undemonstrated claims. The latter are often formulated in accord with the purposes of a propagandist. The result, a combination of a little truth with a lot of fiction, is always likely to provoke controversy. For example, it is demonstrably true that tobacco smoke may include, in addition to the alkaloid nicotin, a variety of other volatile products, as carbon dioxid, carbon monoxid, hydrocyanic acid, hydrogen sulphid, ammonia and pyridin bases, each of which may be designated, under appropriate conditions, as toxic in character. Are we then to condemn tobacco smoking offhand on the basis of the seemingly deadly showing? Certainly not. Concentrated hydrochloric acid is a corrosive poison; yet in the dilution in which it is found in the gastric juice, the same chemical compound is a beneficent factor in human well-being. The fumes of iodin or a few grams of iodid may be severely toxic; yet a few milligrams of iodin may act to avert pathologic consequences to man and beast.[1]

No one will regard tobacco or tobacco smoke as devoid of some sort of physiologic potency. What is the pharmacodynamic factor? Or is there more than one significant active "principle"? There is a prevalent notion, naturally cherished by smokers, that the organic compound nicotin is burned up in the combustion of tobacco so that at most less toxic derivatives remain in the smoke. The elaborate chemical investigations of the hygienist Lehmann[2] of Würzburg leave no doubt that nicotin as such does in fact make its appearance in the tobacco smoke, wherein it is distilled out from the unconsumed residues. Numerous analyses have shown, further, that the smoker's judgment of "mild" and "strong" qualities in cigars is no guide to the relative content or yield of nicotin; nor are so-called "nicotin-free" cigars always precisely what their label proclaims them to be.

Lehmann clearly recognized that where small quantities of potent substances are concerned, as in tobacco smoke, it would be unscientific and unwarranted to deny that chemical compounds other than nicotin may play some part in the physiologic action of tobacco smoke. The Dutch pharmacologist Storm van Leeuwen[3] has accordingly supplied a purely biologic identification of nicotin, using as an index its well known pressor effect on the circulation. Nicotin is virtually the only constituent of tobacco smoke that will raise blood pressure. Van Leeuwen therefore expresses the strong probability that nicotin is the most harmful constituent of tobacco smoke, and that the untoward symptoms that may appear from excessive smoking (apart from the great differences attributable to the varying susceptibility of individuals) depend on the amount of nicotin that finds its way into the smoke. The heart symptoms, in particular, are ascribed to this agency.

Similar conclusions have been reached by Hahn and Langer[4] of Freiburg in Baden, using a different index, namely, the temporary inhibitory effect of nicotin on the peristaltic movements of isolated segments of intestine. The chemical and biologic analyses agree in their incrimination of nicotin in contrast with other alleged constituents of tobacco smoke. This need not mean, however, that the possible harm that may be encountered in the chronic forms of tobacco abuse are attributable solely to nicotin. Experiments in the development of tolerance for this alkaloid have demonstrated that the sensitivity to nicotin may be somewhat decreased by continued use. Perhaps other components may then exhibit an ordinarily unsuspected effect. In general, without discussing the hygienic, the social or the economic proprieties of the use of tobacco in any form, it seems justifiable to identify the physiologic action of tobacco smoke in largest measure with that of its constituent nicotin.

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[1] Fetal Athyreosis, editorial, J. A. M. A. **69:** 43 (July 7) 1917; Thyroid Hyperplasia and Iodin, ibid. **70:** 848 (March 23) 1918.

[2] Lehmann, K. B.: Untersuchungen über das Tabakrauchen, München. med. Wchnschr. **55:** 723, 1908; Chemische und toxicologische Studien über Tabak, Tabakrauch und das Tabakrauchen, Arch. f. Hyg **68:** 319, 1909.

[3] Storm van Leeuwen, W.: Ueber den Nikotingehalt im Rauche schwerer, leichter und "nikotin-freier" Zigarren, Arch. f. exper. Path. u. Pharmakol. **84:** 282, 1919.

[4] Hahn, M., and Langer, H.: Tabakrauch und Nikotin nebst einer biologischen Methode zur quantitativen Bestimmung des Nikotins, Ztschr. f. Hyg. u. Infektionskr. **90:** 22 (March) 1920.

CONGENITAL STEATORRHEA

Under ordinary circumstances in healthy adults the utilization of all the common dietary fats is so excellent, so far as one may judge from the degree of absorption from the alimentary tract, that any deviation from this advantageous condition at once attracts the attention of a clinician. Accordingly, the appearance of stools richer than normal in fat has long been considered diagnostic of disease. Fatty stools are notably characteristic of cases of obstruction of the bile ducts; but steatorrhea, as the undue excretion of fat in the feces has been designated, may occur even in the absence of jaundice and evidence of biliary disorder. In such instances it has become customary to attribute the failure of fat utilization to pancreatic disease.[1] In true steatorrhea, the presence of fat is recognizable by the eye. Opie's [2] description points out that in some instances the fat is oily or like butter, while in other cases the feces are described as gray, silvery gray, or asbestos-like. The fat, which is liquid when passed, may solidify on cooling and form a layer covering the fecal mass.

Stools rich in fat are encountered in association with other morbid conditions, such as disease of the intestinal walls, lardaceous or ulcerative, and occlusion of the bile duct; but clinical experience does not associate true steatorrhea with such conditions.

There are records of temporary steatorrhea in association with the pancreatitis of mumps. Cases of steatorrhea may continue so as to furnish a prolonged history without indications of any serious detriment to health; nevertheless, virtually all medical writers have inclined to assume a pancreatic defect associated with the condition, particularly because the fat in the stools is often undigested and therefore reappears as neutral fat rather than as free fatty acids. In 1913, however, Garrod and Hurtley [3] described for the first time a case of a young boy in which steatorrhea was congenital and unattended by any signs of illness. From infancy he had experienced the passage, from the bowel, of liquid fat which solidified on cooling. Neither bile preparations nor pancreatic gland extracts brought about any improvement in the utilization of fats, although some of them increased the cleavage of fats. As improved saponification was not followed by improved absorption, it seems evident that the impairment of utilization was not dependent on deficient splitting of fats.

The original observers of the anomaly just described came to the conclusion that their patient was the subject of a rare inborn error of fat absorption, probably a mendelian recessive characteristic, but they were unable to determine where in the organism the error lies. Miller and Perkins [4] have lately described a companion case exhibiting many features in common with that of Garrod and Hurtley. The patient, a boy, aged 3, had passed separated liquid fat since birth. Unless the steatorrhea may be regarded as a definite pancreatic symptom, there was no evidence of pancreatic disease so far as this was tested. Garrod's case was the second example in one family; hence the assumption of hereditary factors. In this latest report [4] from the Paddington Green Children's Hospital, no other member of the family was known to be similarly affected. Whether or not congenital steatorrhea, like acquired steatorrhea, involes a pancreatic factor cannot be decided at present. We agree with Garrod,[5] however, who finds it difficult to believe that there is any real disease of the pancreas involved. Now that the anomaly has twice been brought clearly to the attention of the medical profession, other instances are likely to be reported, leading to the hope that future investigation will unravel the mystery of a unique congenital physiologic abnormality.

THE PULSE RATE IN RELATION TO METABOLISM AND DIAGNOSIS

In clinical diagnosis the study of the pulse as an index of the heart rate has heretofore been applied largely to consideration of circulatory factors. To F. G. Benedict of the Boston Nutrition Laboratory of the Carnegie Institution is due the credit for having called attention to an apparently striking relationship between metabolism and pulse rate in normal subjects. In company with Murchhauser,[6] for example, he made observations before and after a light meal, during sleep and while awake, and after changing from the lying position to a sitting position, and noted that with the resultant percentage increase in metabolism there was a simultaneous and corresponding increase in the pulse rate, indicating a quantitative relationship. Numerous facts further attest that in general a low pulse rate prevails under conditions in which the metabolism is undoubtedly lowered. This is true in fasting persons, in whom the heart beat may drop to 50 or less a minute. Various observers agree, however, that an exact relationship between pulse rate and metabolism holds only when the records are derived from the same person. Comparisons between different persons cannot be made with accuracy in this manner.

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[1] A review of such cases is given by Fitz: Tr. Cong. Am. Phys. and Surg. **6**: 36, 1903.

[2] Opie, E. L., in Osler-McCrae: Modern Medicine **3**: 600.

[3] Garrod, A. E., and Hurtley, W. H.: Congenital Family Steatorrhoea, Quart. J. Med. **6**: 242 (Jan.) 1913.

[4] Miller, R., and Perkins, H.: Congenital Steatorrhoea, Quart. J. Med. **14**: 1 (Oct.) 1920.

[5] Garrod, A. E.: Lancet **1**: 749 (April 3) 1920.

[6] Benedict, F. G., and Murchhauser, H.: Energy Transformations During Horizontal Walking, Pub. 231, Carnegie Institution of Washington.

There are conditions, notably in hyperthyroidism, in which a salient differentiating characteristic is the heightened metabolism. To this an increasing amount of attention has been directed of late; and following the lead of Du Bois,[7] the estimation of basal metabolism has become a routine clinical possibility in this country, particularly as an index of the degree of toxicity in hyperthyroidism.[8] But such determinations are time consuming and require expert assistance. Opportune, therefore, is the growing evidence that the resting pulse rate may be a tolerably good index of a patient's progress. Means and Aub [9] have correctly pointed out that the pulse rate gives only comparative results, for between the metabolism elevation and pulse elevation of different individuals there seems to be little relationship. The pulse rate, therefore, is not an index of the absolute degree of intoxication in the patient seen for a single time, but it does furnish a relative index in a patient seen at different times.

The still more recent studies of Sturgis and Tompkins [10] at the Peter Bent Brigham Hospital lead to a similar conclusion. In the course of nearly five hundred determinations of the basal metabolism on 154 patients with hyperthyroidism, there was a tachycardia of 90 or more to the minute, associated with a basal metabolism of + 15 per cent. or more in all but 14 per cent. In seventy instances, when the metabolism fell to normal there was a simultaneous fall in pulse rate in 78 per cent. to below 90. In fifty-two patients on whom a number of metabolism determinations were made, the pulse rate gave an accurate idea of the course of the disease as compared to the basal metabolism in 85 per cent. Discrepancies between pulse rate and metabolism admittedly occur, and no explanation, aside from occasional heart block, has yet been discovered. Nevertheless, we can agree with the Boston observers so far as the fact that a pulse rate at complete rest below 90 a minute is seldom, and below 80 a minute is rarely associated with an increase in metabolism, is of practical importance in the recognition of the large group of nervous patients who have symptoms similar to those occurring in hyperthyroidism. There are many instances of tachycardia that come to the attention of the clinical observer. They appear frequently in cases of so-called "irritable heart"; but however rapid the pulse may become after even slight mental or physical strain, with rare exceptions complete rest leads to greatly lowered figures. Hyperthyroidism may thus be ruled out, particularly when the diagnosis is verified by the finding of a normal metabolic rate.

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[7] Du Bois, E. F.: Metabolism in Exophthalmic Goiter, Arch. Int. Med. **17**: 915 (June) 1916.

[8] See, for example, McCaskey, G. W.: The Basal Metabolism and Hyperglycemic Tests of Hyperthyroidism, with Special Reference to Mild and Latent Cases, J. A. M. A. **73**: 243 (July 26) 1919.

[9] Means, J. H., and Aub, J. C.: The Basal Metabolism in Exophthalmic Goiter, Arch. Int Med. **24**: 645 (Dec.) 1919.

[10] Sturgis, C. C., and Tompkins, E. H.: A Study of the Correlation of the Basal Metabolism and Pulse Rate in Patients with Hyperthyroidism, Arch. Int. Med. **26**: 467 (Oct.) 1920.

Current Comment

VITAL IMPORTANCE OF THE SYMPATHETIC GANGLIONS

The striking phenomena following the extirpation of seemingly insignificant structures like the parathyroid glandules illustrate the importance that must be attached to such organs. The continuance of life is hinged on the physiologic functioning of more than one such comparatively small group of specialized cells. The discovery that specific hormones are presumably elaborated in various localities in the body through the activity of particular tissues has increased our respect for undescribed possibilities inherent in any organ, large or small, through the medium of so-called internal secretion. Hence one is prepared to review with respectful attention the evidence published by the late Dr. Meltzer [1] with respect to the importance of the superior cervical ganglions. The conclusion that he reached from one of his last researches, showing that death almost inevitably followed even the most careful surgical removal of these structures, was that they contain a principle that is essential for the maintenance of life. Furthermore, the question is raised as to whether or not other sympathetic ganglions also possess some sort of internal secretion. These are not the hasty suggestions of a novice, but the well considered deductions of an experienced and resourceful investigator. What will the final answer be?

THE MODERN SUBSTITUTE FOR THE SHOTGUN PRESCRIPTION: POLYVALENT VACCINES FOR COLDS

At least five commercial manufacturers of biologic products make and push vigorously the sale of vaccines to prevent colds. Of these at least two, from time to time, have added new strains of bacteria to the formulas with which they originally introduced their products, so that seventy-five or eighty different types of bacteria are now included. For such products the manufacturers claim a scientific basis because the organisms have been isolated from persons with colds, and great polyvalence because of the great number of organisms included in the vaccines. As The Journal has said repeatedly, every year different types, varieties and species of bacteria have been associated with colds in different parts of the country. Presuming—although it has never been proved—that any vaccine has value in preventing colds, what is the logical and scientific thing to do? Obviously, prepare a specific vaccine for each form of cold in each part of the country. But that which is most scientific is not always most profitable. Commercially it is much easier to mix all the different bacteria together, to prepare a vaccine, to inject it into the patient and to hope that some organism will produce antigens which will find a mate. If a physician is curious, he may ask what becomes of all the bacterial débris that the patient receives. He may wonder how much asthma is produced by sensitization through the inoculation of such foreign proteins. If he should ask the manufacturer he would find that the manufacturer does not know. Should he ask why eighty organisms were included—as advertised by one manufacturer—he would be met with an argument of bewildering pseudoscience. If the physician is inclined to be inquisitive—as he ought to be—he can ask the manufacturer why he stopped at eighty—why not include all of the multitude of strains and types of streptococci, pneumococci and influenza bacilli? We used to ridicule the old shotgun mixture of drugs; the present day biologic shotgun mixture is much more ridiculous—and a greater menace to public health and to scientific medicine.

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[1] Meltzer, S. J.: Are the Superior Cervical Ganglia Indispensable to the Maintenance of Life? Proc. Nat. Acad. Sc. **6**: 532 (Sept.) 1920.

REACTIONS TO KILLED BACTERIA INTRODUCED INTO THE BLOOD

In the early studies of immunity an attempt was made to explain resistance on a single general condition, such as the action of body fluids or of certain leukocytes. At present it is recognized that resistance to bacterial infection is an involved biologic reaction embracing many factors which are often complex and interdependent. Recently Nagaó[1] has studied the cellular changes that follow the intravenous injection of killed nonhemolytic streptococci into guinea-pigs. Free cocci could be found in the blood for only thirty minutes after injection, and these were usually in clumps of platelets. Most of the cocci were taken up in leukocytes within five or ten minutes, and cocci could be found in circulating leukocytes for as long as three hours. The cocci and polymorphonuclear leukocytes accumulate in the lungs during the first ten minutes, and it is here that most of the cocci reach the interior of the phagocytes. At the same time there is a general leukopenia, and the polymorphonuclear leukocytes of the spleen are reduced to about one-fourth the normal number. There is a similar reduction of such leukocytes in the bone marrow. After thirty minutes the lungs are nearly normal, the number of leukocytes in the blood may be normal or increased, and there is a beginning accumulation of the leukocytes in the liver and spleen. There is also a marked proliferation of the endothelial cells of the liver and spleen, and of the leukocytes of the bone marrow. In from two to three hours there is a marked accumulation of leukocytes with ingested cocci in the liver and spleen, the number of leukocytes in the blood is increased, and immature leukocytes appear in the blood and bone marrow, indicating an exhaustion of the leukocyte-forming power of the marrow. It is suggested that changes similar to those in the marrow take place in the endothelial cells of the liver and spleen. From these observations it appears that leukopenia as well as a hyperleukocytosis may be associated with an irregular distribution of the leukocytes because of local positive chemotaxis. These results throw light on the leukopenia in certain infectious diseases. It also emerges that vaccines must be given with great caution in acute infectious diseases, lest the already overworked blood-forming organs be subjected to complete exhaustion and the results be fraught with danger. As suggested by Nagaó, the reaction of a patient to vaccine treatment may be determined in some degree by frequent examination of the blood, the appearance in it of immature leukocytes indicating danger of exhaustion of leukocytogenic centers in marrow and elsewhere.

THE REACTIONS FOLLOWING INTRAVENOUS ADMINISTRATION OF ARSPHENAMIN

The untoward symptoms that still frequently follow the intravenous administration of arsphenamin have been a cause of much concern to therapeutists. Despite the years that have elapsed since this mode of treating syphilis was first instituted as the result of Ehrlich's investigations, the difficulties encountered have not yet been overcome. Among the explanations advanced to account for the febrile and other symptoms that are occasionally encountered is the view that a rapid destruction of spirochetes by the drugs results in a liberation of microbial endotoxins which bring about the more or less severe reactions in the patient. This hypothesis, however, has been made untenable or at least reduced to a relatively minor significance by the recent demonstration that both syphilitic and nonsyphilitic patients may experience similar reactions following the intravenous injections of arsphenamin. As the result of these observations by Strickler[1] and others at the Jefferson Medical College of Philadelphia, it appears that the most important factor in the production of certain of the undesired arsphenamin reactions is the medicament rather than the patient. In fact, it is the conclusion of these Philadelphia clinicians that the untoward phenomena may be produced by some impurity in the arsphenamin or by some chemical reaction between the arsphenamin and the chemical constituents of the blood, or the two factors may be operative at the same time.

INCOME TAX REPORTS

After the holidays comes the income tax; it is fortunate for our happiness and peace of mind that the order is not reversed. During the next few days all physicians who paid an income tax last year will probably receive blanks on which income returns for the year 1920 are to be made. Those who do not receive them should secure copies from the collector of internal revenue of their district. Since the tax was assessed last year, there have been a few unimportant changes in the regulations. In a later issue, The Journal will discuss, in detail, the income tax as it affects physicians.

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[1] Nagaó, K.: The Fate of Killed Nonhemolytic Streptococci Injected into the Blood, and the Resulting Cellular Changes, J. Infect. Dis. 27: 327 (Oct.) 1920.

[1] Strickler, Albert: A Clinical Study of the Reactions Following the Intravenous Administration of Arsphenamin in Nonsyphilitic Persons, Arch. Dermat. & Syph. 2: 692 (Dec.) 1920.

Under the law every person having an income of $1,000 or over must file a schedule showing the amount on which he should be taxed, or, if exempt, the reasons for exemption. Officers of the Internal Revenue Service say that frequently physicians to whom blanks are sent simply write "No taxable income" across the face of the blank and return it without details or affidavit. This is not sufficient to comply with the law. The burden of proof as to exemption is on the individual. Those who are exempt must prove it, not by general statements, but by sworn details. Regardless of the amount of taxes paid, it is a good thing for a doctor to make out a balance sheet every year. For this reason, the law has been of great practical value to physicians. By compelling them to keep an accurate record of business expenses, separate from personal expenses, and to deduct the annual cost of carrying on their business from their gross receipts, it has given physicians a more accurate idea of their actual income. Perhaps, in time, if the Treasury Department will permit a study of the income tax reports of physicians, it may be possible to answer accurately that much discussed question, "What is the average physician's income?"

"CHIROPRACTIC"

A Pennsylvania physician sends us some advertising leaflets issued by a "chiropractor" in his vicinity. The leaflet is one of those that are printed by the hundred thousand and sold to individual chiropractors, having the purchaser's name printed on the leaflet to give a personal touch. Our correspondent comments:

> I am enclosing an example of the flagrant nonsense which the public is being handed and is accepting. The man whose name is printed on this circular as the chiropractor was a schoolmate of mine. He finished his education in the grammar school, while I kept on, not earning a penny until I became twenty-four years of age.
>
> On the day I left my home and office in July, 1917, for the Army this man, who is now a "chiropractor," was perched on a ladder across the street painting a house. Six months later, in camp, I received my home newspaper containing his noisy advertisement. He had acquired the prefix "Dr." and was flourishing. At the present time he boasts of two offices, a flourishing "practice" and an automobile. In my home town of 50,000, five more chiropractors have established offices within the past three years and are doing business.

We are not sure that any comment is necessary; the letter is an editorial in itself. However, it may be worth while to point out that the profession that is devoted to the relief and cure of human ailments is the only one that will permit men without technical knowledge to ply their vocation with impunity—provided these ignoramuses speciously plead that they are representatives of a new "school" of healing. It is not conceivable that a man whose only training was a six months' correspondence course would be put in charge of a locomotive. It is equally inconceivable that a man with a few weeks' reading of law would be admitted to the bar and entrusted with cases that might involve large financial interests. But a street cleaner or a garbage collector can take a six months' "course" in "chiropractic" and be permitted by the commonwealth to hold himself out as competent to treat the most complicated piece of mechanism known—the human body.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Gift to Hospital.—The Huntsville Rotary Club has voted to donate to the Huntsville Hospital a fund of $500 which was being held for a proposed memorial hospital.

County Tuberculosis Society.—The Dallas County Tuberculosis Association was recently organized at Selma. The association plans to ask for special legislation to form a county health unit with a full-time county health officer.

Memorial Hospital Under Construction.—A site has been selected for the Susie Stringfellow Memorial Hospital at Anniston, for the construction of which a bequest was left by Mrs. W. W. Stringfellow. The hospital will be located on a hill on Leighton Avenue, between Eighteenth and Nineteenth Streets, on the site of the old Anniston high school which later was the Stringfellow residence grounds. The institution will have accommodation for fifty patients. At the death of W. W. Stringfellow, husband of the deceased donor, the Stringfellow residence will be converted into wards. The buildings will cost approximately $100,000.

ARKANSAS

State Board of Health Appointed.—Dr. Leonidas Kirby, Harrison, has been appointed a member of the state board of health to succeed Dr. J. T. Clegg, Siloam Springs, resigned, and Drs. Octavius L. Williamson, Marianna, Henry L. Montgomery, Gravelly, and Fergus Olamb Mahoney, Eldorado, have been reappointed.

Model Health Law Recommended.—Dr. Charles Willis Garrison, Little Rock, state health officer, has made an appeal to the governor for the passage of legislation to amend the state health act to provide for the appointment and payment of a full-time local health officer. It is proposed to divide the state into districts, each in charge of a full-time health officer, with a staff of inspectors and nurses, and with adequate laboratory facilities.

CALIFORNIA

New Tuberculosis Clinic.—San Bernardino County Tuberculosis Association has opened a new free tuberculosis clinic in San Bernardino.

Society Will Celebrate Semicentenary.—The Los Angeles County Medical Association will celebrate the fiftieth anniversary of its founding by a banquet on the evening of January 21. Drs. Walter Lindley, Joseph Kurtz and J. P. Widney, three of the original founders, will be the guests of honor.

Forged Death and Burial Certificates.—It is reported that Frank Hapgood, an undertaker of Palo Alto, recently pleaded guilty to a charge of forging the name of Dr. Robert Gallaher Reynolds, Palo Alto, to a death certificate, and that of S. A. Winnegar, Mountain View, assistant county health officer, to a burial certificate. The offense with which Mr. Hapgood was charged is alleged to have been committed early in July in connection with the death of the 4 year old daughter of a prominent Christian scientist of Palo Alto. At the time the child contracted its fatal illness the mother called in Dr. Reynolds, who pronounced the case scarlet fever. Thereafter, it is said, the physician was dismissed and a Christian science practitioner was called in. The child died, July 7. It is claimed that the mother feared a coroner's inquest and arranged the details of the fraud with the undertaker. The offense is a misdemeanor under the state health laws.

Hospital Notes.—Ground was recently broken for the erection of the Orthopedic Hospital and School, in Brockman Court and Palm Drive, near West Adams Street, Los Angeles. The hospital was made possible through the generosity of the Los Angeles Orthopedic Foundation, in cooperation with the Crippled Children's Guild, which owned the site. It is designed to give crippled children careful orthopedic treatment and to train them for a period of time by reeducational methods. The building will be erected at a cost of $100,000, and $50,000 additional will be spent for equipment. —Construction work has been started on the new hospital at Whittier, for which the sum of $250,000 was donated by Simon J. Murphy, Jr., Pasadena, as a memorial to his father and sister. The institution will be constructed in one of the municipal parks.——The Kern County jail will be transformed into a county hospital for the care of the sick and indigent.——The new Kaweah Hospital, at East School and Northwest Street, Visalia, was formally opened for the reception of patients, December 20. The hospital has accommodations for twenty-five patients and is located on the site of the old Garcia home. It was erected by the Visalia Medical Association and will be conducted as a public hospital to replace the Visalia General Hospital.

COLORADO

Society Organizes Campaign Against Fraud.—At the annual meeting of the El Paso County Medical Society, held at Colorado Springs, December 8, plans were adopted for a vigorous campaign to eliminate all quack medical advertising and practices, and to rid the county of all sure cure ads and charlatans. Mr. H. H. Fawcett, president of the Ad Club, delivered an address on "Ethical Advertising," and outlined certain steps in the investigation and rejection of fraudulent advertisments by lay dailies and journals. The *Evening Telegraph* has refused to accept advertisements from several local concerns and has rejected requests for paid space from agents representing nationally advertised nostrums.

DISTRICT OF COLUMBIA

Society Formally Opens New Headquarters.—The Medical Society of the District of Columbia gave a reception to its president and other officers, January 12, when a special opportunity was given to the members and friends of the society to inspect its new home at 1718 M Street N. W.

Johns Hopkins Students Visit Hospital.—The senior class of Johns Hopkins University Medical School, consisting of ninety students, came to Washington, January 8, for the purpose of studying the methods employed in the care and treatment of the disabled soldiers at Walter Reed General Hospital. The class was in charge of Dr. John M. T. Finney, professor of surgery, who was accompanied by several other members of the faculty.

FLORIDA

State Health Laboratory Building.—Work has been begun on the erection of the laboratory of the state board of health at West Palm Beach. The new building will be located on the north side of Fourth Avenue, west of the Dixie Highway, within 300 feet of the Florida and East Coast Railway Station. The total cost of the laboratory will be $34,500.

GEORGIA

Wesley Memorial Hospital.—The Wesley Memorial Hospital and Candler Memorial Hospital for Women and Children for which a fund of $1,000,000 was provided by the children of Asa G. Candler, as a memorial to their mother, is under construction in Atlanta. Emory University School of Medicine will utilize the facilities of the hospital for the clinical training of its medical students. A campaign for funds for the purchase of special equipment is being conducted by Methodists of Georgia and neighboring states.

IDAHO

Osteopath Convicted of Medical Practice Violation.—It is reported that W. A. Sawyer, an osteopath of Twin Falls, was recently convicted in the Twin Falls district court on the charge of violating the state medical practice act by performing a major surgical operation. It was contended by the attorneys for the defense that W. A. Sawyer was a graduate of a medical school, although this school was not on the approved list of the state, and that at that school he had taken the regular courses in osteopathy, including surgery. This testimony, however, was ruled out by the trial judge. The state maintained that an osteopath is licensed to practice osteopathy, and not to prescribe medicines or perform major surgical operations. The prosecution was instituted by the state department of law enforcement on the recommendation of the attorney-general.

ILLINOIS

State Health Department Appointments.—Dr. Frank P. Ault, Shelbyville, has been appointed district health officer, division of communicable diseases, and Dr. Ralph Nauss has been appointed assistant epidemiologist, division of communicable diseases.

Sanitation of Swimming Pools.—A preliminary survey of all swimming pools of the state has been made by the State Department of Public Health. It is planned to make a detailed inspection of each pool in the near future and to issue a state bulletin on the sanitary construction and hygienic operation of swimming pools, based on the practical observations of the survey.

State Care of Poliomyelitis Cripples.—A section of the new building of St. John's Sanatorium, located on a farm near Springfield, which was opened, January 1, has been assigned to the care of crippled children. This work will consist largely in the after-care and reeducation of victims of poliomyelitis and will be under the supervision of Dr. Clarence W. East, chief of the division of child hygiene and public health nursing of the State Department of Public Health.

Chicago

Fund for Free Children's Clinics.—The profits derived from the Health and Sanitation Exposition held at the Coliseum in November last, will be applied toward the establishment of free dental and eye clinics for poor children at the hospital maintained by the school of home and public health nursing of the Chicago Health Department. The fund will be expended under the direction of Health Commissioner John D. Robertson.

Warrants Name Physicians.—It is reported that warrants have been asked for by the office of the Illinois prohibition officer charging that Dr. E. P. Murdock, who is said to be president of the recently organized American Protective Medical Fraternity, and Dr. Eldorado Scott, reported to be also an officer of the fraternity, have issued prescriptions bearing fictitious names. It is further alleged that emergency prescriptions allowing the holder to procure one pint of whisky at drug stores were issued by Dr. T. J. Parker and Dr. J. W. Koehn, and warrants were asked for their arrest.

INDIANA

New Health Board Secretary.—Dr. Frank E. Ray, Shelbyville, has been appointed secretary of the Shelbyville Board of Health to succeed Dr. Bayard G. Keeney, recently elected coroner.

Model Health Law Proposed.—The all-time health officer bill has been endorsed by the state board of health and will be presented to the Indiana state legislature. The bill proposes the adoption of the system of full-time health officers, at the option of the individual counties, except that in cases where the county commissioners take no steps to establish the system, the right to petition for a referendum is given the voters of the county.

KENTUCKY

Personal.—Dr. Hiram Eggers has been appointed assistant city health officer of Louisville.

New Hospital Ready for Patients.—The Mason Memorial Hospital at Murray, which has been under construction for several months, is practically completed and will be ready for the reception of patients within a short time. The new hospital will have accommodations for 150 patients. A residence has been purchased which will be remodeled and used as a nurses' home and training school.

MARYLAND

Personal.—Dr. Robert P. Bay, medical examiner for the State Industrial Accident Commission and former superintendent of University Hospital, has been appointed a member of the Board of Supervisors of City Charities, to succeed Dr. J. Whitridge Williams, resigned.

University Hospital Acquires Land.—The University of Maryland Hospital has purchased a block of ground on the north side of Lombard Street. Work on an addition to the hospital will probably be begun in the spring. Several months ago a campaign was conducted to raise the necessary funds for meeting the additional needs of the hospital.

Meetings.—Dr. William C. Hoad, professor of Sanitary Engineering, University of Michigan, gave a lecture, January 10, on "Some Relations of Engineering to Public Health," at the School of Hygiene and Public Health, Johns Hopkins University.——At a meeting of the Medical Society and Historical Club of the Johns Hopkins Hospital, held January 10, in the Medical Amphitheater, Dr. Edward H. Hume, dean of Yale Medical College, Changsha, Hunan Province, China, delivered an address on "The Strength and Weakness of Chinese Medicine."

MICHIGAN

Convicted of Narcotic Act Violation.—It is reported that Dr. Arthur Sevensma, Grand Rapids, was sentenced to serve one year and three months in Leavenworth prison for violation of the Harrison Narcotic Act, and that Dr. George W. King, Charlevoix, was sentenced to serve one year and a day for a similar offense.

MINNESOTA

Health Association Meeting.—At the annual meeting of the Minnesota Public Health Association, recently held in St. Paul, the following were elected officers for the ensuing year: president, Dr. Charles L. Scofield, Benson, vice presidents, Mrs. H. A. Patterson, Mankato, and Dr. Albert J. Chesley, Minneapolis, and secretary, Mrs. A. H. Vernon, Little Falls.

Economy in Health Work.—A health center to house nineteen official and nonofficial health agencies now operating in Minneapolis is urged in the *Hennepin Commonhealth,* a weekly publication issued by the Hennepin County Public Health Association. At present these agencies operate in unrelated offices located in various parts of the city and there is much duplication of work in some fields while other fields are neglected. It is proposed to erect a central building in which the nonofficial as well as official agencies may be housed, and where headquarters may be established for local medical and dental societies.

NEW JERSEY

Society Organizes Professional Guilds.—The welfare committee of the Medical Society of New Jersey is conducting an active campaign to prevent legislation considered inimical to the public health. The committee has organized professional guilds in the various districts throughout the state, the three latest being established in Morris, Warren and Hunterdon counties. The membership of each organization is composed of physicians, dentists, druggists and nurses in the particular district. The welfare committee of the society is composed of Drs. Wells P. Eagleton, Newark, Thomas W. Harvey, Sr., Orange, Philander W. Harris and Andrew F. McBride, Paterson, Henry B. Costill, Trenton, Donald Miner, Jersey City, Clifford Mills, Morristown, and James Hunter, Westville.

NEW YORK

New York City

Personal.—Dr. Louise Pearce recently returned to this country, after six months' study of African sleeping sickness in the Congo under the auspices of the Rockefeller Institute for Medical Research.

Lectures on Radium Therapy.—The health department is conducting a series of lectures on the curability of many forms of cancer in early stages by radium therapy. The object of the lectures is to allay the fear of surgery and impel persons suffering from malignant disease to seek examination and treatment early in the course of the disease.

Hospital Opens New Department.—The New York Hospital announces the opening of a urological department in accordance with the terms of the will of the late James Buchanan Brady, in temporary quarters assigned to the department in the hospital. An outpatient clinic will be carried on in the outpatient department of the hospital.

Quarantine Station to Federal Health Service.—The U. S. Public Health Service will take over the quarantine station of the port of New York on presentation by state officials of proof of title to the premises. When this transfer is made the Federal Government will be in control of all quarantine establishments at the ports of the United States.

Columbia University Plans New Medical School.—According to announcement made by W. Barclay Parsons, chairman of the board of trustees of Columbia University, plans have been formulated for raising $10,000,000 to build and endow a new medical school in connection with Columbia University, to supplement the present College of Physicians and Surgeons.

Canned Beef Causes Botulism.—The first officer and five members of the crew of the Greek S. S. *Iokasti,* anchored off Clifton, Staten Island, recently partook of tinned beef that had been on a shelf in the galley for four months. All became violently ill, and three of the victims died in the State Island Hospital. A necropsy disclosed that they had died from botulism.

Campaign for Cardiac Children.—A conference to consider the problem presented by the large number of children of school age who suffer from cardiac troubles was held at the Hotel St. Regis, January 6, under the auspices of the committee for the Mineola Home for Cardiac Children. The conference marked the opening of a week's campaign to raise $40,000 in special revenue bonds for employment in the control of cardiac children of school age, caring in all for 470 children.

City Hospitals Report Increase in Alcoholism.—The records of Bellevue and the Allied Hospitals, the Harlem, Gouverneur, Fordham and Kings County hospitals, show an increase of practically 100 per cent. in the number of cases of alcoholism during the last six months over the same period in 1919. In the Kings County Hospital the increase from August 1 to December 8 was 106.6 per cent. The number of cases treated during the first six months of 1920 was almost the same as for the first half of 1919. At Bellevue Hospital there were 807 cases during the last six months of 1919, and approximately 1,425 in the corresponding period of 1920.

Memorial Meetings to Dr. Meltzer.—The stated meeting of the New York Academy of Medicine, January 6, was held in association with the Society for Experimental Biology and Medicine and the Harvey Society as a tribute of appreciation to the life and services of Dr. Samuel James Meltzer. Memorial addresses were made by Drs. George B. Wallace, Phoebus A. Levene, William H. Howell, Baltimore, Graham Lusk, New York, and William H. Welch, Baltimore.——At a special meeting of the council of the New York Society for Thoracic Surgery, a memorial resolution was adopted on the death of Dr. Samuel J. Meltzer, a member of the society and first president of the American Association for Thoracic Surgery. The resolution testified to the value of Dr. Meltzer's discovery of the method of overcoming the dangers of acute operative collapse of the lung by means of intratracheal insufflation as an epoch making contribution to thoracic surgery.

NORTH CAROLINA

Personal.—Dr. Alexander C. Bulla has been reelected health officer of Forsyth County.

Tuberculosis Clinics.—Free tuberculosis clinics will be held in Robeson County, January 25 to February 5, inclusive.——The tuberculosis clinic of the city health department of Charlotte has been moved from the city auditorium to the old Methodist parsonage on North Tryon Street, where six rooms have been set aside for the activities of the clinic.

Hospital News.—The Baptist Hospital of North Carolina, recently authorized by the organized Baptist Church, will be located in Winston-Salem according to an announcement of the committee chosen to select the site. The city has offered a site of 13 acres, with a bonus of $100,000 in cash. Greensboro, Raleigh, Goldsboro, and Asheville were active competitors for the location. Construction work will be started soon on the new hospital, which when completed, will be the largest general hospital in the state.——Clarence Barker Memorial Hospital at Biltmore, near Asheville, was destroyed by fire on the night of January 2. The hospital was a wooden structure, built about twenty years ago by the late George W. Vanderbilt of New York for the employees of his Biltmore estate, and after his death transferred to a board of trustees. The loss, estimated at $45,000, is covered by insurance. It is the purpose to rebuild the institution on an elevated knoll in Biltmore village, at a cost approximately $250,000.——The cornerstone was laid early in December for the addition to the Good Samaritan Hospital, Charlotte, which is designed to care for negro patients.

OHIO

Personal.—Dr. Edgar L. Vermilya has been appointed health commissioner of Sandusky County.

Memorial Tablet to Physician.—A tablet in memory of the late Dr. Martin Stamm, Fremont, who died, May 22, 1918, has been placed in position in the main corridor of the Memorial Hospital of Sandusky County at Fremont. The bronze tablet, which includes a medallion bust of Dr. Stamm, will be dedicated by the medical society at a later date.

OKLAHOMA

New Hospital at Ada.—A new hospital to be known as St. Joseph's Hospital, is to be established at Ada by a corporation headed by Dr. Joseph G. Breco. A two story and basement structure of brick and terra cotta is planned, with accommodations for seventy beds, the estimated cost of construction to be $50,000.

OREGON

Health League Headquarters.—The headquarters of the newly organized league for the conservation of public health have been established in offices at 638 Morgan Building. Dr. Frank M. Brooks, Portland, has been chosen permanent chairman of the executive committee and the following physicians have been appointed members of the advisory committee: Drs. Otto C. Hagmeier, Seaside, Leon W. Hyde, Hillsboro, Roy W. Hendershott, Bend, William C. Smith, Salem, and William H. Dale, Eugene.

PENNSYLVANIA

Fined for Practice Act Violation.—It is reported that J. W. Wood, a negro of Uniontown, was fined $200 and costs on a charge of practicing medicine without a license.

Health Department Appointments.—Dr. W. C. Stewart has been appointed medical inspector of school for Cross Creek township, Washington County.——Dr. Robert K. Rewalt has been named chief of the child health station at Williamsport, and Dr. Charles F. Lynn, chief of the station at Monongahela.——Dr. William R. Lavering has been appointed chief of the new tuberculosis clinic at Stroudsburg.

Philadelphia

Motors Kill 237 in 1920.—More fatal motor car accidents occurred in Philadelphia in 1920 than in any other year since automobiles came into popular use. Statistics disclose that 237 persons were killed last year by motors, an increase of fourteen over 1918, the next highest record. In 1906, when the use of motor cars became general, twelve persons were killed, and since, the list has grown gradually each year. A slight decrease was noted in 1919. Deaths from all traffic accidents in 1920 numbered 420, exclusive of thirteen deaths in elevator accidents.

SOUTH DAKOTA

Health Officer Resigns.—Dr. Israel P. P. Hollingsworth has resigned as health officer of Sioux Falls.

Society Elections. — At the annual meeting of the Sioux Falls District Medical Society held, December 9, the following were elected officers: president, Dr. Edmund D. Putnam; vice president, Dr. Monte A. Stern, and secretary-treasurer, Dr. Stephen A. Donahoe.

UTAH

Campaign Against Venereal Diseases.—Dr. P. I. Jenson, Salt Lake City, has been placed in charge of the campaign against venereal diseases now being conducted by the state board of health with the cooperation and financial support of the U. S. Public Health Service.

Lectures on Child Nutrition.—Dr. Caroline Hedger, Chicago, will give a series of classes in nutrition and other subjects related to child health, at Salt Lake City during the week beginning January 24. The lectures will be given at a "farmers' and housekeepers' roundup," held by the Utah Agricultural College under the auspices of its department of home hygiene and nursing.

VIRGINIA

Negro Sentenced for Unqualified Practice.—It is reported that Jack Thompson, colored, of Lynchburg, was recently sentenced to serve thirty days in jail and to pay a fine of $50 on a charge of practicing medicine without a license.

New Health Associations. — Pittsylvania County Public Health Association was organized at Chatham early in December.——James City and County Public Health Association was organized at Williamsburg, under the presidency of Prof. C. D. Hart of William and Mary College.

WISCONSIN

Examining Board Appointment. — Dr. Spencer D. Beebe, Sparta, has been appointed a member of the state board of medical examiners to serve the unexpired term of Dr. Henry W. Abraham, Appleton, deceased.

Offers Memorial to Physician.—Mr. G. E. Buchanan, life long friend of Dr. H. W. Abraham, formerly president of the Wisconsin State Medical Society and a member of the state board of medical examiners, has offered $7,500 for the erection of a monument as a memorial of the work of the physician, provided an equal amount is raised by popular subscription.

CANADA

Personal.—Dr. O. R. Avison delivered a lecture on "Medicine in the Far East" before the Academy of Medicine, Toronto, January 4. Dr. Avison was formerly connected with the University of Toronto, but twenty-five years ago left for Chosen (Korea). He is now touring the United States and Canada for the purpose of arousing the interest of physicians in medical science in Asia.

Czechoslovakian Commission. — The Czechoslovakian commission, which is making a tour of the United States and Canada for the purpose of studying the methods of public health institutions in North America, was in Toronto last week. Dr. Charles J. Hastings, Toronto, Dr. John W. S. McCullough, chief officer of health for Ontario, Dr. John G. Fitzgerald, professor of hygiene in the University of Toronto, and Dr. George D. Porter, secretary of the Canadian Association for the Prevention of Tuberculosis, accompanied the visitors on their trip to local institutions.

Decade of Public Health Progress in Ontario.—The Ontario Board of Health has published in pamphlet form an address by Dr. John W. S. McCullough, chief medical officer for Ontario, reviewing the progress of public health work in that province in the last ten years. The Ontario Health Act was consolidated in 1912 at which time the district medical officers in the province were appointed, and full-time health officers began to take charge of public health administration. An extended educational campaign was initiated, and this work has been continued to the present year, when $9,000 is available for the purpose. In 1910 the board had two laboratories; there are now four, and these will shortly be increased to seven by the establishment of new laboratories in Fort William, North Bay, and the "Soo." During the World War the laboratory in Toronto supplied almost all typhoid and paratyphoid vaccine for the Canadian Army free of cost, and recently the board has begun the production of phenarsenamin (arsphenamin).

GENERAL

Tri-State Medical Society Meeting.—The annual meeting of the Tri-State Medical Society of Virginia and the Carolinas will be held at Spartanburg, S. C., February 16-17.

Meeting of Sioux Valley Eye and Ear Academy.—The sixteenth semiannual session of the Sioux Valley Eye and Ear Academy, composed of specialists resident in Iowa, Nebraska and South Dakota, will be held in Sioux City, Iowa, January 19, under the presidency of Dr. James E. Reeder, Sioux City. Headquarters will be at the Hotel Martin.

Pacific Surgeons Elect Officers.—At the annual meeting of the North Pacific Surgical Association, held at Spokane, Wash., December 11, the following officers were elected for the ensuing year: president, Dr. Robert E. McCletchnie, Vancouver, B. C., vice presidents, Drs. John B. McNerthney, Tacoma, Wash., and W. B. Holden, Portland, Ore., and secretary-treasurer, Dr. Alvin W. Baird, Portland, Ore.

Director of Peking Medical School.—Dr. Henry S. Houghton has been appointed director of the Peking Union Medical College, which is conducted by a board of trustees chosen by the Rockefeller Foundation. Dr. Houghton was formerly physician of the Wuhu General Hospital, dean and professor of tropical medicine of the Harvard Medical School of China in Shanghai, and recently a member of the staff of the China Medical Board and Peking Union Medical College.

Bequests and Donations.—The following bequests and donations have recently been announced:

French Hospital of San Francisco, 250 shares of White House capital stock; Children's Hospital, French Society for the Relief of the Women of France, and Firemen's Widows and Orphan's Aid Association, each $5,000, by the will of Raphael Weill.

Children's Hospital, Philadelphia, $30,000, Hahnemann and Jefferson hospitals, each $5,000, by the will of Henry Fell.

The Permanent Blind Relief War Fund, New York, $5,000, a Christmas gift from the president of the organization, William Nelson Cromwell.

Brockton (Mass.) Hospital, $50,000, by the will of George E. Keith.

LATIN AMERICA

Gift of Medical Models.—The school of medicine of Rio de Janeiro has presented the medical school of Montevideo with a series of wax models to supplement a similar gift made some time ago.

Cuban Medical Congress Postponed.—At a recent session of the organizing committee it was decided to postpone the meeting of the Fifth Cuban Medical Congress from February 24 to May 22. The congress will last a week.

First Child Congress in Mexico.—At the Primer Congreso Mexicano del Niño, which began its sessions, January 2, many representatives of scientific and charitable institutions were in attendance and presented papers on related subjects. The president of the National University represented the president of Mexico.

Rockefeller Foundation Offers Assistance to Mexico.—Dr. T. C. Lyster of the Rockefeller Foundation has gone to Mexico to make some observations on the present epidemic of yellow fever and offer the assistance of the Foundation in the campaign for the eradication of the disease. The president of Mexico has accepted this offer and Dr. Lyster will return later in January to begin the campaign, the plans for which were submitted by him and are now being considered by the department of public health. Dr. Lyster has been much fêted during his stay in Mexico, especially by the officials of the department of public health and of the army and navy sanitary corps.

Personal.—During the absence of Dr. Angel Brioso Vasconcelos, a member of the department of public health, on a trip to the United States, Dr. Everardo Landa, medical inspector, has been in temporary charge of the yellow fever and malaria service.——Drs. Bert W. Caldwell and J. Le Blanc of the Rockefeller Foundation are now in Mexico. The latter has organized a bacteriologic laboratory in the public health office at Vera Cruz.——Dr. J. J. Callejas of Honduras, whose arrival at New York was mentioned several weeks ago, is convalescing there from amputation of a leg.——Dr. A. Noceti, professor of ophthalmology at the University of Buenos Aires, has resigned his chair on account of lack of time for its duties.——Dr. E. Paz Soldán, professor of hygiene at the University of Lima, founder and editor of the *Riforma Médica,* has been lecturing at Buenos Aires as exchange professor, and is to proceed to Montevideo and Rio to inaugurate exchange relations. He also represented Peru at a recent congress at Buenos Aires.——Dr. A. Lindenberg has returned to S. Paulo, Brazil, from a trip to this country.——Dr. G. de Paula Souza and Dr. Borges Viera have returned to S. Paulo, after two years of work for the Rockefeller Foundation in the United States. They take the places of Dr. S. Darling and Dr. W. Smillie in the Hygiene Institute maintained at S. Paulo by the Rockefeller Foundation, the latter officials leaving for the United States. Dr. Paula Souza is now director of the institute.

FOREIGN

Prize Awarded to Kretschmer.—The Karl Faber Endowment at Tübingen has awarded a prize to Dr. E. Kretschmer, privat-dozent of psychiatry and neurology.

Number of Medical Students in Germany.—The *Nederlandsch Tijdschrift* cites statistics to the effect that there were 18,319 students inscribed in the medical schools of Germany last year, in contrast with 16,048 at the beginning of 1914.

Interchange of Professors Between Paris and Madrid.—Six Paris professors are to lecture in Madrid this winter, including Vaquez and Duval. The latter will lecture on the surgery of the lung and the former on erythremia, the disease that bears his name.

Memorial to Achucarro.—A memorial tablet was recently unveiled at the Hospital provincial at Madrid in honor of the brilliant young histologist, N. Achucarro, whose untimely death occurred in 1918. His name is associated with certain staining procedures, and he was on the editorial staff of the *Siglo Médico* and had been for a time in this country.

International Congress for History of Medicine.—The *Gazette des Hôpitaux* announces that the French Société d'histoire de médecine is organizing the second congress, to convene at Paris in August, 1921. Prof. E. Jeanselme is the president of the society. The first congress was held at Antwerp, last fall, and was mentioned at the time in The Journal, September 25, p. 884, and October 2, p. 951.

Institute for Radiotherapy at Naples.—The daily papers, banks, merchants and other circles in Naples have started a subscription for the purpose of founding an institute for phototherapy and radiotherapy, and the *Riforma Médica* publishes an urgent appeal for aid in the matter, donating 500 lire. Prof. R. Stanziale, Via Roma 368, Naples, is the leading spirit in the movement. He is director of the clinic for skin and venereal diseases and started the subscription with 5,000 lire. Northern Italy already has one institution of the kind at Florence, owing to the initiative of Prof. C. Pellizzari, and one is sorely needed in southern Italy.

Swedish Society for Medical Research.—The recent foundation of this society has been mentioned. Thirteen appropriations have been made already, totaling 30,000 crowns. Among them are appropriations to aid Engfeldt, Henschen, Lundqvist and Frumerie in their research, respectively, on the biochemistry of the acetone bodies; pathology of the brain; treatment of myoma, and respiratory research on exophthalmic goiter. Subsidies were also granted to aid in publishing the *Upsala Läkareförenings Förhandlingar* and the *Acta medica* and *Acta chirurgiça scandinavica.* Most of the other appropriations are to promote research in radiology or nutrition.

Contract Practice in Germany.—Our German exchanges state that the krankenkassen, the social insurance societies, have recently held a representative meeting to prepare for repudiation of the existing agreement between the societies and physicians. Their arguments, it is said, were "based on a flood of complaints against physicians," all of which, our exchanges state, can be unconditionally denied. But it is said that the latest agreement was so obscurely worded that trouble was sure to follow. At the meeting, there were delegates from 6,750 krankenkassen, representing 16 millions of the insured. The krankenkassen are feeling the pressure of the high cost of everything.

Surgical and Medical Congresses of the Northland.—It is announced that the tenth congress of internal medicine for the Northland and the thirteenth congress of surgery are to be held at Helsingfors the first week in July, 1921. The subjects appointed for discussion by the internists are syphilis of the central nervous system and syphilis of the viscera. Prof. F. Saltzman is the secretary, Unionsgatan 40, Helsingfors. The surgeons have appointed three topics for discussion: surgical nephritis, introduced by Rovsing of Copenhagen and Runeberg of Helsingfors; myoma; and treatment of contracture and ankylosis, the latter introduced by Bülow-Hansen of Christiania and Frising of Lund. The secretary is Prof. J. Borelius, Lund, Sweden.

Prizes Awarded by the Académie de Médecine at Paris.—The Académie had fifty-two prizes to award this year, but the competition for sixteen did not warrant the distribution of the prize. More than half of the articles offered were on subjects connected with the war. Some of the more important prizes were conferred on Aviragnet and Lutembacher, for their work on cardiac complications in diphtheria; on Bellocq, for research on the anatomy of the internal ear; on Marie and Levaditi, for their serologic and experimental work on general paresis; on Joyeux, for research on cestodes; on Bouquet, for research on intra-uterine life, and on Alezais and Peyron, for research on tumors of embryonal origin. One woman is on the list, Mme. Rodillon, for a "Travail manuscrit avec épigraphe." Several of the prizes were divided, and a number of the awards went to research workers in the French colonies. The great Audiffred prize for a sovereign remedy for tuberculosis was not awarded, but Vaudremer and Rappin were given 2,000 francs from the income for their publications and the latter's tentative vaccination against tuberculosis.

A Swedish View of the American Medical Association's Headquarters.—The Nov. 30, 1920, issue of *Hygiea* contains an illustrated account of the visit to the medical centers of the United States of three professors from the medical schools of Sweden and Norway, written by one of them, Prof. Israel Holmgren, of the chair of internal medicine at the Karolinska Medico-kirurgiska Institut at Stockholm. In describing his visit to Chicago Professor Holmgren says: "One of the most interesting experiences of my stay in Chicago was the opportunity to study the headquarters and the organization of the American Medical Association, which I did very thoroughly. This association comprises 80,000 of the physicians of the United States [in reality, the Association had 83,338 members and 47,045 Fellows at that time.—Ed.] I am not quite sure as to the total number of physicians in the United States, but I believe it is 110,000 [148,000]. The American Medical Association has its headquarters at Chicago, where all its departments are collected, and where its periodicals are published. Through Professor Hektoen's cooperation we obtained the opportunity to inspect the building very thoroughly, and one of the officials showed us around in the kindest way, devoting several hours to us. There are nearly 300 persons employed in the building, all exclusively in work for the Association. Several periodicals are published there, foremost among them The Journal of the American Medical Association which we have on file in our headquarters in Stockholm. This publishes a weekly edition of 70,000 [82,000, if you please] copies in English, and besides this a fortnightly Spanish edition, designed for South America, which contains the principal part of what is published in the English edition. The Association publishes also other periodicals, books and pamphlets in large numbers. A very vigorous war against nostrums is being carried on by this organization. It has its own chemical laboratory, where proprietaries and nostrums in general are analyzed and the results of the analysis are published in the journals and in booklets which are distributed gratis for the enlightenment of the public. There is also kept in the building a card catalogue of all the physicians in the United States. Every physician in the country has a card in this register on which are recorded biographic data, where and when he obtained his medical degree, etc. If he has done anything shady or written medical write-ups or quacked it in any way, it is all recorded here. All the information as to the antecedents of each physician is thus available if required at any time. I am confident also that this organization has done much for the rapid improvement of conditions for members of the profession in the United States."

Deaths in Other Countries

Dr. **Angel Gaviño**, director of the Bacteriologic Institute and one of the most prominent scientists in Mexico. He was for many years professor of public health in the school of medicine of Mexico.——Dr. **L. Concetti**, professor of pediatrics at the University of Rome, and a prominent figure at national and international medical congresses as an authority on children's diseases. He taught that the clinic of adults was the primer for learning pediatrics, and his publications embrace the whole field of children's diseases with much of general medicine, especially the actinomycotic form of the diphtheria bacillus and serous meningitis in children. He was one of the first to describe hypothyroidism, and his Manual of Hygiene for Children has long been a classic.——Dr. **G. de Montmollin** of Basel, aged 61.——Dr. **A. Pinto Nunes Cintra** of S. Paulo, Brazil.——Dr. **S. Federn**, Vienna.——Dr. **P. N. Castro**, a prominent physician of Buenos Aires, aged 63.——Dr. **Ruiz de Arteaga**, one of the founders of the *Revista Médica de Sevilla* but long residing in the Canary Islands.——Dr. **A. von Szily**, professor of ophthalmology at Budapest and author of several works on the optic nerve and other subjects in his specialty, aged 73.

Government Services

Exportation of Narcotics

Further hearings have been held by the Ways and Means Committee of the House of Representatives on the bill to forbid the exportation of opium and narcotics. Recent charges that narcotic drugs are being used in Cuba on a larger scale than ever were denied by the export manager of a large drug firm, who told the committee that personal investigations showed that there was no justification for the charge, and that, on the contrary, narcotics were shipped to Cuba under strict regulations and could not be exported from there to other countries.

Care of Neuropsychiatric Veterans

No part of the money so far appropriated by Congress for the care of disabled war veterans has been spent for hospitals for treatment of the insane, the House Commerce Committee was informed by Dr. Thomas W. Salmon, New York, adviser on mental diseases to the Rockefeller Foundation. The statement was made at a hearing on the Rogers bill to consolidate into one bureau the several government agencies now dealing with relief for former service men. As a result of this failure to provide proper facilities, veterans suffering from mental and nervous disorders are in many instances being committed to institutions in which criminal insane, drug addicts and vicious degenerates are segregated. One third of the former service men receiving treatment at government expense are neuropsychiatric cases, and 60 per cent. of these are insane. The Rogers bill, providing for consolidation in a new federal bureau of soldier rehabilitation in the Interior Department of functions now exercised by the War Risk Insurance Bureau, the Bureau of Public Health Service and the Federal Board for Vocational Education, is receiving strong support from officers of the American Legion.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 22, 1920.

Arsphenamin Fatalities

During the war a number of cases of fatal jaundice following the administration of arsphenamin occurred in military hospitals. This led to an investigation by the Medical Research Council. The suggestion was made by Prof. S. Macdonald that arsphenamin produced jaundice by rendering the tissues, particularly the liver, liable to bacterial invasion. Dr. Ainley Walker, lecturer on pathology in the University of Oxford, carried out a research for the council to determine whether arsphenamin or neo-arsphenamin has influence on the development and persistence of immunity in rabbits as measured by the agglutinins. The rabbits were immunized by intravenous injections of standard cultures of the enteric group, and the arsphenamin was given before injection, during the period of rapid rise of agglutinin, during the period of rapid fall and during the later period of expected gradual fall. Dr. Walker found that arsphenamin did not prevent response to infection as measured by agglutinin production. On the contrary, it appeared to induce fresh and sometimes prolonged activity in agglutinin production at a time when the response would otherwise be on the wane. His results are therefore opposed to the hypothesis that arsphenamin jaundice is due to infection. This is borne out by an investigation by Prof. H. M. Turnbull on the minute morbid changes in eight fatal cases. The liver was much more affected than the rest of the body by severe degenerative and necrotic changes. In only one case were bacteria found, and these were gram-positive bacilli with the appearance and distribution of the microbes often present in tissues that have not been removed and fixed without delay. The hepatic lesions differed from those produced by infection and resembled those induced by chemical poisons, such as phosphorus, trinitrotoluene and tetrachorethane. The problem still remains unsolved why arsphenamin administered according to rule to strong, young patients sometimes proves a virulent poison. It may be remembered that Ehrlich and his followers made exaggerated claims as to the efficiency of the preparation and persistently underrated its dangers. When fatalities occurred which obviously were due to arsenic poisoning they exhausted ingenuity in suggesting all sorts of causes, such as organic disease in the patient and errors of technic. All these explanations have been discredited. So also is this latest attempt to deny direct toxicity by suggesting an indirect effect of the toxic influence of the drug.

Dentistry for All

The socialistic legislation known as the insurance act was, as foretold in these columns, bound to lead to further socialistic measures. The latest, introduced at a time when the country is groaning under excessive taxation, is the dentists' bill, to be introduced next session by Dr. Addison, the minister of health. It proposes to supply, sooner or later, dental treatment to everybody, and to prohibit practice by any unregistered dentists. One estimate of the cost of the free treatment is $200,000,000. Other estimates take into consideration the possibility that the scheme will be introduced piecemeal and that payment will be demanded, thus diminishing the cost to the state. The prohibition of unregistered practice is to be accompanied by the immediate registration of the large army of unqualified dentists now practicing. This is necessary because they outnumber the qualified ones and there are not enough of the latter to go round. Already there are in existence at the cost of the state dental clinics for schoolchildren, for expectant mothers and for the tuberculous. On medical grounds, no doubt, the legislation can be recommended; but the question becomes more serious every day, how much longer can the country bear the mountain of taxation which is being piled up, not to pay for the war, but, in spite of the war, to carry out all sorts of costly schemes?

A Regional Medical Staff for Panel Practice

A staff of physicians has been appointed to carry out important duties in connection with the work of the ministry of health, especially in relation to the insurance act. The object is to make available to panel physicians and to approved societies the services of medical officers of wide experience who will advise on questions of doubt as to incapacity for work, in cases in which incapacity is prolonged, when it is desirable to obtain a second medical opinion. The work will consist in examination of patients certified as incapable of work and reporting on them; consultation with insurance practitioners in cases in which the question of incapacity does not necessarily arise, and other duties in relation to panel physicians. The salary will be $5,000 a year. The government represents that this plan will benefit the taxpayer, by the saving in the payment of benefit for incapacity.

The Hospital Crisis

As stated in previous letters, the voluntary hospitals are in serious financial difficulties because of altered conditions brought about by the war. Their expenses are more than doubled as a result of the rise of prices. The excessive taxation and the fact that the state has undertaken in the insurance act the medical care of the working class have rendered the class which supports the hospitals by donations less able and less willing to do so. The British Medical Association summoned a meeting of the honorary staffs of the voluntary hospitals to consider the position. A resolution was moved that the voluntary system is to the advantage of the public, to medical science and to the medical profession. Only one delegate spoke against the motion, affirming that the voluntary system was more in keeping with mid-Victorian times than the present day, of which the characteristics were insurgent democracy and assertion of equality. Beds were provided only in the proportion of 1 to every thousand of the population, which was inadequate. The resolution was carried with only four dissentients. It was recommended that every inpatient who was not necessitous should make a weekly contribution toward the cost maintenance. It was resolved that when patients pay part or the whole of the hospital maintenance fees, either individually or by some contributory method, or with the addition of state aid, a percentage should be passed to a fund to be allocated as the honorary medical staff may determine. It was also resolved that greatly extended support should be sought for voluntary hospitals from employers and insurance companies, seeing that they benefit largely, both directly and indirectly, by the services of the hospitals.

The Influence of Dilution on the Toxicity of Alcohol

For the Central Control Board of Liquor Traffic, Dr. H. M. Vernon investigated this question. The quantities of alcohol consumed were not greater than 30 c.c., and dilutions of less than 5 per cent. were used. The ensuing impairment of muscular coordination was measured by a typewriting test, an adding machine or target pricking. Dr. Vernon himself took from 15 to 90 c.c. of alcohol three and one-half hours after food. With the larger doses the toxic effect increased at a more rapid rate. When taken as 20 per cent. whisky, 18.3 c.c. of alcohol was followed by an increase of 0.8 in the number of mistakes; 30 c.c. by 3.4; 45 c.c. by 8.0, and 60 c.c. by 17.0. A new fact of importance established is that the toxic effect of alcohol in considerable dilution is much less than was anticipated. Practically speaking, beer containing 3 per cent. by volume of alcohol is a nonintoxicating liquid. When taken in this form, 90 c.c. of alcohol produced only as much effect as 54 c.c. in the form of 4 per cent. beer, as 46 c.c. in the form of 5 per cent. beer, and as 42 c.c. in the form of 20 per cent. whisky. The 90 c.c. of alcohol mentioned is contained in 5¼ pints of 3 per cent. beer. Dr. Vernon calculates that more than 10 pints of beer, which would take him over four hours to drink, would be needed in order to intoxicate him. He draws the practical conclusion that in order to bring about an increase of sobriety in the nation the consumption of the stronger beers and of spirits ought to be discouraged, and consumption of the weaker beers and of cider to be stimulated. This object could be to some extent achieved by exaggerating the system of taxation already in force, and making the lighter beers much cheaper than the heavier. Dr. Vernon found that light claret containing 10 per cent. of alcohol taken with food had a slight toxic action, comparable with that of 3 per cent. beer taken on an empty stomach. Port or sherry imbibed under similar conditions was as a rule more toxic than 5 per cent. beer taken on an empty stomach. Claret had the same effect as whisky diluted to equal alcoholic strength.

PARIS

(From Our Regular Correspondent)

Dec. 10, 1920.

The Centenary of the Academy of Medicine

The 20th of December it will be a hundred years since an ordinance of King Louis XVIII established the Academy of Medicine, which was a fusion of two older societies, the Royal Academy of Surgery and the Royal Society of Medicine. The principal duties marked out for the Academy of Medicine by the terms of the establishing decree were: to reply to the questions of the government in regard to everything that pertains to public health and especially to epidemics, diseases peculiar to certain countries, epizootics, the various cases arising under medical jurisprudence, the propagation of vaccination, the examination of new and secret remedies internal and external, natural and artificial mineral waters, etc. The academy will celebrate its centenary by a succession of ceremonies extending over three days. The opening ceremony, to be presided over by the president of the republic, M. A. Millerand, will be held December 20, and will include the formal reception of foreign guests and the delivery of addresses by foreign visitors. Professor Laveran, president of the academy, and President Millerand will also deliver addresses. The second day three addresses will be given, the first by Dr. Vaillard on "The Rôle of the Academy in the Evolution of Public Hygiene from 1820 to 1920," the second by Dr. Camus on "Vaccination Against Smallpox in Relation to the Academy," and the third by Dr. Chauffard on "A Century of Medicine from the Academy Standpoint." The third day there will be four addresses: one by Professor Pinard on "A Century of Puericulture as the Academy May View It," another by Dr. Meillère on "A Century of Hydrology as Viewed by the Academy," a third by Dr. Delorme on "Surgery During the Period from 1820 to 1920 as Seen by the Academy," and the fourth by M. Hanriot on "The Benefactors of the Academy." On the evening of the third day there will be a banquet and a reception.

A League in the Interest of Mental Hygiene

A league in the interest of mental hygiene, called the Ligue de prophylaxie et d'hygiène mentales, has recently been founded. It has for its purpose the protection of psychopaths for whom there had been heretofore no special society. It may be found desirable to establish dispensaries which shall perform, in connection with mental diseases, the same services that the public health dispensaries perform with respect to tuberculosis. The league will interest itself also in the campaign against tuberculosis, alcoholism and syphilis, all three of which produce criminal degenerates and mentally diseased subjects who are more or less incurable. The prophylactic care needed by weak and abnormal children, and the utilization of biologic tests in social questions will also come up for consideration.

Personal

J.-L. Breton, minister of public hygiene, has recently been elected a "free academician" of the Academy of Science. Breton is an engineer, formerly connected with the Collège de France. He has specialized in the study of industrial diseases, more especially those occurring in the white lead industry; also in the study of electricity and more particularly roentgen rays.

BERLIN

(From Our Regular Correspondent)

Dec. 18, 1920.

The Financial Need of German Students

Statistics gathered by a committee of the general student body on the social and financial condition of students in the University of Frankfort-on-the-Main furnish an insight into the financial need of German students, to which I referred in a former letter. Of 4,342 students in the University of Frankfort, 11.5 per cent. were receiving stipends, 5.2 per cent. had been exempted from the payment of fees, and of the 50 per cent. who live in Frankfort and vicinity two thirds were able to continue their studies only by reason of the fact that they were under no extra expense for board and lodging. The monthly allowances of the students were, for the most part, entirely insufficient. About 1 per cent. had less than 200 marks a month, 17 per cent. had from 200 to 350 marks; 35 per cent. from 350 to 500 marks, and 47 per cent. more than 500 marks. The average monthly amount at their disposal was 583 marks, or $8.16, reckoning the present low value of the mark (1.4 cents). Students under 25 years of age and those of the philosophical faculty seemed to be the worst off. These amounts are by no means equal to what is regarded as a minimum for a Frankfort student, which has been estimated by Dr. Elsas to be about 700 marks ($9.80). The monthly expenses of the students agreed, in a general way, with his estimate. Two per cent. expended from 200 to 350 marks, 20 per cent. from 350 to 500 marks, 25 per cent. from 500 to 600 marks, and 53 per cent. more than 600 marks. The higher amounts were expended chiefly by students 30 years of age. The students of medicine and science seemed to be the best situated financially. Not less than 73 per cent. of the students from outside Frankfort have found that they cannot with their present income meet their necessary expenses. The average difference between income and expenses was about 150 marks. Their financial need has induced many of the students to seek additional sources of income outside the university. Their efforts in this direction have not been very successful, partly owing to the lack of work and partly in consequence of the poor remuneration. Only 9 per cent. of the students have found it feasible to eke out their income in this manner. The financial condition of this portion of the student body was somewhat better than that of the other students, but by no means favorable. Their average income was 562 marks, whereas their expenses amounted to 647 marks, leaving an average deficit of 85 marks.

The Birth Rate and Infant Mortality Since the War

An article by Geheimrat Schlossmann on the birth rate and infant mortality since the war gives a more cheering aspect to the otherwise sad picture presented by the general political, social and industrial conditions in Germany. Schlossmann, a pediatrician who has been very active in the field of social hygiene and has met with pronounced success, reports on conditions in the government district of Düsseldorf. This district comprises about a tenth of the former kingdom of Prussia. It is his opinion, however, that the results of his statistics would apply to the whole state. Even before the war the birth rate in Germany had been gradually decreasing. In the district of Düsseldorf, during the period from 1901 to 1914, the decline had not been so marked. However, a decline from 39.52 to 28.26 per thousand had been recorded. Whereas the number of births (of living children) in this district in 1914 was 105,500, in 1915 the number had dropped to 81,000 and in 1917 reached the low figure of 52,000. In 1918 the number of births rose to 55,000 and in 1919 to more than 70,000, or a rate of 19.5 per thousand. This increase in the birth rate, which has come about in spite of the unfavorable political and industrial conditions, is no doubt rightly interpreted by Schlossmann as evidence of a decrease in attempts at birth control. In view of the conditions as they exist in this country at the present time these facts seem remarkable, although it has been the general experience that after the close of a war an increase in the birth rate may usually be noted. But still more remarkable than the increase in the birth rate is the decline in infant mortality since the war. Whereas the infant mortality during the period from 1901 to 1905 was 16.46 per cent.; in the period from 1906 to 1910, 14.40 per cent., and from 1911 to 1915, 13.25 per cent., in 1918 it was reduced to 12.1 per cent., and in 1919 to only 10.6 per cent. In one kreis or circle of the government district of Düsseldorf the infant mortality was reduced to even 7.3 per cent. Considering these statements in connection with the already cited figures on the recent birth rate, we are confronted with the unusual fact that the great increase in the birth rate has not been accompanied by an increase in the mortality rate but, on the contrary, by a notable decrease. Schlossmann thinks this striking phenomenon is due partly to the cool summer of 1919 and partly to the mode of infant feeding practiced. The lack of cow's milk and the poor quality of commercial milk induced German mothers to nurse their infants longer and more liberally than formerly. At the same time, the overfeeding of infants, which we have come to recognize more and more as a frequent cause of nutritional disturbances in infants, and even of many deaths, has become less common on account of the lack of milk in general. The summer peak of infant mortality, for this reason, did not make its appearance in the summer of 1919 in the district of Düsseldorf. However, a winter peak was noted in place of it, doubtless due, in the opinion of Schlossmann, mainly to the influenza epidemic, but also to the lack of coal and a resultant lack of protection of infants against the cold. The latter explanation finds support in the fact that the greatest number of infants died during the first month of their existence; namely, 43 per cent., as compared with 7 per cent. during the third month. From his observations as a whole, Schlossmann concludes that work in social hygiene is of great value in preventing infant mortality. In his opinion it is quite feasible to reduce infant mortality to 5 per cent. (which is the goal he set many years ago), if for every 20,000 inhabitants a physician well trained in social hygiene could be provided, and if every 10,000 inhabitants could be given a thoroughly trained child welfare nurse. The aforementioned kreis, which in 1919 reduced its infant mortality to 7.3 per cent., was well equipped in the manner indicated.

The assumption that the conditions observed by Schlossmann in his district may be found also in other parts of Germany is borne out by an inquiry into the facts. From Munich it is reported that during the first six months of 1920 the number of births (106,000) was almost double that of 1919 (59,000) during the same length of time.

Marriages

Grant J. Pollard, Oriskany Falls, N. Y., to Miss Claribel Peck of Waterville, N. Y., at Syracuse, N. Y., December 20.

James Yates Hamerick, Boiling Springs, N. C., to Miss Marjorie Pierce of Whiteville, N. C., December 14.

Wyatt Sanford Roberts, Birmingham, Ala., to Miss Mary Lucy Dempsy of Indianapolis, December 29.

Frank Gilbert Stroud, Moorestown, N. J., to Mrs. Emma Franklin Briggs of Brooklyn, December 29.

James Calhoun McDougall to Miss Josephine Stoney, both of Atlanta, Ga., December 29.

Charles Henry Swift to Miss Juliana Streid, both of Washington, Ill., December 25.

Hugo Muench to Miss Helen Ruth Harrison, both of Carthage, Mo., December 28.

Joseph Horowitz, Brooklyn, to Miss Martha Goldstein of New York, December 19.

Noah Adair to Miss Nellie Jordan, both of Etna Green, Ind., November 22.

Deaths

Horace Furness Taylor ⊕ Ridley Park, Pa.; University of Pennsylvania, Philadelphia, 1903; aged 39; founder of the Taylor Hospital, Ridley Park; at one time coroner of Delaware County; president of the local board of health and medical inspector of schools; died, December 27, from pneumonia.

Louis Jacobs, New York; College of Physicians and Surgeons in the City of New York, 1904; aged 40; chief of the ear, nose and throat department of the Mount Sinai Dispensary; assistant laryngologist to the Montefiore Home and Bedford Sanatorium; died, December 30.

Joseph J. Houwink ⊕ St. Louis; University of Amsterdam, 1900; St. Louis University School of Medicine, 1903; aged 46; instructor of dermatology at St. Louis University, and assistant professor of dermatology at the University of Missouri; died suddenly, December 22.

Ambrose McCoy ⊕ Jackson, Tenn.; University of Louisville, Ky., 1880; Jefferson Medical College, 1888; aged 62; local surgeon for the Illinois Central Railroad; president of the State Board of Medical Examiners; died, December 26.

Howard Edwin Settle ⊕ Boston; Harvard University Medical School, 1916; aged 29; assistant surgeon, U. S. P. H. S.; died in the Parker Hill Hospital, Brookline, Mass., December 20, following an operation for appendicitis.

Samuel Robert Johnson, Acting Asst. Surg., U. S. P. H. S., Denver; University Medical College of Kansas City, 1884; aged 56; major, M. C., U. S. Army, and discharged, Dec. 27, 1918; died, December 6.

William Abraham Dawson Montgomery, Chicago; University of Toronto, Ont., 1881; aged 60; for twenty years a member of the staff of Passavant Hospital, Chicago; died, January 1, from heart disease.

John Lehman Smith, Nashville, Tenn.; Vanderbilt University, Nashville, Tenn., 1920; aged 23; an intern in the Woman's General Hospital, Nashville; died in that institution, December 22.

John Thomas Shultz, Steubenville, Ohio; Cincinnati College of Medicine and Surgery, 1876; aged 69; died in the Ohio Valley Hospital, Steubenville, December 22, from septicemia.

John Clifton Bird, Danville, Ill.; University Medical College, Kansas City, Mo., 1900; aged 52; chief surgeon of the National Soldiers' Home, Danville; died, December 23, from nephritis.

Frederick C. Eckelman, Elkhart, Ind.; Pennsylvania Medical College, Philadelphia, 1860; aged 84; a practitioner of Elkhart for half a century; also a druggist; died, December 20.

James R. S. Pitts, Waynesboro, Miss. (license, Mississippi, 1882); aged 67; at one time a member of the state legislature; for many years postmaster of Waynesboro; died, December 22.

Wilhelm D. Frenz, Chicago; Chicago Medical College, 1896; aged 62; a member of the Illinois State Medical Society; died, December 9, from carcinoma of the bladder.

Clark Smith, Berkeley, Calif.; Texas Medical College and Hospital, Galveston, 1881; aged 77; at one time a medical missionary in Africa; died, December 3, from heart disease.

Alexander Lovette Walker, Estill Springs, Tenn.; University of Tennessee, Memphis, 1903; aged 42; a member of the Tennessee State Medical Association; died, December 19.

George W. Brown, Frankfort, Ind.; Rush Medical College, 1866; aged 77; a member of the Indiana State Medical Association; a veteran of the Civil War; died, December 16.

William N. Horne, Anderson, Ind.; Medical College of Ohio, Cincinnati, 1877; aged 67; for four years city and county health officer; died, December 21, from anemia.

Samuel Eugene Shelton, Waco, Texas; University of the City of New York, 1873; aged 69; a member of the State Medical Association of Texas; died, December 20.

Morris Joseph Gelb, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; aged 45; died, December 28, from injuries received in a street car accident.

George Leander Starr, Hudson, Ohio; Bellevue Hospital Medical College, 1865; aged 87; at one time a member of the State Board of Health; died, December 20.

Cyrenius William Sillin, Stuttgart, Ark.; Medical College of Ohio, Cincinnati, 1889; aged 63; a member of the Arkansas Medical Society; died, December 18.

George F. C. Yost, Rivesville, W. Va. (license, West Virginia, 1904); aged 44; died, October 23, from injuries received in an automobile accident.

Alfred Louis Arner, New York; Bellevue Hospital Medical College, 1888; aged 72; at one time health officer of Jefferson, Ohio; died, December 10.

David W. Wilkins, Chicago; Hahnemann Medical College and Hospital, Chicago, 1897; aged 54; died, January 1, from pernicious anemia.

Herman Hellenstein ⊕ New York; University of Buffalo, 1890; aged 58; coroner of Manhattan from 1909 to 1917; died, December 20.

Andrew O. Conrad, Glendale, Calif.; California Medical College, Oakland, 1892; aged 52; died, December 25, from carcinoma.

Eugene F. McLaughlin, Chicago; Bellevue Hospital Medical College, 1885; aged 60; died, December 26, from myocarditis.

Roscoe E. Freeman, San Jose, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1886; died, December 26.

Charles Henry Lards, Adrian, Mich.; Hahnemann Medical College and Hospital, Chicago, 1878; aged 76; died, December 22.

Frederick E. Bowlby, Medical Lake, Wash.; University of the City of New York, 1893; aged 53; died, December 9.

D. M. Jones, Albany and Portland, Ore.; Willamette University, Salem, Ore., 1867; aged 83; died, December 6.

Gottlieb Charles H. Meier, New York; University of the City of New York, 1880; aged 68; died, November 11.

William Dexter Swain, Copake, N. Y.; Albany (N. Y.) Medical College, 1867; aged 93; died, November 10.

Montgomery W. Glass, Beech Bottom, W. Va.; Jefferson Medical College, 1878; aged 66; died, December 17.

John Davis, Baltimore; University of Maryland, Baltimore, 1887; aged 63; died, December 14, from paralysis.

Robert Hiram Townsley, Wagner, S. D.; McGill University, Montreal, 1903; aged 40; died, December 9.

Elliott Daniel Robbins ⊕ Boston; Harvard University Medical School, 1879; aged 64; died, December 13.

James Clancy McElroy, Pittsburgh; Bellevue Hospital Medical College, 1891; died, December 20.

John Irving Fort, Dallas, Texas; University of Louisville, Ky., 1881; aged 69; died, December 15.

William S. Bellwood, Abingdon, Ill.; Rush Medical College, 1895; aged 54; died, December 14.

Lawrence D. Wilson, Gary Ind. (license, Indiana, 1901); aged 64; died, December 22.

Charles E. Dunn, Shelbyville, Ind. (license, Indiana, 1897); aged 57; died, December 16.

John F. Brydon, Griffin, Ind. (license, Indiana, 1897); aged 77; died, December 12.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

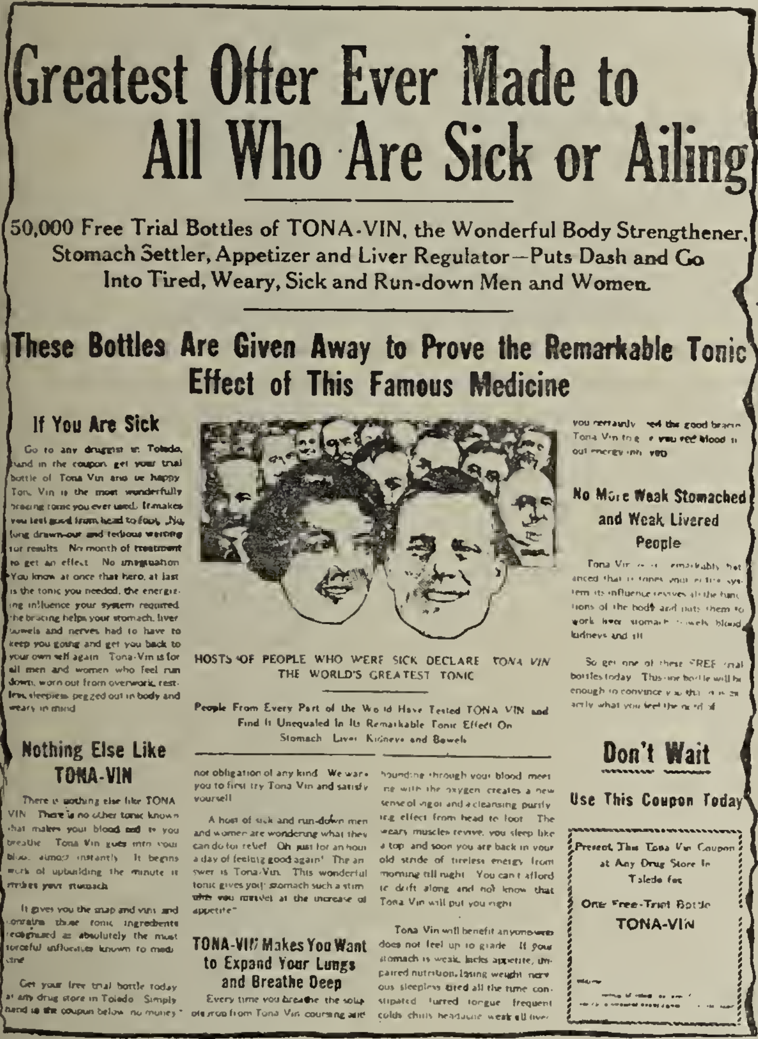
IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

TONA-VIN

Another Oasis in the National Desert

Last October the National Vigilance Committee of the Associated Advertising Clubs of the World asked for information "concerning a tonic by the name of 'Tona Vin' manufactured for the Thomas Chemical Co., Pittsburgh, Pa." THE JOURNAL had no information about either the product or the company that was alleged to put it out, but started to investigate. First an attempt was made to find out something about the Thomas Chemical Co. of Pittsburgh, but without immediate results. No street address was given for the company, nor did the concern's name appear in the Pittsburgh telephone or the Pittsburgh city directory. Inquiries addressed to chemical circles elicited the reply "not known."

Then came another letter from the New York headquarters of the Associated Advertising Clubs stating that one of their component branches had furnished them with a sample bottle of this "tonic" and also with some of the advertising that was being used and that these were being sent to THE JOURNAL office. The advertisement reached us before the specimen. It was a full page affair from a Toledo, Ohio, newspaper notifying the people of that city that "50,000 free bottles of Tona-Vin" would be "given away to prove the remarkable tonic effect of this famous medicine." To those familiar with nostrum advertising the advertisement made it fairly easy to classify the product, and the National Vigilance Committee was notified that in all probability Tona-Vin was another of the alcoholic nostrums that are being born over night in order to meet—or beat—the exigencies of the prohibition law.


Greatest Offer Ever Made to All Who Are Sick or Ailing

50,000 Free Trial Bottles of TONA-VIN, the Wonderful Body Strengthener, Stomach Settler, Appetizer and Liver Regulator—Puts Dash and Go Into Tired, Weary, Sick and Run-down Men and Women.

These Bottles Are Given Away to Prove the Remarkable Tonic Effect of This Famous Medicine

If You Are Sick

Go to any druggist in Toledo, hand in the coupon, get your trial bottle of Tona Vin and be happy. Tona Vin is the most wonderfully bracing tonic you ever used. It makes you feel good from head to foot. No long drawn-out and tedious waiting for results. No month of treatment to get an effect. No imagination. You know at once that here, at last is the tonic you needed, the energizing influence your system required, the bracing helps your stomach, liver, bowels and nerves had to have to keep you going and get you back to your own self again. Tona-Vin is for all men and women who feel run down, worn out from overwork, restless, sleepless, pegged out in body and weary in mind.

HOSTS OF PEOPLE WHO WERE SICK DECLARE TONA VIN THE WORLD'S GREATEST TONIC

People From Every Part of the World Have Tested TONA VIN and Find It Unequaled In Its Remarkable Tonic Effect On Stomach, Liver, Kidneys and Bowels

Nothing Else Like TONA-VIN

not obligation of any kind. We want you to first try Tona Vin and satisfy yourself.

A host of sick and run-down men and women are wondering what they can do for relief. Oh just for an hour a day of feeling good again! The answer is Tona-Vin. This wonderful tonic gives your stomach such a stimulus you marvel at the increase of appetite.

TONA-VIN Makes You Want to Expand Your Lungs and Breathe Deep

No More Weak Stomached and Weak Livered People

Don't Wait

Use This Coupon Today

Present This Tona Vin Coupon at Any Drug Store In Toledo for One Free-Trial Bottle TONA-VIN

A greatly reduced reproduction of one of the full page newspaper advertisements of "Tona-Vin." The original was nearly two feet high and one and a half feet wide. Such advertisements furnish the point of contact between seller and buyer; the "free sample" may be counted on to do the rest.

A little later the specimen bottle of Tona-Vin arrived. It was one of the "free trial" bottles and held one ounce of the preparation. The main label described "Tona-Vin" as "The Iron Tonic" and:

> "A System Tonic and Strengthener."
> "A Palatable and Energizing Treatment containing soluble Iron and Quinine, Fluid Extract of Senna Leaves, Wild Cherry and Aromatics."

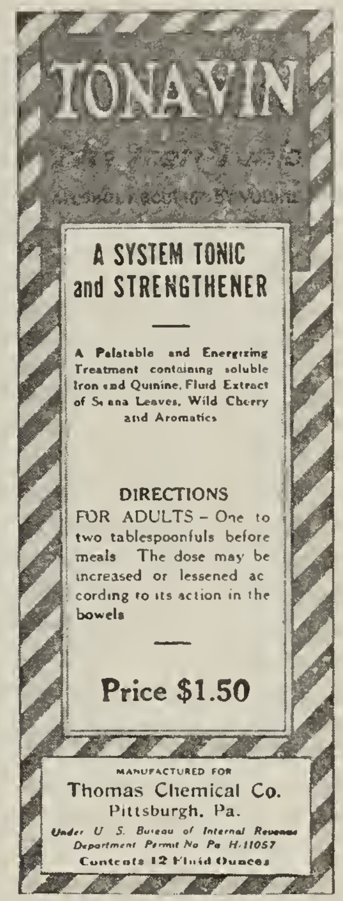
The label also admitted the presence of 18 per cent. of alcohol. The directions (for adults) called for "One to two tablespoonfuls before meals" and added that the "dose may be *increased or lessened* [italics ours] according to its action in the bowels." The lower part of the label bore this statement:

> "Manufactured For Thomas Chemical Co. Under U. S. Bureau of Internal Revenue Department Permit No. Pa. H-11057."

On the reverse side of this free trial bottle was a small label (reproduced with this article) reading:

> "We hereby certify that this product was made under our supervision and complies with the provisions of the National Prohibition Act and the Regulations of the Prohibition Commissioners. AMERICAN STANDARDIZING BUREAUS, Washington, D. C.
>
> "CAUTION—This preparation has been made with non-beverage alcohol and the sale or use thereof for beverage purposes will render the vendor or user liable to severe penalties."

Of the "American Standardizing Bureaus" more later. The liquid in the "free trial bottle" tasted like wine with a dash of wild cherry and just a suspicion of bitters. As evidently it had all the necessary elements of a good "repeater" it was decided that the A. M. A. Chemical Laboratory should find out more about the stuff. An attempt was made to purchase some in Chicago but without success. Possibly while "Hostetter's Bitters," "Lash's Bitters," numerous brands of "Wine of Pepsin" and a whole host of fly-by-night "medicines" containing alcohol in quantities of from 20 to 42 per cent. continue to be openly on sale in Chicago, it will not be commercially profitable to try to introduce a new alcoholic nostrum in this market. So the Associated Advertising Clubs of the World were again appealed to. They, in turn, took it up with their original correspondent, the Better Business Commission ("Vigilance Committee") of the Toledo Advertising Club and from Toledo some bottles of Tona-Vin in their unopened, original packages were shipped to THE JOURNAL office. The Better Business Commission of Toledo also sent two typical full page advertisements from local newspapers, one of which is reproduced in miniature with this article.


TONAVIN

A SYSTEM TONIC and STRENGTHENER

A Palatable and Energizing Treatment containing soluble Iron and Quinine, Fluid Extract of Senna Leaves, Wild Cherry and Aromatics

DIRECTIONS
FOR ADULTS – One to two tablespoonfuls before meals The dose may be increased or lessened according to its action in the bowels

Price $1.50

MANUFACTURED FOR
Thomas Chemical Co.
Pittsburgh, Pa.
Under U. S. Bureau of Internal Revenue Department Permit No Pa H-11057
Contents 12 Fluid Ounces

Reproduction (greatly reduced) of the main label of "Tona-Vin."

The Association's chemists examined Tona-Vin and have reported:

CHEMISTS' REPORT

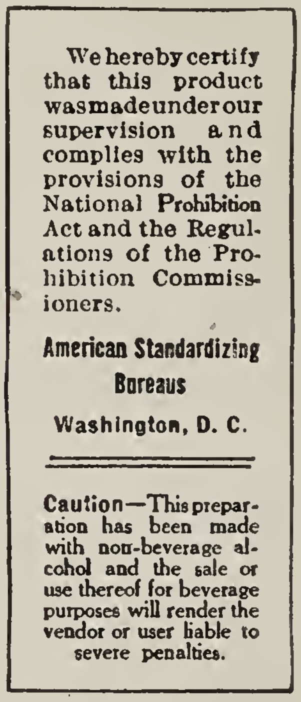
"Tona-Vin is a dark-brownish liquid, having an odor like wild cherry and wine, and a slightly bitter, somewhat sour taste. The label states that the preparation contains 'soluble iron and quinin, fluid extract of senna leaves, wild cherry and aromatics'. The presence of 18 per cent. of alcohol is admitted. The package contains slightly less than 11 fluid ounces, although the label declares the contents to be 12 fluid ounces. As a matter of fact the Tona-Vin bottles will not hold 12 fluid ounces.

"Tona-Vin is acid to litmus. On evaporation, the preparation gave 11.42 gm. of residue per 100 c.c. Phenolphthalein, bromids, iodids, and the purgative salts, such as magnesium sulphate and sodium phosphate were absent. Alkaloids, iron and extractives from an emodin-bearing drug were found, the latter in noticeable amounts.

"The total alkaloids amounted to 0.0222 gm. per 100 c.c., or about $\frac{1}{10}$ gr., per fluid ounce. The alkaloids appeared to consist chiefly of quinin. Although the circular which accompanies the trade package of Tona-Vin states that nux vomica is one of the ingredients of the preparation, no mention of this drug is made on the label and tests for strychnin and brucin (normal constituents of nux vomica) were negative. The U. S. P. "tonic dose" of quinin is 1½ grains; hence a dose of Tona-Vin (1 fluid ounce) contains about $\frac{1}{15}$ of a dose of quinin, and to obtain a tonic dose of this drug, the individual would be required to drink the contents of about 1.4 bottles of the preparation. This is equivalent in alcoholic content to about 7.4 fluid ounces of whisky. The absence in Tona-Vin of quinin in therapeutically effective quantities is demonstrated by the fact that the preparation is only very slightly bitter.

"Iron was determined, the amount found corresponding to the equivalent of 0.02 gm. of metallic iron per 100 c.c., or about $\frac{9}{100}$ grain per fluid ounce. The U. S. P. dose of reduced iron is 1 grain; hence a dose of Tona-Vin contains $\frac{1}{11}$ of a dose of iron and, to obtain an average dose of this drug, the individual would be obliged to drink the contents of an entire bottle of Tona-Vin. One fluid ounce (one dose) of Tona-Vin was dealcohlized by evaporation and the residue swallowed by a healthy man. No effect except a doubtfully laxative action resulted. This test, in conjunction with the chemical examination, indicates that Tona-Vin is not sufficiently medicated to prevent its use in moderate amounts as a beverage."

The gist of the chemists' report lies in the closing sentence. There is, of course, no legitimate reason for administering such drugs as iron, quinin and senna in ridiculously small doses in a menstruum containing 18 per cent. of alcohol. Any of these three drugs can be administered in tablet form. Their sale in the form of Tona-Vin simply gives one more loophole to evade the regulations of the national prohibition law.



We hereby certify that this product was made under our supervision and complies with the provisions of the National Prohibition Act and the Regulations of the Prohibition Commissioners.

American Standardizing Bureaus
Washington, D. C.

Caution—This preparation has been made with non-beverage alcohol and the sale or use thereof for beverage purposes will render the vendor or user liable to severe penalties.

Reproduction (full size) of the "certificate" that appears on the "free trial bottles" of "Tona-Vin." The "American Standardizing Bureaus" has nothing to do with the government. It is a private concern, one of whose functions seems to be the devising of "formulas." It also sees to it that in the marketing of such products the letter of the law is observed.

THE THOMAS CHEMICAL COMPANY

There were still three points regarding the exploitation of Tona-Vin that needed clearing up. First: Who and what is the Thomas Chemical Co., under whose name the stuff is sold? We are advised that the Tona-Vin advertisements have been placed by the Charles H. Fuller Co., a Chicago advertising agency, and that the newspapers that carried the advertisements were instructed to send copies of the issues containing the advertisements to W. & H. Walker, Inc., Pittsburgh, Pa. The Walker concern is listed as a manufacturer of soap and toilet articles. The Thomas Chemical Co. on its letterheads describes its business as "Flavoring Extracts, U. S. P. Preparations and Proprietary Medicines." Just why a manufacturer of soap and toilet articles should create a subsidiary company to exploit an alcoholic "patent medicine" we will leave for it to explain.

THE AMERICAN STANDARDIZING BUREAUS

Another point of interest was the "American Standardizing Bureaus" of Washington, D. C., whose "certificate," that Tona-Vin was made under their supervision, appears on the "free trial" bottles. The American Standardizing Bureaus, in spite of its name and the fact that it is at Washington, has nothing to do with the government; it is purely a private organization. It occupies three rooms on the fifth floor of an office building. We are advised that it is a partnership affair and to its chief owner, it is alleged, belongs the distinguished honor of outlining the formula for this "Wonderful Body Strengthener. Stomach Settler, Appetizer and Liver Regulator." It seems that the American Standardizing Bureaus have one of their employees at the Walker headquarters supervising the preparation of Tona-Vin and that it is the business of the "bureaus" to see that care is taken that all legal and regulatory restrictions are observed.

GETTING AN OFFICIAL O.K.

Finally: the full size of Tona-Vin bears this statement at the head of the secondary label on the bottle:

> "Formula Approved by the United States Bureau of Internal Revenue, April 29, 1920, Serial No. of Permit Pa. H-11057."

In view of this a letter was written to the Chief of the Bureau of Internal Revenue at Washington, apprising him of the results of the investigation of the A. M. A. Chemical Laboratory and of the claims made for Tona-Vin. Then this question was asked:

> "If it is not against the policy or rules of the Bureau, will you let us know, first, whether the permit was issued to the Thomas Chemical Co. as such, or to some other concern that stood sponsor for the Thomas Chemical Co., and, second, whether in issuing these permits any investigation is made of the bona fides of the company or concern to whom such permits are issued."

In reply, a courteous letter was received from Assistant Prohibition Commissioner, D. S. Bliss, stating that "Tona-Vin" was manufactured under permit issued to W. & H. Walker, Pittsburgh, Pa. The reply continued:

> "In answer to your second question as to whether or not investigation is made of the bona fide character of the company to whom such permits are issued, you are informed that each State Prohibition Director is supposed to make a thorough investigation before approving an application for a permit under the Volstead Act. If you wish to file a complaint against the manufacture and sale of this preparation, as being in violation of the Volstead Act, the office would appreciate the same."

Here, then, we have the whole business. A concern whose business is the marketing of soaps and toilet articles goes into the manufacture of a nostrum whose chief and most potent ingredient is alcohol—this, too, at a time when the use of alcohol as a beverage has been prohibited by the Constitution of the United States and by special legislation of Congress. This nostrum seems to have been devised presumably at the request of the company that manufactures it and makes money out of it and doubtless for a handsome consideration, by men of supposed professional standing. The "formula" thus evolved is given an official O. K. by the state prohibition director and the stuff is put on the market. Certain newspapers sell whole pages to the nostrum manufacturer in order to acquaint the public with this new "tonic" which "Puts Dash and Go into Tired, Weary, Sick and Rundown Men and Women." Thousands of bottles of the stuff are given away in order to acquaint the public with its "virtues."

A beautiful business; and all perfectly legal!

Correspondence

"EAR TESTS FOR AVIATORS"

To the Editor:—A recent editorial with this title (The Journal, Nov. 27, 1920, p. 1502) relative to the value of vestibular tests in aviation seems to merit a reply. I was executive officer of the Medical Research Board, Air Service, from its inception, in September, 1917, to my discharge, in February, 1919. It was partly my job to direct the activities of the laboratory so as to produce results valuable from a military point of view. In its beginning, the board did not know all the causes of inefficiency in fliers: no one knew them, but much had been developed by the standing board of the British Air Medical Service. Such men as Dryer, Flack, Birley and others, up to the beginning of the board's existence, had developed sufficient knowledge to show conclusively that the greatest cause of disaster in the air lay in the pilot himself. Therefore, the study of the physiology f altitude, its effects on man and the results of this peculiar hysiologic alteration on mental processes was the first work aken up by our board. While many reports of investigative ork had been received from England, they were not in such orm as to enable definite conclusions to be drawn. There as great variability of opinion, except in one direction—hat altitude produced decided physical and mental ineffi-iency.

The Medical Research Board studied first the effects of ltitude from the standpoint of physiologic, psychologic, phthalmologic and cardiovascular effects. The beginning as made in the American University at Washington. Until he completion of quarters on Hazelhurst Field, Mineola, . I., research could not be carried out on aviators because f their being unavailable. Studies were made, however, on hat might be considered the average normal man, and these tudies were the basis for those to be made on aviation ields. By the time of the advent of the board on the avia-ion field in January, 1918, well defined plans for the inves-igation of the men who were actually flying had been eveloped. Very little deviation from these plans has ever een made. One fact has been clearly demonstrated by the viation research: that the marked alteration of environment n the air produces marked compensatory changes—physi-logic, cardiovascular, psychologic—in fact, all the processes f the individual show greater or less reaction, according to he individual. And this is the keynote to the situation; for every individual reacted alike, a set formula could predict hat should and what should not be done.

I do not suppose that any one will deny the existence of e vestibular apparatus. Admitting its presence, what is it or? Motion perception; and, if motion perception, wherein es its value to aviation? In this: that motion perception, eing independent of vision or hearing, serves to conserve nd guide motor coordination more nearly automatically than ision or hearing, because of its integral mechanism's being art of the great automatic coordinating governor of move-ents of man—the cerebellum.

We cannot logically reason otherwise, if we believe in natomic physiologic function.

If we do believe, then we must admit that any great varia-on from the normal exhibition of function by any given estibular apparatus must affect the ability of that man to xecute those fine, automatic, coordinate movements that con-titute what the flier calls "the feel of the ship," and the hole tendency of the study of the flier from the otologic tandpoint goes to prove that this is so. This is particularly in those showing hypersensitiveness to motion.

In the tabulation of more than 50,000 examinations for the viation service, certain definite figures result concerning the ffects produced by vestibular stimulation. These may be epresented by the nystagmus time of 23 seconds; vertigo, 7-19 seconds, and past pointing, three times. These figures ay represent the norm for vestibular reaction.

In the investigation of the Medical Research Board in the merican Expeditionary Forces (Aviation Medicine in the . E. F., U. S. Govt. Pub., 1920), intensive study of the rôle f the labyrinth was made by the late Lieut.-Col. Henry orn, M. C. I feel that Horn's conclusions should be given full, in that his opinion expressed therein seems to be the afest guide we have, so far, in this question, but which gives the labyrinth a distinctive part in the composite needful define the individual who may make a successful flyer—at is, a normal man.

Horn's conclusions, based on a study of 786 cases, are as llows:

> 1. In conclusion, it might be said that the statistics for this paper ere worked up with great care and exactness. . . . As a result of ntinuous air work . . . the labyrinth reactions are not changed any essential particular.
>
> 2. Among the select and successful, the hypersensitive to motion types are few and far between.
>
> 3. Many typical hypersensitive to motion types can accommodate themselves to this handicap and become successful.
>
> 4. A very considerable per cent. . . . are not able to overcome the handicap and are dropped by the roadside.
>
> 5. Given an intact and well balanced labyrinth, there is nothing to indicate that the lower nystagmus limit is of consequence, even as far down as 13 seconds.
>
> 6. The normal labyrinth findings, as previously determined, are substantiated by our studies.
>
> 7. Special care should be exercised in allowing candidates with a hypersensitive to motion history and nystagmus around 30-35 seconds, to enter the service. Thirty-five seconds is the extreme margin of safety.
>
> 8. One can exceptionally overcome almost any handicap of hypersensitiveness to motion, *but why risk it?*

Your editorial states that "the opinion of English authorities is given by H. Graeme Anderson." This is not wholly correct. The opinions given were Anderson's, but not all the English authorities agreed with him. Dryer expressed his opinion to the contrary to me, personally, when Anderson's article appeared here in the States.

Is it not better to accept as our standard those evidences of physiologic reaction which indicate the normal? We have the figures which denote the normal. Why not accept them? As Horn tritely says: "One can exceptionally overcome almost any handicap . . . but why risk it?"

E. G. Seibert, M.D., Washington, D. C.

"THE PASSING OF THE INTERDEPARTMENTAL SOCIAL HYGIENE BOARD"

To the Editor:—I desire to commend The Journal on the editorial comment entitled "The Passing of the Interdepartmental Social Hygiene Board" (The Journal, Jan. 8, 1921, p. 117). When Congress began consideration of the appropriation under the Sundry-Civil Bill, a letter went forward from this bureau to the delegation in Congress from Nebraska discussing the various activities carried on for venereal disease control and asking its support along the lines as suggested in your comment.

I. H. Dillon, M.D., Lincoln, Neb.
Chief, Nebraska Bureau of Health.

"THE QUESTION OF POSITIVE WASSERMANN REACTIONS CAUSED BY THE INTRAVENOUS ADMINISTRATION OF ARSPHENAMIN"

To the Editor:—In connection with the article by Strickler, Munson and Sidlick (The Journal, Nov. 27, 1920, p. 1438) and the communication from Kolmer (Dec. 25, 1920, p. 1796), a French contribution may be studied with profit. Widal, Abrami and Iancovesco (*Presse médicale* **28**:893 [Dec. 11] 1920), though not aiming to explain the Wassermann reaction, and, in fact, not even mentioning it, shed much light on it. In presenting a functional test of the liver, they furnish experimental proof that, when the liver structure is damaged, or its function disturbed, its proteopexic ability is abolished, and albuminous substances passing through undamaged produce, in the general circulation, hemolysis. This is caused by many diseases, mostly febrile, and by different chemicals. One of them is arsphenamin, producing arsenical hepatism, sometimes severe, with icterus, but usually mild, though sufficient or severe enough to disturb the proteopexic function of the organ and cause hemoclasis or hemolysis.

This article and the one by Henes ("Cholesterinemia and the Wassermann Reaction," *American Journal of Syphilis* **4**:685 [Oct.] 1920) both hit the nail on the head. It seems to me that today, concerning the Wassermann reaction, we are in the same condition as was the world before Pasteur studied fermentation, and therefore every scientific source of information should be exhaustively explored. "Nul effort n'est perdu," as Pasteur used to say.

George M. Katsainos, M.D., Boston.

To the Editor:—Referring to the recent paper by Strickler, Munson and Sidlick, as well as Kolmer's comments, it may be of interest to recall some work along similar lines which has been done by Ravaut:

> In fourteen patients observed under similar conditions, and affected with various disorders, but with no antecedents or stigmas of syphilis, the Wassermann reaction became positive following treatment with neo-arsphenamin in five of them, or in 35 per cent. of the cases. It seems to me difficult to say that these were examples of ignored syphilis, brought to light by arsenical treatment, for the reactions, which varied in intensity, were transitory in most of them. It is nevertheless true that if we admit the absolute value of the Wassermann reaction, it becomes necessary to regard these patients as syphilitic, which seems to us inadmissible.

The disorders in the five patients who reacted were: angiolupoid plus papulonecrotic tuberculid; lupus erythematosus; generalized lichen planus; psoriasis, and lichen planus. The nonresponsive cases were classified as: lichen scrofulosus, two cases; erythema induratum, two cases, and lichen planus, five cases.

B. Barker Beeson, M.D., Chicago.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SUGAR OF THE SUGAR PINE

To the Editor:—I have been referred to you by the Department of Agriculture in regard to the sugar of the sugar pine. The sugar I speak of is *not* that of the Douglas fir but of the *sugar pine.* It is used a great deal by the Indians as a medicine. We would appreciate it a great deal if you would tell us whether there is a market for it and if so where.

N. I. H., Strawberry Valley, Yuba County, Calif.

Answer.—The California sugar pine (*Pinus lambertiana*) yields a sweet exudate which has been called American manna. It is said to possess laxative properties. American manna was investigated by Berthelot and his pupils in 1855 (*Compt. rend. Acad. d. sc.* **41**:392, 1855), the principle imparting the sweet taste isolated, and by them called pinite. Although not fermentable by yeast it was classed among the sugars for a long time. In 1891 the exudate of the sugar pine was investigated as a possible source of sugar by Dr. H. W. Wiley, for many years chief chemist of the Bureau of Chemistry of the United States Department of Agriculture. The sweet principle was found to be a hexahydric phenol, a methyl derivative of inosite (*J. Am. Chem. Soc.* **13**:228, 1891). American manna is not used in medicine; consequently there is no market for it.

DIPHTHERIA TOXIN-ANTITOXIN AS PROPHYLACTIC

To the Editor:—An extensive advertising campaign is being made here for the use of diphtheria toxin-antitoxin mixtures, the literature stating that three years' immunity at least is proved to follow their use. I should like to know whether reliable authorities agree substantially with these claims.

Malcolm Mackay, M.D., Sherbrooke, Que.

Answer.—Apparently those who have given a thorough trial to the use of diphtheria toxin-antitoxin mixtures for immunizing purposes have been favorably impressed by the results. The most extensive observations in this country, made by Park and Zingher of New York, have extended over several years. They are enthusiastic advocates of the practice. So far as we are aware, no unfavorable results have been reported, with the exception of some accidents occurring in a series in Texas. Then an improper mixture was employed, and the bad results should not be credited against the method.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Missouri: St. Louis, Jan. 18-20. Sec., Dr. George H. Jones, Jefferson City.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New York: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

South Dakota: Pierre, Jan. 18. Director, Division of Medical Licensure, Dr. H. R. Kenaston, Bonesteel.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Cheyenne, Feb. 7-9. Sec., Dr. J. D. Shingle, Cheyenne.

Rhode Island July Examination

Dr. Byron U. Richards, secretary, Rhode Island State Board of Health, reports the written and practical examination held at Providence, July 1-2, 1920. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the eleven candidates examined, 10 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Boston	(1910)	89.7
Medical School of Harvard University	(1892)	90.3,
(1919) 93.7, (1920) 89.1.		
Tufts College Medical School	(1917)	82.5,
(1918) 89.5, (1919) 87.8, 88.4, 87.9.		
University of Naples	(1899)*	80.5
FAILED		
Laval University Faculty of Medicine	(1919)	71

*Graduation not verified.

West Virginia July Examination

Dr. S. L. Jepson, health commissioner, West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, July 13, 1920. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 29 candidates examined, 23 passed and 6, including 1 osteopath, failed. Twenty-nine candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University School of Medicine	(1917)	88.1
University of Louisville Medical Department	(1920)	87.4
University of Maryland Coll. of Phys. and Surgs.	(1919)	86.1,
89.5, (1920) 86.8, 88.4, 88.6		
University of Michigan Medical School	(1920)	88.5
Washington University Medical School	(1919)	85.9
Jefferson Medical College	(1919) 88.4, (1920)	94.1
University of Cincinnati College of Medicine	(1919)	80.8
University of Pennsylvania School of Medicine	(1920) 89.9,	91
Univ. of Pittsburgh School of Medicine	(1917) 90.3, (1919)	88.7
Lincoln Memorial University	(1916) 82.9,	84.1
Meharry Medical College	(1913)	81.6
Med. College of Virginia	(1917) 80.2, 86.8, (1920)	83.7
University of Virginia Department of Medicine	(1916)	86.2
FAILED		
Chattanooga Medical College	(1904)	65.3
Meharry Medical College	(1918) 70.2, (1919) 72.1, (1920)	75.5
Memphis Hospital Medical College	(1912)	75.5

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
George Washington University	(1905)	Dist. Colum.
Atlanta School of Medicine	(1913)	Mississippi
Rush Medical College	(1918)	Illinois
Univ. of Louisville Med. Dept	(1918), (1916)	Kentucky
Chicago College of Medicine and Surgery	(1914)	Illinois
Tulane University	(1908)	Louisiana
Baltimore Medical College	(1913)	Maryland
Johns Hopkins University	(1915)	Maryland
Univ. of Md. Coll. of P. and S.	(1913)	Maryland
Coll. of Phys. and Surgs., Baltimore	(1907) Penn., (1915)	N. Carolina
Boston University School of Medicine	(1914)	Virginia
University Medical College of Kansas City	(1901)	Kentucky
Leonard Medical School	(1909)	Virginia
Eclectic Medical College	(1919)	Ohio
University of Cincinnati College of Medicine	(1914)	Kentucky
University of Wooster Medical Department	(1875)	Ohio
Jefferson Medical College	(1917)	Penna.
Medico-Chirurgical College of Pennsylvania	(1912)	Ohio
Medical College of the State of S. C.	(1905) (1915)	S. Carolina

University of Tennessee College of Medicine........	(1917)*	Colorado
Medical College of Virginia (1908), (1911), Virginia (1915), Kentucky (1917, 2), Virginia.		
University College of Medicine, Richmond..........	(1912)	Virginia

* License not verified.

South Dakota July Examination

Dr. H. R. Kenaston, director, South Dakota State Board of Health and Medical Examiners, reports the written, oral and practical examination held at Deadwood, July 13-14, 1920. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 17 candidates examined, 16 passed and 1 failed. Six candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital............	(1904)	84.9
Northwestern University	(1918)	89.2
Rush Medical College ....(1918) 86.2,	(1920)	86.1, 88.6
State University of Iowa Coll. of Homeo. Medicine....	(1912)	84.7
State University of Iowa Coll. of Medicine...........	(1915)	87.6
University of Kansas School of Medicine............	(1918)	84.6
Johns Hopkins University Medical Dept..............	(1920)	88.5
Detroit College of Medicine and Surgery.............	(1920)	81.2
University of Michigan Homeo. Medical School.......	(1907)	85.5
Missouri Medical College, St. Louis	(1898)	87.6
St. Louis University School of Medicine............	(1916)	86.6
University of Cincinnati College of Medicine	(1919)	89
Western Reserve University School of Medicine......	(1919)	85.1
University of Tennessee.............................	(1896)	88.2
FAILED		
National Medical University.........................	(1909)	64.7

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1910)	Minnesota
Rush Medical College	(1915, 2)	Minnesota
Univ. of Minn. Medical School............	(1916), (1919)	Minnesota
McGill University Faculty of Medicine............	(1889)	N. Dakota

New Hampshire September Examination

Dr. Charles Duncan, secretary, New Hampshire State Medical Board, reports the written examination held at Concord, Sept. 9-10, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. Five candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University	(1920)	86
Harvard University ....(1920)	77, 78,	79
Tufts College Medical School......................	(1920)	83.8
FAILED		
Baltimore Medical College..........................	(1896)*	**

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Harvard University	(1901) (1919)	Mass.
Tufts College Medical School	(1919) (1920, 2)	Mass.

* Graduation not verified.
** No grade given.

Georgia October Examination

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, Oct. 12-14, 1920. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Baltimore Medical College.........................	(1903)	86.7
Johns Hopkins Univ. Med. Dept..........(1918) 87.6,	(1919)	92.6
Tufts College Medical School.......................	(1916)	86.3
Columbia University	(1918)	85.7
Meharry Medical College.................(1914) 82,	(1920)	81.6
University of Nashville Medical Dept................	(1900)*	80
FAILED		
Meharry Medical College............................	(1920)	76.8

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Birmingham Medical College.........................	(1898)	Alabama
George Washington University.......................	(1909)	S. Carolina
Johns Hopkins University................	(1912)	Arkansas, Maryland
University of Maryland School of Medicine........	(1914)	Maine
North Carolina Medical College.....................	(1909)	N. Carolina
University of Pennsylvania.........................	(1905)	Penna.
Meharry Medical College...................	(1917), (1920,2)	Tennessee
Memphis Hospital Medical College..................	(1903)	Tennessee
University of Nashville............................	(1905)	Alabama

* Fifteen per cent. allowed for years of practice.

Book Notices

The Practical Care and Feeding of Children. By Mary A. Duns. Third Edition. Cloth. Price, $1.75. Pp. 174. Chicago: Chicago Medical Book Company, 1920.

This book is affectionately dedicated to the baby for whose welfare it was written, and it carries the endorsement of some leading physicians and surgeons. The frontispiece shows the author surrounded by a constellation of twenty healthy looking babies. She does not hesitate to state her opinions dogmatically. She answers the question "why milk should not be boiled" by stating that when boiled the nourishing properties of the cream are destroyed, causing malnutrition, scurvy and numerous other ills of a serious nature. She further recommends the avoidance of all infant foods which call for boiled milk, though in the following paragraph she reconsiders, and contradicts herself by saying: "When you are in doubt about the milk being fresh, bring it to a boil." It need hardly be stated that the use of boiled milk is favored by many pediatricians for practical as well as for theoretical reasons. The author explains why cream should be used in the preparation of food for young children by saying that since an infant cannot digest cow's milk unless very much diluted, extra cream should be used to make up the loss of fat caused by the addition of water or other diluents. Apparently she loses sight of the fact that the difficulty in fat digestion of cow's milk renders it impossible to make the artificial food an exact substitute for mother's milk, no matter how closely percentage compositions of the foods may resemble each other. In another sentence she enlightens her large circle of readers with the assertion that "the formulas in this book are arranged to imitate as far as possible normal mother's milk." Oh, shades of the alchemists!

In her discussion of the sugars we are told that all malt preparations have a slightly laxative effect; that milk sugar is slightly constipating, and that cane sugar should be used only where ordered especially. That all malt preparations are laxative will be little comforting to many constipated babies and their mothers and nurses who are using these preparations in large quantities; that milk sugar is slightly constipating will be hailed as news by those who have thought that it was a readily fermentable sugar and increases peristalsis and fecal evacuation.

The author does not hesitate to state dogmatically that in her experience it is better to feed babies in small quantities every two and one-half hours than at longer intervals. After 2 months of age, she recommends that the baby be fed at three hour intervals. Such startling statements are so profuse that space will not permit mention of all the incongruities.

The statements about nursing, however, are so extraordinary that we venture to quote: "It is very unwise to nurse a baby entirely." "It is much better to commence at 2 weeks, giving one bottle each day." "It is a great mistake to think that a baby cannot be nursed and given the bottle alternately, as in my experience these 'combination' babies are much healthier and better satisfied." She gives some aphorisms on the regularity of feeding: "Infants should be fed at strictly the same hour whether awake or asleep." "Some children will eat while in a sound sleep." "Never disturb a child at night." "If it wants to eat it will let you know"!

Adults who constitute the group of quick lunchers, and babies with keen appetites should note the following: "Drinking milk quickly is dangerous for either a child or adult as the stomach is not prepared for it and large curds form sometimes causing convulsions." The author fails to explain why the stomach is not prepared for food or how it could be prepared, or how she knows it is not prepared. It would be interesting to know also why large curds cause convulsions. Why should the curds be larger if the milk is drunk rapidly? The most learned direction of all is this: "If the baby is spitting up its food when taking lime water, use soda; if using soda, change to lime water." The author certainly displays confidence in one or the other of these remedies.

We must not lose sight of the directions for treating bruises. "A piece of raw beef bound over the wound will prevent its turning black; after that put on warm witch hazel or arnica. If there is much pain alternate with a warm flaxseed poultice." For nosebleed, place a cold compress on the nose and make pressure and place a piece of ice wrapped in flannel at the nape of the neck. If this is not effective, plug one of the nostrils lightly with a little cotton. She warns against using force—just plug it lightly.

Like the ancient rhyme of Miss Jennie Jones, who had some occupation for every day in the week, so our author prescribes the menu for each day, making slight changes so that the mother of necessity could travel only short distances without this precious volume close at hand. The book is ludicrous, but its effects are serious because it appeals to the credulity of mothers. Glaring misstatements born of superficial knowledge and long repeated errors are interpreted as experience. Such books are a menace to progress in the scientific care of infants. They serve only to obstruct intelligent campaigns for infant welfare.

Maternitas. A Book Concerning the Care of the Prospective Mother and Her Child. By Charles E. Paddock, M.D., Professor of Obstetrics, Chicago Post-Graduate Medical School. Cloth. Price, $1.75. Pp. 210, with illustrations. Chicago: Cloyd J. Head & Co., 1920.

In this volume, Paddock has simply and effectively combined the essentials of prenatal care with a brief guide for the young mother in the care of the new-born. The book can be wisely chosen by almost any obstetrician as a supplement to his personal instruction of his prospective mothers without change or censor. The book is written solely for the expectant mother; accordingly, the facts concerning pregnancy are set forth in a concise and accurate manner, and can be comprehended by any intelligent woman. In the chapter on the hygiene of pregnancy a sensible regimen of hygienic and dietary rules is clearly detailed, and the commoner superstitious ideas concerning pregnancy are corrected. In the second part, in discussing the baby's food, the author missed a good chance to emphasize the value of prophylactic observation of the well babies—the infant welfare scheme—in place of advising the mothers to call the physician if "this or that" is wrong. The book has been entirely revised in the third edition with the addition of new material and illustrations. It has been carefully prepared and published, and is free from mistakes. The print is large and easy to read, and the illustrations are clear and refined. "Maternitas" and other books of this character deserve the hearty recommendation of the medical profession because of their inestimable value in furthering an important branch of preventive medicine, namely, prenatal care.

Some Conclusions on Cancer. By Charles Creighton, M.D. Cloth. Price, 42 shillings net. Pp. 365, with 114 illustrations. London: Williams and Norgate, 1920.

This volume is devoted to an exposition of the author's hypothesis that cancer is not essentially an overgrowth of epithelial cells in situ, continuous with preexisting epithelial cells, but, as nearly as we can interpret the presentation, that it is derived largely from endothelial cells lining blood vessels, under the influence of local changes in the blood. "The result is a kind of blood-gland, which in the case of epithelial organs replaces the proper glandular structure and function." In some cases a ferment action is supposed to reduce the blood to an assimilable condition, which causes the cells to take on neoplastic growth; in others, the presence of special cells with the function of carrying "reduced" blood accounts for the new growth. "Tumor malignancy is always due to cells feeding on the reduced substance of blood instead of metabolizing, storing or transmitting it." Plasma cells are supposed to be especially incriminated in this phenomenon. In the preface the author states that his work in cancer began fifty years ago, but that in later years he has worked chiefly in other fields; this probably explains an evident lack of familiarity with much of the recent work on cancer. The arguments presented to support the hypothesis advanced will not be convincing to many present day cancer research workers, or students.

Miscellany

THE WORKING OF "LEX VENERIS"

The Swedish venereal disease law which went in effect, Jan. 1, 1919, provides that (1) every person with venereal disease be treated as necessary and thus prevented from infecting others; (2) the source of contagion be sought and suppressed, and (3) penalties be imposed for knowingly exposing others to contagion. Treatment at specified dispensaries is free, but the patient may select his own physician if he wishes. He must sign a receipt for the circular given him on his first application, describing his rights and duties in the matter of the venereal disease and the penalties for not conforming strictly to the physician's directions. If he fails to return for treatment, the sanitary inspector is notified, and if he still fails to respond to warning notices, he can be arrested and interned in a hospital. The physician first consulted has to report the case to the sanitary authorities with the sex, age and residence, and such data as he can ascertain in regard to the source of the contagion. The sanitary inspector enjoins the suspected person to apply for examination and treatment if found necessary. The penalties for knowingly exposing another person to contagion are imprisonment, or a fine of 50 crowns in case of extenuating circumstances. If infection has occurred from the exposure, the imprisonment will be for two years or more at hard labor. Penalties are also provided for false accusations, and imprisonment at hard labor for from six months to four years for provocative prostitution or for profiting personally and permanently by prostitution in others, as by renting a room to a woman supporting herself by prostitution.

The law places venereal diseases on the same footing as other contagious diseases, and makes every one, rich and poor, equal before the law. It subordinates the individual to the collective welfare. The *Lyon médical,* in a recent survey of the Swedish law, points out a number of weak points in it, such as the fact that when a venereal patient enters a hospital no attempt is made to isolate him in a special ward, as the principle is followed not to betray the nature of his or her disease. The physician becomes a wheel in an administrative machine, and medical secrecy is lost to a certain extent. He transmits his data only to the sanitary inspector, but the latter has to have his orders carried out by nonmedical persons.

A recent issue of the *Hygienisk Revy* of Lund, Sweden, comments on results of the workings of the law. It states that there was scarcely any reduction in the cases of venereal disease encountered during 1919, but the statistics of the first six months of 1920 show that the "Lex Veneris" is now bearing fruit. The number of cases of syphilis recorded during the first six months of 1919 was 1,144, but the corresponding figure for 1920 was 615; of chancroid, 929 cases in 1919, and 309 in 1920. The total cases of venereal disease were 3,335 in 1919 and 2,495 in 1920. In January, 1920, there were 144 cases of syphilis, 75 of chancroid and 507 of gonorrhea recorded, while the corresponding figures in June, 1920, were 82, 32 and 379. The Göteborg city physician, Dr. Gezelius, has a communication in the same issue pointing out the one great defect of the law, namely, that no provision is made for penalizing those who do not apply for treatment when they have venereal disease. He adds: "The source of contagion was specified in 529 cases, and in 184 (35 per cent.) the disease was detected and treated. But in seventy-five there did not seem to have been any possibility of contagion. Some of these may have been previously in a contagious stage, but in the majority the denunciation must have been based on a mistake, whether intentional or not it is impossible to determine. That certain persons were thus falsely accused is more than probable, to judge from the indignation displayed by some of them, and their efforts to find out who the person was that had denounced them to the authorities. This is a matter of which the attending physician alone has cognizance. In ninety-nine instances the alleged source of infection was in another town. In 195 cases the patients refused to continue treatment as directed, but with the help of the police, 114 were compelled to complete the course; eighty-one others were lost track of. The 3,230 cases recorded in 1919 included fifteen of inherited and 763 of acquired syphilis and 2,067 of gonorrhea."

Medicolegal

Board, Not Court, to Fix Salary of Health Officer

(Board of Supervisors v. Powell (Miss.), 84 So. R. 905)

The Supreme Court of Mississippi says that Dr. Powell, as the duly appointed health officer of Calhoun County, appeared before the board of supervisors, at their meeting in August, 1919, and asked that his salary be fixed in accordance with the statute. The board heard testimony and fixed the salary at $360 a year. Dr. Powell was dissatisfied with the amount, and took the matter to the circuit court, which fixed the sum at $600 a year. In reversing that judgment, the supreme court holds that, in Mississippi, the statutory authority to fix the salary of the county health officer is vested exclusively in the board of supervisors, and the circuit court has no right to review and reverse the discretion of the board and enlarge the salary so fixed, unless the board fixes the salary so low as to oust the officer or abolish the office. The case of *De Soto County* v. *Westbrook*, 64 Miss. 312, 1 So. 352, is authority for the proposition that, while the board of supervisors is charged with the duty of fixing the salary of the county health officer, yet the laws for the protection of the public health cannot be nullified, and the office cannot be abolished by fixing the salary so low that a competent physician would not accept the office. Such action is a nullity. But if the amount of salary as fixed by the board of supervisors is a material sum of money, and is not so small as to indicate an intention to ignore the law and abolish the office, then the amount so fixed is the measure of compensation, and the only measure of compensation, provided by law. As stated, the authority to fix the salary is vested in the board of supervisors, and exclusively in the board. If the circuit judge, on appeal, could review the testimony, and differ from the board as to what constitutes a reasonable compensation, then in the last analysis the authority to fix the salary would rest with the circuit judges, and not with the boards of supervisors. If the action of the board in any given case amounts to a nullity, the law affords a remedy and awards just compensation. The supreme court cannot say that $360 a year for the services of the county health officer in Calhoun County is so shocking to the conscience or unreasonably low as to abolish the office.

Liability of Hospital for Gauze Being Left in Wound—As to Evidence—Damages

(Walker Hospital v. Pulley (Ind.), 127 N. E. R. 559)

The Appellate Court of Indiana, Division No. 2, in affirming a judgment for $2,100 damages in favor of the plaintiff, Mrs. Pulley, says that she submitted to an operation, in the defendant hospital, for necrosis of the femur, and that it was alleged that it was the business of the hospital to furnish for hire medical and surgical aid to the afflicted, for which purpose it had in its employ a number of physicians, surgeons and nurses. Mrs. Pulley left the hospital about twenty days after the operation; and a little more than three weeks after she returned to her home and the wound had closed and reopened, a piece of gauze one-half inch in width and about 15 inches in length was drawn from the sinus. It was contended that the corporation was not liable for the gauze having been left in the wound, as the business was transacted in the name of two physicians as partners, the corporation existing merely for the purpose of owning the real estate and hospital equipment, of employing nurses and acting as the business manager and agent of the firm; but the court holds that the verdict against the hospital was justified. The court also holds that statements made by one of the surgeons to Mrs. Pulley, when she was a patient in the hospital, relating to her physical condition, were admissible in evidence, over the objection that there was no proof that the surgeons were employees or agents of the corporation; as was also a letter written by one of the surgeons to Mrs. Pulley's home physician. Nor does the court think that there was any error in admitting in evidence roentgenograms of Mrs. Pulley's teeth, taken later at another hospital for the purpose of determining whether she had septicemia; the testimony of another woman as to the physical condition of Mrs. Pulley as evidenced by her ability to work before and after the surgical operation, and the piece of gauze taken from the sinus.

Another contention was that there was no competent evidence tending to prove that the presence of the gauze in the sinus, for the length of time and under the conditions disclosed by the evidence, resulted in any injury to the patient, the contention being that the causal relation, if any, between the negligence and the pathologic conditions of the patient, which developed after she returned to her home, could be proved only by the testimony of experts, and that there was no expert testimony on that subject. In other words, counsel earnestly insisted that whether the presence of the gauze in the sinus, which was permitted to heal superficially and enclose the gauze in the flesh for a period of at least thirty days, was the cause of the unfortunate conditions which followed and of the suffering endured by the patient was a question which could be answered only by men skilled in medical science. But the court does not agree with that contention. The questions ordinarily involved in malpractice cases, such as whether a surgical operation was negligently performed or whether the care and attention following the operation were negligent, and the like, are questions of science; and necessarily the evidence from which those questions are to be determined must come from physicians and surgeons. The general rule is that where negligence is predicated on lack of skill or attention, the court and jury must depend on expert evidence. The court cannot concede, however, that the general rule was applicable in all respects to the case at bar. By that statement the court means to say that in its opinion jurors of ordinary intelligence, sense and judgment, although not skilled in medical science, are capable of reaching a conclusion without the aid of expert testimony as to whether it is good surgery to permit a wound to heal superficially, with nearly half a yard of gauze deeply embedded in the flesh, and likewise are capable of determining whether or not injurious consequences of some character would probably result. The exact nature and extent of the evil consequences resulting therefrom, of course, laymen would not be competent to determine without the aid of medical science.

The damages awarded, $2,100, the court does not think were excessive. In actions of this kind the law furnishes no fixed measures of damages to aid the jury. In such cases the amount to be awarded must depend on the sensibilities and the judgment of the jurors. In this case the amount was not so large as to create the impression that the jurors were actuated by passion, prejudice or any improper influence or motive.

Releases Got by False Statements as to Injuries

(Quapaw Mining Co. v. Cogburn (Okla.), 190 Pac. R. 416)

The Supreme Court of Oklahoma, in affirming a judgment in favor of the plaintiff for $9,650 damages for personal injuries notwithstanding a previous settlement and release in consideration of a payment of $2,000, holds that, in a personal injury case, where the person or corporation responsible for the injury, or his or its agent, falsely represents to the injured party what a physician or surgeon thinks or has said about his injuries, it is a fraud which will justify the rescinding of a release executed in reliance on such false statements. Where the professional opinion relied on is not given directly by the physician to the patient, but is communicated to him by a third person, it is the duty of the latter to repeat it with entire correctness. And where the injured person is induced to execute a release of damages by the false and fraudulent representations of a physician in the employment of the defendant, or sent to him by the latter, that his injuries are but slight or temporary, the physician well knowing the contrary, the release will not be binding.

Society Proceedings

SOUTHERN SURGICAL SOCIETY

Thirty-Third Annual Meeting, held at Hot Springs, Va., Dec. 14-16, 1920

(Concluded from page 133)

Relaxation of the Vaginal Outlet: Is the Obstetrician Responsible?

Dr. Lucius E. Burch, Nashville, Tenn.: Relaxation of the vaginal outlet is caused by overstretching of the levator ani muscle and a lack of tone following labor. It is impossible for the obstetrician to determine at labor whether the muscle will regain its normal function or not. All lacerations following labor should be repaired immediately for the purpose of preventing sepsis. The condition is easily cured at secondary operation by bringing together the overstretched muscle in the median line by interrupted sutures.

Kraurosis Vulvae

Dr. Frances Reder, St. Louis: In kraurosis vulvae the histologic changes are situated in the dermis and consist of a general atrophic process involving all the structures of the vulva, with marked contraction of the vaginal orifice. The clinical picture of pruritus and leukoplakic vulvitis discloses so many features in common with kraurosis that the inference could be made that kraurosis is an expression of a severe degree of these lesions, and that without pruritus and leukoplakic vulvitis there would be no kraurosis. Some investigators recommend in the more pronounced cases of kraurosis with dyspareunia an incision widening the vaginal outlet. I would advise against this procedure, as it has no beneficial influences on the condition, and does not prevent a subsequent contraction of the ostium. I have treated two patients by operation. The relief they obtained was most gratifying. Up to date they are free from suffering, with no evidence of recurrence. The operations were performed nine and eleven months ago, respectively.

Ureteral Stricture and Pyelitis

Dr. J. N. Baker, Montgomery, Ala.: Among fifty cases studied the ratio of incidence of the right sided lesion as compared with the left was as 2 to 1, and that of bilateral to unilateral incidence was as 1 to 4.5, approximately. In forty-nine, or 98 per cent., an appreciable obstruction could be demonstrated at some point within the ureter above its entrance into the bladder by means of the wax bulb implanted on the catheter. In thirty-five, or 70 per cent., the obstruction was from 3 to 6 cm. above the bladder opening or within the broad ligament area. In fourteen, or 28 per cent., the obstruction occurred from 9 to 12 cm. at or near the pelvic brim. The only case in which ureteral obstruction was not revealed was that of a child of 13 with bilateral pyelitis.

Surgical Treatment of Acute Pelvic Infections in Women

Dr. F. G. Du Bose, Selma, Ala.: Failure to remove the focus of infection renders the operation relatively valueless. Pelvic débridement is urged. Pyogenic membranes with infected tubes, uterus and ovaries should be removed.

Value of Local Anesthesia in Surgery Today

Dr. Willard Bartlett, St. Louis: Ether by the drop method is the anesthetic of choice in our clinic for major surgery in general, and local anesthesia in some form for minor surgery. Local anesthesia has definite limits which are not to be transgressed. With increasing experience and better training, we shall some day have to establish indications for general rather than for local anesthesia. The anesthetization should never be larger than the operation. Under ordinary circumstances, one should not attempt a radical breast operation or any abdominal procedures which involve both sides of the midline, under local anesthesia alone. The operator will have to train himself or an associate especially for this work if he expects to be successful in it. There is a very definite field for the local anesthetist. His services ought to be in demand by the surgeon who makes only an occasional use of these methods, or by one who is not temperamentally suited to the acquirement of them.

Laryngeal Function in Thyroid Cases

Dr. E. S. Judd, Rochester, Minn.: The functional results following thyroidectomy, as concerns both phonation and respiration, are extremely good. The disturbance which sometimes follows immediately after the operation is temporary, and normal function will be restored in from a few days to a few weeks. There is a small group of patients who, following thyroidectomy, have a bilateral abductor disturbance which is slow in onset, but is very persistent. We have been unable to work out the cause of this condition but believe that it may be due to the contraction of a scar, to a peculiar type of trauma to the nerve, or to some form of toxemia.

Ulcer of Jejunum Following Gastro-Enterostomy

Dr. J. Shelton Horsley, Richmond, Va.: The cause of jejunal ulcer after gastro-enterostomy is the pouring of acid gastric juice directly into the jejunum, which is physiologically fitted for only alkaline contents. Doubtless many ulcers after gastro-enterostomy do not come to operation, and for every jejunal ulcer that is formed, there are probably many instances of irritation and hyperemia of the jejunum which are not sufficiently severe to produce ulcer and yet cause symptoms. The generally accepted treatment of jejunal ulcer after gastro-enterostomy is to disconnect the gastro-enterostomy and perform a pyloroplasty. If a pyloroplasty had been done in the first instance, the jejunal ulcer would have been avoided. I have had a case of jejunal ulcer that occurred on the mesenteric border of the jejunum opposite the gastro-enterostomy.

Surgery of Gallbladder

Dr. T. Casey Witherspoon, Butte, Mont.: In the early period, when no prohibitive coincident malady exists, the removal of the gallbladder not only is justifiable, but should be done by the surgeon. In the later period when gallstones or chronic inflammation obstruct the flow of bile, there can still be no question as to the advisability of a radical procedure, conjoined always with careful exploration of the common duct insuring its patulousness.

Large Ovarian Cyst in an Infant Seven Months of Age

Dr. William A. Downes, New York: This paper will be published in full in The Journal.

Gastric and Duodenal Ulcer

Dr. Charles H. Mayo, Rochester, Minn.: I believe that peptic ulcer is rare and represents less than 1 per cent. of the findings at necropsy. In the aggregate, the condition occurs in thousands of persons, many of whom apparently never suffer from symptoms of gastric origin; others do not appreciate their symptoms. When acute and chronic bleeding, perforation and mechanical obstruction were the main diagnostic points of ulcer, hemorrhage was relied on in making the diagnosis. These symptoms lost their importance as diagnostic ability improved. In a study of the results of 647 operations performed in the Mayo Clinic on 638 patients with calloused ulcer of the stomach, from July 1, 1914, to July 1, 1919, the average mortality was 3.2 per cent.; that is more than double the average mortality in 2,734 operations performed in the same period on 2,720 patients with duodenal ulcer. Many ulcers believed to be benign and excised showed the presence of a carcinoma in a limited area of the margin. In eighty-nine operations performed in the Mayo Clinic for hour-glass stomach, the operative mortality was 7.4 per cent. The sleeve resection of the central portion of the stomach, usually with gastro-enterostomy, is performed. If there is recurrence, the lower half is removed at the second operation, the narrowed proximal portion being united to the jejunum, and sometimes to the duodenum. As a rule, the same type of union of the stomach with the duodenal end or the jejunum is made for extensive ulceration and thickening and for local cancer in the pyloric region after resection of the stomach. Graham, in an investigation of 438 cases of duodenal ulcer, found that from the standpoint of the patient 70 per cent.

who survived the operation considered themselves well following gastro-enterostomy, 27 per cent. improved, and 3 per cent. unimproved.

Appendicitis and the Rubber Glove

Dr. Robert T. Morris, New York: The rubber glove lessens the tactile sense and stands in the way of some of the neatest work, which is sometimes desirable in appendicitis with adhesions. More bacteria fall into a large incision from the air than are carried in by a properly prepared hand minus the glove. The rubber glove has its place in standardized surgery, but a loophole must be left in hospital rules in cases in which hospital authorities, in their commendable zeal for standardization, make the wearing of rubber gloves obligatory in all operative work; otherwise hospital rules will stand in the way of the best surgery in some cases.

Delayed Transplantation of Long Pedicled Flaps

Dr. V. P. Blair, St. Louis: In making a pedicle flap, about the vitality of which there is the least doubt, most of the uncertainty can be dispelled by dividing the operation into several steps—first, outlining the flap, raising it from its bed and immediately suturing it back into the same bed, after controlling all bleeding. The flap is allowed to remain there for a week or ten days before transferring it to its new position. At this later period either the circulation through the base has become vigorous, or, if any part of the flap has died, the line of demarcation is already established. If the transfer is delayed more than two weeks, excessive shrinkage of the flap occurs and also the circulation through new vascular connections in the bed lessen the energy of the circulation through the base.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

December, 1920, **10**, No. 12

*Social Uses of Medicine. D. B. Armstrong, Framingham, Mass.—p. 921.
Standardization of Laboratory Methods. A. B. Wadsworth, Albany, N. Y.—p. 932.
*Classification of Diphtheria Bacilli Based on Toluidin Blue-Iodin Method of Staining. H. Albert, Iowa City.—p. 936.
Relative Functions of Health Agencies. I. Viewpoint of Official Agency. H. Emerson, New York.—p. 941.
Id. III. Viewpoint of Non-Official Agency. C. J. Hatfield, New York.—p. 948.
Id. III. What is the Matter with Public Health? C. T. Nesbitt, Akron, Ohio.—p. 953.
Id. IV. Relation Between Official and Non-Official Health Agencies. F. G. Curtis, Newton, Mass.—p. 956.
Id. V. Coordination of State and Private Enterprises in Public Health Work. W. H. Hattic, Halifax, N. S.—p. 961.
Meaning and Purpose of Socializing Medicine. I. S. Wile, New York.—p. 969.
Practical Disinfection of Tuberculous Sputum. W. R. Stokes and C. H. Douthirt, Baltimore.—p. 973.
Child Hygiene. J. Levy, Newark, N. J.—p. 976.
Judging the Keeping Quality of Milk by a H-ion Method. L. H. Cooledge and R. W. Wyant, East Lansing, Mich.—p. 978.

Social Uses of Medicine.—Armstrong discusses the accomplishments of medicine, the inadequacies of medical practice, need for socialization, socialization to date, impending social developments, handicaps of present day practice, objections to social medicine, and the benefits of socialization to the physician and to society. The problem, he says, is an exceedingly difficult one. The program needs the cooperation and guidance of the medical profession, which is social in spirit though in need of socialization as to method. The physician has never had a real chance in social organization. He has been given the disagreeable, if not impossible task of putting together the pieces. The object of medicine is a healthy community life. Up to the present, the doctor has been expected to do all the work, either individually or through the gradually developing medicosocial organizations. What must be demanded, maintains Armstrong, are a maximum service for the sick regardless of their ability to pay, and a chance for the physician to give maximum service in disease prevention, treatment and cure. He advocates that medical societies appoint committees to study the whole problem of social tendencies in medicine, not only the health insurance piece-meal aspect of it, and formulate a program of action, "a program through the gradual execution of which all may learn to breathe the ampler air of service."

Classification of Diphtheria Bacilli.—Albert's classification of diphtheria bacilli based on the toluidin blue iodin method of staining, contains eight classes—four granular and four barred. Intermediate forms containing both bars and granules are common. The rather solid forms may be regarded as either immature or atypical. The classification includes the following types: G1 (granular short); G2 (granular medium); G3 (granular long); G4 (granular clubshaped); B1 (barred short); B2 (barred medium); B3 (barred long); B4 (barred club-shaped).

American Journal of Roentgenology, New York

November, 1920, **7**, No. 11

Relation of Roentgenology to Clinical Medicine with Special Reference to Gastro-Enterology. R. W. Mills, St. Louis.—p. 523.
Anomalous Relation of Roentgenology to Medical Practice. W. W. Watkins, Phoenix, Ariz.—p. 531.
*Action of Buried Tubes of Radium Emanation on Normal and Neoplastic Tissues. H. J. Bagg, New York.—p. 536.
Roentgen Rays in Treatment of Fibroma and Uterine Hemorrhages. J. E. Panneton, Montreal.—p. 544.
*Radiumtherapy in Cancer. I. Levin, New York.—p. 552.
Stereoscopic Tube Stand Particularly Adapted for Examination of Skull. P. C. Hodges, Peking, China.—p. 564.

Action of Buried Tubes of Radium Emanation.—A series of experiments made by Bagg have definitely indicated, in his opinion, the therapeutic advantage of the treatment of certain cancers by means of small unfiltered glass tubes containing relatively little radium emanation per tube. Less than 1 mc. is a satisfactory dose; in fact, 0.5 mc. was found to be a most advantageous amount to use. The emanation tubes should be imbedded about cm. distance apart if the best results are to be obtained. Histologic examination of tissue so treated showed the presence of a pronounced leukocytic infiltration which tended to wall off the necrotic area about the emanation tubes.

Rationale of Radiumtherapy in Cancer.—Levin maintains that a closer student in the domain of radiumtherapy cannot fail to appreciate the fact that radium is the most powerful agent in the whole therapeutic armamentarium of medicine, and that the selective action of the element, when the quantity and quality are correctly adjusted presents a most remarkable phenomenon. Moreover, not all the failures by far must be ascribed to the inefficiency of the agent. The percentage of cases suitable for radiumtherapy is as small as the number of cases suitable for radical surgery. Even if radiumtherapy should not have accomplished anything else, it is of great value because it is gradually dissipating the feeling both in the profession and among the laity that a diagnosis of cancer means a death warrant.

American Review of Tuberculosis, Baltimore

December, 1920, **4**, No. 10

*Relation of Mineral Dusts to Tuberculosis. L. U. Gardner, Saranac Lake, N. Y.—p. 734.
*Attempt to Produce Experimental Tuberculous Pleural Effusions and Empyemas in Rabbits. H. J. Corper and O. B. Rensch, Denver.—p. 756.
*Effect of Prolonged Pneumothorax on Tuberculosis of Lungs of Rabbits, Following Intravenous Injection of Tubercle Bacilli. H. J. Corper and O. B. Rensch, Denver.
Pulmonary Distribution of Finely Divided Suspensions Injected intravenously into Rabbits after Production of Artificial Pneumothorax. H. J. Corper and O. B. Rensch, Denver.—p. 769.
*Sodium Morrhuate in Pulmonary Tuberculosis. M. Biesenthal, Chicago.—p. 781.
Tuberculous Meningitis as Complication of Pulmonary Tuberculosis. W. S. Duboff, Edgewater, Colo.—p. 784.
Pregnancy and Tuberculosis. J. H. Elliott, Toronto.—p. 792.
Climate and Tuberculosis. L. S. Peters, Albuquerque, N. M.—p. 798.

Relation of Mineral Dusts to Tuberculosis.—The relatively early lesions in experimental pneumoknoiosis produced by granite inhalation and their influence on pulmonary tuberculosis are reported on by Gardner. Under the conditions of this experiment where the R1 strain of tubercle bacillus has been used to infect guinea-pigs by the inhalation method, coincidently and previously exposed to granite dust of a given concentration, it may be concluded: That the occurrence of tubercles is more frequent in the dusted than in the undusted lung. That such lesions tend to run a more prolonged course than those in animals not exposed to duct. That the spread of the tuberculous process to the regional lymph nodes is not prevented.

Experimental Tuberculous Pleural Effusions.—Corper and Rensch maintain that virulent human tubercle bacilli in fine suspension in gum saline 7 per cent. accacia in physiologic sodium chlorid solution injected intrapleurally on the right side into normal rabbits tend to clump and form clusters of tubercles especially toward the lower or anterior portions of the right pleural cavity and on the right side into normal rabbits tend to clump and form clusters of tubercles especially toward the lower or anterior portions of the right pleural cavity and on the right lung and toward the mediastinum. There does not seem to be any difference in the gross final results of the intrapleural injection of the living virulent human tubercle bacilli, regardless of whether the rabbits have received either a subcutaneous or an intravenous (sensitizing) injection of the same culture one month prior to the intrapleural injection. The finer histologic tubercle differences were not studied. In rabbits there is no more tendency to form pleural effusions or an empyema following the intrapleural injection of virulent (for guinea-pigs) human tubercle bacilli in those animals having received either a subcutaneous or an intravenous injection of the same culture of tubercle bacilli one month prior to the intrapleural injection than in a normal rabbit not having received such preliminary sensitizing injection, this making it impracticable to use this method in the rabbit for the production of tuberculous effusions or empyemas for experimental therapeutic or other studies.

Effect of Prolonged Pneumothorax on Tuberculosis.—Prolonged artificial pneumothorax in rabbits sufficient to induce good collapse of the right lung, initiated shortly after the intravenous injection of a suspension of virulent human tubercle bacilli and maintained for a period of a month by means of the intrapleural injection of air every second or third day throughout the experimental period, had no appreciable effect on the size or number of macroscopic tubercles found by Corper and Rensch in the lungs of the treated animals as compared to the untreated, or in the compressed right lungs as compared to the noncollapsed left lung.

Sodium Morrhuate in Tuberculosis.—Twenty-five patients were treated by Biesenthal with sodium morrhuate. A 3 per cent. solution in sterile water with 0.5 per cent. phenol was made. Placed in a sterile bottle and sealed with a rubber cap, the product was then again sterilized in an autoclave. An initial dose of 0.125 c.c. was given subcutaneously. This dose was increased by 0.125 c.c. in semiweekly injections until a dose of 1 mil was reached. Then only a single injection was given each week. In addition to the drug each patient received the usual routine of sanatorium care. As a result of his work Biesenthal agrees with Rogers that sodium morrhuate is not a specific for tuberculosis. But he does not agree with Rogers that in the use of the drug we have the best line of treatment for tuberculosis in general. The drug does not seem to have any beneficial action on the reduction of temperature. One patient suffered a pulmonary hemorrhage while under treatment. No special or serious reactions were noted.

Annals of Surgery, Philadelphia

December, 1920, 72, No. 6

*Multiple Polyposis of Intestinal Tract. J. E. Struthers, Rochester, Minn.—p. 649.
*Case of Diaphragmatic Hernia Observed Postmortem. L. F. Huffman, Cleveland.—p. 665.
*Hernia of Diaphragm. F. S. Mathews and H. M. Imboden, New York.—p. 668.
Direct Inguinal Hernia. J. P. Hoguet, New York.—p. 671.
Development of Inguinal Hernia Through Femoral Ring Following Descent of Testicle by Same Route. A. M. Fauntleroy, U. S. Navy.—p. 675.
*Operation to Form New Anal Sphincter After Operations on Lower Rectum. A. J. Brown, Omaha.—p. 676.
Technic of Partial Colectomy by Mikulicz Two-Stage Method. C. N. Down, New York.—p. 681.
*Primary Carcinoma of Vermiform Appendix in Sisters Suffering from Tuberculosis. A. Primrose, Toronto, Can.—p. 690.
Radical Operation in Cases of Advanced Cancer. J. W. Churchman, New York.—p. 698.
Radium in Treatment of Carcinoma of Cervix Uteri. E. H. Risley, Boston.—p. 701.
Bone Tumors. Myxoma, Central and Periosteal. J. C. Bloodgood, Baltimore.—p. 712.
*Three Cases of Hypophysial Duct Tumors and a Fourth Case of Cyst of Rathke's Pouch. W. C. Duffy, New Haven, Conn.—p. 725.
War's Contribution to Civil Surgery. B. J. Lee, New York.—p. 758.
Sehrt's Metal Touriquet for Producing Artificial Anemia. W. Meyer, New York.—p. 763.

Multiple Polyposis of Intestinal Tract.—Thirty-nine cases of this condition are analyzed by Struthers. All but five had periods of diarrhea later; these included two patients with constipation, two with abdominal distress, and one with diagnosis of duodenal ulcer. Constipation, although the chief complaint on admission in all but one case, was marked in one patient with general abdominal pain, in one with marked rectal pain, and in a patient with frequency of urination. Fifteen of the patients had some rectal complaint, although it was an early symptom in but eight. In the more severe cases in which the colon and rectum were extensively involved by polyposis, the onset of the disease was gradual, with but few exceptions becoming progressively worse over a period of many years. Thirty cases were diagnosed multiple polyposis. In twenty-eight there were positive proctoscopic findings, two by means of the roentgen-ray, one a case of gastric polyposis, and one a case of multiple polypi of the descending colon with filling defect. In three of the remaining cases a probable clinical diagnosis of multiple polypi was made. Twenty-two of the thirty-nine patients came to operation. The Brown was the primary operation in ten cases. In one other case it was secondary to a colostomy performed elsewhere; in two cases it was followed by an ileocolostomy; in two by a colectomy; in two by an ileosigmoidostomy; and in four there was no second-stage operation. There were four primary ileocolostomies; two colectomies with the exception of 12 inches of the sigmoid and rectum; one was a permanent ileostomy; one was a complete colectomy with removal of 5 inches of the lower ileum, and permanent ileostomy; one was a Mikulicz first and second stage operation; one was a Kraske, secondary to a colostomy; one was an appendicostomy; one was a Desquin-Mixter midline cautery operation, and one was a partial resection of the stomach and removal of three fifths of the pylorus. Nineteen of the twenty-two cases of intestinal polyposis treated surgically are accounted for, with a mortality of nine (47.34 per cent.). Questionnaires were sent to fourteen medical patients and replies were received from twelve. Four reported that they were so markedly improved that they consider themselves well; three simply reported they are improved; one is unimproved and one is growing progressively weaker.

Diaphragmatic Hernia.—The case reported by Huffman is one of true diaphragmatic hernia occurring through a congenitally weak esophageal opening. The gastrohepatic omentum, lesser curvature, cardia and finally all of the stomach except the pylorus were herniated into the chest.

Diaphragmatic Hernia.—The hernial opening in Mathews and Imboden's case was the enlarged esophageal one. Two mattress sutures of heavy chromic gut were placed at the anterior margin of the ring. The ring was at least 2 inches in diameter and by means of the stitches seemed to be considerably narrowed. The stomach was then sutured to the whole length of the abdominal incision. The result was wholly satisfactory.

Making New Anal Sphincter.—By means of the operation described by Brown, the lower 6 inches of the rectum can be removed by the perineal route and a new sphincter which will function can be formed from the levator ani muscles. Cases of carcinoma suitable for operation by this route can he says be relieved with less danger to life than by the combined operation, and patients subsequently live in comparative comfort.

Carcinoma of Appendix in Sisters.—Two cases of primary carcinoma of the appendix occurring in sisters, both of whom suffered from tuberculosis are reported by Primrose. In one case the patient had pulmonary tuberculosis and the other had primary tuberculosis of the fallopian tubes. Both patients made good recoveries from the operations performed.

Hypophysial Duct Tumors.—Duffy reports three cases of hypophysial duct tumors and a case of cyst of Rathke's pouch. He also reviews the literature.

Canadian Medical Association Journal, Toronto

December, 1920, **10**, No. 12

*Roentgen-Ray Study of Liver Atrophy. G. S. Strathy, Toronto.—p. 1073.
Abscess of Lung. W. S. Lemon, Rochester, Minn.—p. 1079.
Pulmonary Abscess. J. E. Lehmann, Winnipeg.—p. 1090.
Surgical Tuberculosis. F. N. G. Starr, Toronto.—p. 1096.
*Treatment of Diabetes Mellitus. E. H. Mason, Montreal.—p. 1105.
Study of Colon by Opaque Enema. L. J. Carter, Brandon.—p. 1112.
Bleeding Uterus; Its Pathology, Diagnosis and Treatment. A. C. Hendrick, Toronto.—p. 1122.
Epidemic Spinal Meningitis Complicated by an Intercurrent Attack of Measles. W. K. Hall, Vancouver.—p. 1131.

Liver Atrophy.—Strathy suggests that atrophy of the liver is commoner than is generally believed. He has found it in cases of catarrhal jaundice as well as in arsenical poisoning jaundice. It is recognized that many cases of chronic dyspepsia are slight cases of atrophic cirrhosis and this may be diagnosed by roentgen-ray examination only when the liver shadow is carefully studied. In studying the liver shadow, more attention should be directed to the width from right to left, than to the depth from above downward, and decrease in the transverse diameter is usually shown by the acute hepaticovertebral shadow, the appearance of the stomach bubble closer to the middle line than normal and the lower border of the liver shadow becoming more nearly vertical than normal.

Treatment of Diabetes Mellitus.—One hundred and fifty-three cases of diabetes mellitus treated in the metabolism clinic of the Royal Victoria Hospital form the basis of Mason's paper. A method of treatment has been used which has given more uniformly satisfactory results than any previous one. It is based largely on one used in the hospital of the Rockefeller Institute for Medical Research. The plan is to give a so-called observation diet which is simply a diet on which an idea of the severity of the case can be obtained. It contains enough protein to maintain nitrogen equilibrium in an adult at rest with an intake of 25 calories per kilogram body weight. It is usually continued for three days' duration. The next step is to free the patient from glycosuria, lowering the blood sugar to normal. This is accomplished by cutting the observation diet in half, then one quarter, and then fasting. During this latter period patients receive three times boiled vegetables, bran cakes, made from washed bran and agar-agar, and chicken broth diluted with the fat skimmed off. Very few patients tend to develop any acidosis by this method of approaching starvation, and it is less time consuming than Joslin's method. The carbohydrate tolerance is determined on green vegetables. It is continued until there is glycosuria two days in succession with the same intake of carbohydrate. After the carbohydrate tolerance has been determined the next thing to do is to free the patient from glycosuria, which is invariably easily accomplished by one day's fast. Then the patient is built up to the trial maintenance diet, through two or three graded stages. This diet is often sufficient to maintain nitrogen equilibrium in many adults. If the blood sugar permits, supply 30 calories per kilogram body weight. This is the stage at which most patients are discharged from the hospital, when they are in nitrogen equilibrium, free from glycosuria, and with their blood sugar as near normal as possible. On discharge each patient is supplied with a unit equipment consisting of a gram scale, a 100 c.c. measuring graduate, the urinalysis equipment and solutions. They are also kept supplied with a printed weekly report sheet on which they note their daily volume output of urine, its glucose content, the ferric chlorid reaction, and the grams of protein, fat, and carbohydrate eaten. This report sheet has been found to be most valuable by Mason and others who have used it in the intelligent following of the case.

Georgia Medical Association Journal, Atlanta

December, 1920, **10**, No. 7

Traumatic Rupture of Bladder Through Rectum. Round Worms in Appendix. F. K. Boland, Atlanta.—p. 181.
Importance of Determining Casual Factors in Mental Diseases. J. N. Brawner, Atlanta.—p. 183.
Some Essential Factors in Infant Feeding. M. M. McCord, Rome.—p. 186.
*Epidemic Encephalitis. L. M. Gaines, Atlanta.—p. 190.
Significance of Hemoptysis. E. W. Glidden, Alto.—p. 194.
Toxic Goiter; Diagnosis. R. L. Rhodes, Augusta.—p. 198.
Treatment of Chronic Osteomyelitis. W. L. Thornton, Atlanta.—p. 203.

Epidemic Encephalitis.—Gaines reports six cases of this disease which has been prevalent in Georgia since 1918. He also reviews its clinical history and course. He cautions the general practitioner to suspect epidemic encephalitis when there is headache, ocular palsies and diplopia, with slight fever and insomnia followed by lethargy. He agrees with other observers that in many atypical cases the diagnosis is difficult and may be only a surmise.

Iowa State Medical Society Journal, Des Moines

Dec. 15, 1920, **10**, No. 12

Psychiatry and General Practitioner. M. E. Witte, Clarinda.—p. 399.
Roentgen Ray in Diagnosis of Sinus Disease. S. B. Chase, Fort Dodge.—p. 404.
Sequels of Infectious Diseases of Childhood. J. S. Gaumer, Fairfield.—p. 408.
Anesthetist and His "Power of Attorney." R. M. Waters, Sioux City.—p. 413.
Back Pains. P. E. Gardner, New Hampton.—p. 415.
Arthritis Deformans. K. H. Bock, Dowagiac, Mich.—p. 419.

Journal of Infectious Diseases, Chicago

December, 1920, **27**, No. 6

*Hemorrhagic Meningo-Encephalitis in Anthrax; Report of Three Cases. S. J. House, Chicago.—p. 513.
*Fate of India Ink Injected into Blood. K. Nagao, Chicago.—p. 527.
Fermentation of Xylose by Bacteria of Aerogenes, Paratyphoid B. and Typhoid Groups. E. B. Fred and W. H. Peterson, Madison, Wis.—p. 539.
*Transmission of Specific Immune Bodies from Mother to Young. K. M. Howell and H. Erby, Chicago.—p. 550.
*Blood Changes and Antibody Production in Human Beings After Injection of Pneumococcus Lipovaccine. K. M. Howell, Chicago.—p. 557.
*Production by Streptococcus Hemolyticus of Agglutinin for Red Corpuscles which Inhibits Hemolysis. K. M. Howell, Chicago.—p. 565.
Comparison of Antigens for Bacterial Complement Fixation. K. M. Howell, and R. Anderson, Chicago.—p. 569.
Practical Method in Purification of Obligate Anaerobes. I. C. Hall, Chicago.—p. 576.
*Testing of Germicidal Substances Against Gonococcus. D. M. Davis and E. O. Swartz, Baltimore.—p. 391.
*Thermal Death Point in Relation to Time of Typical Thermophilic Organisms. W. D. Bigelow and J. R. Esty, Washington, D. C.—p. 602.
Epidemiology of Hemolytic Streptococcus Carriers, Based on a Study of Subgroups. J. E. Walks, Washington, D. C.—p. 618.

Hemorrhagic Meningo-Encephalitis in Anthrax.—A number of cases of anthrax have occurred in Chicago recently, many of them among workers in the "curled hair" industry. In at least three of these cases there were brain complications and in two of the three anthrax was not suspected until after death. It seems reasonable therefore, to suspect that from time to time similar cases may go unrecognized. In an effort to eliminate such a possibility House urges that a careful microscopic and bacteriologic study should be made of every bloody spinal fluid, provided one is certain that the blood is not a contamination; and especially should this be done if there are symptoms of cerebral irritation. These cases can be easily recognized at necropsy by the soft, red viscid brain, especially if there is a history of an acute illness not resulting from trauma. On account of the large quantity of blood which is sometimes present it would be easy for one who had not seen such brains to attribute the cause to trauma, but this may be avoided by recognizing the inflammatory quality of the changes and by checking up with stained smears of the exudate. The lesions in the brain in anthrax are essentially extravascular, meningo-encephalitic, and the acute hemorrhagic nonpurulent nature of the inflammation with destruction of tissue by edema is similar to that produced by anthrax in other places of the body. With suitable stains large numbers of bacilli may be found in these lesions. The infection of one of the brains of this series was evidently by the hematogenous route, first, because the primary focus was so far removed (intestine) and second, because of the finding of small bacillus-containing foci of edema and dissection along the vasa vasorum of the leptomeningeal vessels.

Fate of India Ink Injected Into Blood.—Nagao found that when a suspension of India ink is injected into the blood the mucous membranes and spleen become black and remain so for variable lengths of time, depending on the amount injected. Free granules are present in the blood for several hours when large quantities are injected, but disappear sooner after smaller quantities. Ink granules are deposited regularly in the endothelial cells of the liver, spleen and marrow and in the splenocytes, and are eventually gathered together in accumulations of considerable extent. In the liver the granules are passed along from the centers to the borders of the acini and into Glisson's capsule. In the spleen the granules are accumulated irregularly, often at the outskirts of, or in, the malpighian bodies. In the marrow there is no special arrangement of the granules. In the peritoneum and in the osteal canals, granules appear in the later stages after the injection, some perhaps reaching in the lymph spaces from the marrow. After large injections, osteoblasts and osteoclasts may take up granules. Only a small number of granules appear in the suprarenals, kidneys and lungs. In the earlier stages there usually are few granules in the lymph node but after some time granules appear regularly in certain nodes (cardiac, hepatoduodenal, jugular) which may be quite black. Few granules are generally deposited in the blood vessles and more in the venous than in the arterial vessels. After large doses granules are found in the endocardial cells. In late stages after the injection connective tissue and other cells in various parts of the body may contain granules, but without any regular distribution. In the blood polymorphonuclears and mononuclears take up granules; large lymphocytes do so only occasionally. After the injection a considerable number of erythroblasts appear in the blood, especially after large doses; the number continues to increase for about six hours when there is a rapid drop, normal conditions being reached in about a week or so. Various abnormal cells also appear in the blood, often containing granules, and sometimes granules are found in erythroblasts. The eosinophils and mast cells do not take up granules.

Transmission of Specific Immune Bodies.—Howell and Eby state that antisheep and antihuman hemolysin was decreased in immunized rabbits after parturition. The serum of their offspring contained hemolysin, but in lesser amounts than in the immune mother. There was little hemolysin in the serum of the young at the end of the sixth week and none at the end of the eleventh week. Complement-fixing antibodies almost disappeared from the serum of three of the immune mothers after parturition. The results of these experiments do not indicate whether the young receive a passive immunity from the immune mother or whether they receive antibodies from the mother's milk.

Blood Changes and Antibody Production After Injection of Pneumococcus Lipovaccine.—Howell's work shows that after the injection of pneumococcus lipovaccine there was a slight rise in the polymorphonuclear leukocytes and in the eosinophils. There was a definite rise in agglutinin in three serums examined in from eleven to twelve days. The height of agglutinin titer was reached on the twenty-fifth, thirty-first and fifteenth days, respectively. The agglutinin titer remained high for No. 1 for three months (last observation); for No. 2 for six months (last observation); for No. 3 for nine months. Demonstrable agglutinin was present in seven persons for at least one year. Complement fixing antibodies were present in the serum of three men examined on the fourteenth, seventh and fifteenth days, respectively. The height was reached in twenty-five days, and all three serums showed some degree of fixation in the last test made on each serum. Protective bodies for pneumococcus types 1, 2 and 3 were demonstrable in some degree in the three serums at the time the agglutinin titer was high. There was no apparent correlation between the clinical history, the blood count, and the antibody content.

Streptococcus Hemolyticus Agglutinin.—The streptococcus considered by Howell appeared to be a typical *Streptococcus hemolyticus* when it was cultivated on blood-agar medium, but it had the peculiar quality of agglutinating instead of laking red blood cells when it was grown in broth medium. The tests noted suggest that the agglutinin for red blood corpuscles was an exogenous product of the bacterial cell and that hemolysin was probably present, but that its action on corpuscles, for some reason not determined, was inhibited by the agglutinin present. Agglutinin production was a transient quality of this streptococcus strain, since it was present in an appreciable amount for only six weeks.

Germicidal Tests with Gonococcus.—A new, practical and reliable method for making germicidal tests with the gonococcus as the test organism is presented by Davis and Swartz.

Determining Thermal Death Point.—A new method for determining the thermal death point of resistant spore-bearing bacteria at high temperature, which gives accurate results, is described by Bigelow and Esty.

Larygoscope, St. Louis

November, 1920, **30**, No. 11

Popular Fallacies in Practice of Otology. G. E. Shambaugh, Chicago. —p. 683.
Ethmoidal Problem. R. H. Skillern, Philadelphia.—p. 687.
Cavernous Sinus Thrombosis Following a Secondary Mastoidectomy. J. A. Robinson, New York.—p. 695.
Surgical Requirements of Nasopharyngeal Adenoid. J. W. Jervey, Greenville, S. C.—p. 697.
Control of Lung Abscess Following Tonsillectomy and Retropharyngeal Abscess. The Suction Dissector. C. B. Walker, Springfield, Mass.—p. 701.
Tonsil Facts. T. M. Stewart, Cincinnati.—p. 706.
Voice and Speech; A Neglected Medical Study. J. J. Levbarg, New York.—p. 711.
Fluoroscopic Bronchoscopy, Esophagoscopy and Gastroscopy. R. C. Lynch, New Orleans.—p. 714.
Infections Following Operations of Nose and Throat. H. Kunz, New York.—p. 717.
Difficulties Encountered in Removing a Peanut from a Bronchus. W. B. Chamberlin, Cleveland.—p. 719.
New Bronchoscope. A. E. Goodloe, Chattanooga, Tenn.—p. 723.
Sterilization for Atomizers, etc. I. F. Shapiro, New York.—p. 726.
Case of Carcinoma of Middle Ear. J. Guttman, New York.—p. 727.

Medical Record, New York

Dec. 25, 1920, **98**, No. 26

Influence of Radioactivity in Treatment of Hypertension. C. E. Field, New York.—p. 1051.
Hypothyroidism; Twenty-Six Years' Supplemental Thyroid Feeding. D. B. Hardenbergh, Middletown.—p. 1054.
Surgical Aspects of Pleurisy. J. F. Van Paing, Chicago.—p. 1057.
Pure Aphasias à Propos of Case of Pure Alexia. A. Gordon, Philadelphia.—p. 1059.
Bacterial Flora of Tuberculous Sputum. J. E. Strobel, Hartford, Conn.—p 1060.
Phimosis and Guillotine; New Instrument for Circumcision. C. T. Stone.—Brooklyn.—p. 1061.

Jan. 1, 1921, **99**, No. 1

*Injuries to Ankle Joint and Their Treatment. M. B. Cooperman, Philadelphia.—p. 1.
Roentgen-Ray Pathology. A. J. Pacini, Washington, D. C.—p. 6.
Logical Cause, Pathology and Treatment of Brain Lesions. A. Kahn, New York.—p. 8.
Psychiatry and Psychoanalysis. J. Smith, Brooklyn.—p. 11.
Gonorrhea in Women. A. Jacoby, New York.—p. 14.
*Hernia of Pleura Complicating Spontaneous Pneumothorax. H. E. Hale, New York.—p. 16.

Treatment of Ankle Joint Injuries.—In the treatment of muscular attachments, Cooperman says, the object should be to get rid of the effusion which separates the torn ends of tissues and so allow them to come into their proper position; also to prevent any movement of muscular effort from stretching or tearing the newly repaired tissues and so making the condition chronic. This is done by applying a pad of adhesive plaster over the effusion and a similar pad on the tendon just above the inflamed area, a bandage being applied over these. In chronic strains of this kind, treatment must be directed in encouraging a free flow of blood to and through this area. This is accomplished by massage and alternating applications of hot and cold water (contrast baths). In the treatment of chronic ankle sprains, where the foot has assumed positions of deformity, it is sometimes necessary to give an anesthetic, manipulate and break up adhesions, tenotomize contracted tendons, and bring the foot around to its normal relation to the leg. The foot is fixed in the correct position in a plaster-of-Paris cast. After a period of two or three weeks, the cast is removed and a light brace to restrain lateral movements is temporality applied or a pair of shoes are wedged and furnished with arch supports. These cases should be baked and manipulated regularly for a time if they show any evidence of arthritis. All foci of infection in distant parts of the body must be searched for and treated.

Hernia of Pleura Complicating Pneumothorax.—Hale's patient was a man, 36 years of age. He had pulmonary tuberculosis with left, spontaneous pneumothorax. In the patient's back there was a semilunar tumor. It extended downward along the vertebral border of the left scapula, from a point about 8 cm. above the inferior angle, and upward and outward 9 cm. from the same angle. It was soft, compressible, though under some tension. To percussion it was resonant. It could be reduced almost entirely only to reform when pressure was removed. Coughing hastened the filling out and caused a perfectly plain impulse. This was evidently an air-filled, hernial sac of the pleura. This patient did not feel very ill and left after a few days in the ward. Hale has failed to find a similar case on record.

Michigan State Med. Society Journal, Grand Rapids

December, 1920, **19**, No. 12

Etiology of Bright's Disease. L. H. Newburgh, Ann Arbor.—p. 533.
Pathologic Physiology of Nephritis. A. R. Elliott, Chicago.—p. 533.
Therapeutics of Nephritis. W. E. Post, Chicago.—p. 539.
Epidermophytosis. R. C. Jamieson, Detroit.—p. 546.
Choice of Cataract Operation. W. R. Parker, Detroit.—p. 550.
Case of Acute Fibrinous Bronchitis. W. H. Marshall, Flint.—p. 552.
Treatment of Neoplasms. C. D. Brooks and W. R. Clinton, Detroit.—p. 553.
Present Status of Abdominal Cesarean Section in Michigan. A. MacKenzie Campbell, Grand Rapids.—p. 556.
Thyroid Glands: Metastasizing Effects. A. McLean, Detroit.—p. 558.

New Jersey Medical Society Journal, Orange

December, 1920, **17**, No. 12

Pulmonary Tuberculosis and Conditions Simulating It. S. B. English, Glen Gardner.—p. 401.
Gastrospasm; Clinical and Roentgenologic Study. J. Roemer, Paterson.—p. 405.
Diverticulosis of Cecum. M. W. Reddan, Trenton.—p. 409.
Ideals, Aims and Importance of an Academy of Medicine. C. B. Moulinier, Milwaukee, Wis.—p. 411.
Physician as Citizen. C. E. Humiston, Chicago.—p. 416.
Radium Burn of Vagina Resulting in an Ileovaginal Fistula. T. W. Harvey, Orange.—p. 418.
Uterine and Tubal Pregnancy Coexisting, Complicated by Miscarriage and Intraperitoneal Rupture. H. G. Macdonald and D. A. Curtis, Hackensack.—p. 418.
Thoracic Tumor Mistaken for Aneurism. H. I. Goldstein, Camden. p. 419.

New Orleans Medical and Surgical Journal

December, 1920, **73**, No. 6

Most Probable Causes of Mental Diseases. C. V. Unsworth, New Orleans.—p. 193.
Dementia Praecox. E. McC. Connely, New Orleans.—p. 195.
Clinical Versus Laboratory Findings in Syphilis of Nervous System. C. S. Holbrook, New Orleans.—p. 199.
Paranoia and Allied Psychoses. W. J. Otis, New Orleans.—p. 203.
Senile Psychoses. H. Daspit, New Orleans.—p. 206.
Feeblemindedness. G. F. Roeling, New Orleans.—p. 209.
General Treatment of Nervous Disorders. L. L. Cazenavette, New Orleans.—p. 218.
Medicolegal Aspect of Insanity to Medicine. J. A. O'Hara, New Orleans.—p. 223.
Methods of Examination. L. V. Lopez, New Orleans.—p. 226.

New York Medical Journal

Dec. 25, 1920, **112**, No. 26

*Variation in Rate of Infant Mortality in United States Birth Registration Area. R. Pearl, Baltimore.—p. 1009.
Infant Mortality in Watertown, N. Y. I. W. Brewer, Watertown, N. Y.—p. 1014.
Unappreciated Agencies in Defective Development of Children. C. G. Kerley, New York.—p. 1016.
Mental Health of Child. C. E. Carter, Los Angeles.—p. 1018.
Lumbar Puncture in Diseases of Children. H. Apfel, Brooklyn.—p. 1021.
Middle Ear Disease in Children. J. Friedman and S. D. Greenfield, Brooklyn.—p. 1024.
Weak Foot in Child. H. Scheimberg, Brooklyn.—p. 1026.
*Congenital Megacolon (Hirschsprung's Disease). J. Popper, New York.—p. 1030.
Physical Signs of Pneumonia in Children. S. A. Blauner, New York.—p. 1032.
*New Site for Smallpox Vaccination. I. H. Goldberger, New York.—p. 1035.

Jan. 1, 1921, **113**, No. 1

Operation for Renal Calculi. H. A. Kelly, Baltimore.—p. 1.
Dangers to Life Associated with Cholelithiasis and Their Prevention. B. T. Tilton, New York.—p. 4.
Pathogenesis and Physiopathology of Gallbladder and Biliary Tract Lesions. V. A. Lapenta, Indianapolis.—p. 5.
Treatment of Salivary Fistulas by Massage and Hot Air. P. Kouindjy, Paris.—p. 8.
Gastric Ulcer and Cancer. J. W. Shuman, Sioux City, Ia.—p. 10.
Acid Gastritis. R. H. Rose, New York.—p. 12.
Mouth from a Gastroenterologic Viewpoint. L. H. Levy, New Haven, Conn.—p. 14.
Some Upper Abdominal Truths and Fallacies. M. Behrend, Philadelphia.—p. 17.
Cryptitis and Hypertrophied Papillae as Causes of Pruritus Ani. J. F. Saphir, New York.—p. 19.
Excision of Cancerous Rectum Through Vaginal Section. C. J. Drueck, Chicago.—p. 21.
Colon Injury in Nephrectomy. W. Van Hook, Chicago.—p. 23.
Soul of Consumptive. S. A. Knopf, New York.—p. 24.

Infant Mortality in United States Registration Area.—Pearl's paper is a first biometric survey of the infant mortality statistics of the recently established birth registration area, and is preliminary to certain analytical studies of the problem of infant mortality now in progress in the laboratory of the department of biometry and vital statistics of the school of hygiene and public health of Johns Hopkins University. A special preliminary analysis of the data for cities over 100,000 population, and the registration states, indicates that causes of death capable of administrative control are chiefly responsible for the variation observed in the infant mortality rate, while those causes of infant deaths which, for fundamental biologic reasons, are capable of being sensibly influenced or controlled at the present time by administrative measures, are a highly stable and constant factor, from community to community contributing little to the observed variability of the total infant mortality rate. In absolute terms, however, these causes of death not administratively controlled are responsible, roughly, for 40 per cent. of the total infant mortality in the communities discussed.

Congenital Megacolon in Twins.—One of twins, aged 4 days, was the subject of Popper's report. The other twin had died shortly before Popper arrived at the patient's home. However, from the previous history and from a superficial inspection of the dead twin, he was convinced that death was due to the same malady from which the live twin was suffering. From birth on the history was one of progressive intestinal obstruction, the symptoms and signs being identical in both cases up to the fourth day. Neither infant had passed meconium nor expelled flatus since birth, in spite of cathartics, enemas and various other measures. After the first day attempts at nursing were unsuccessful, and even water was not retained. Vomiting steadily increased and on the third day the vomitus consisted of black stained fluid. Weakness, loss of weight and distention soon became quite marked. On the fourth day the distention had assumed such proportions as to interfere with the cardiac action, with resulting cyanosis and, in the case of one of the twins, death. Inspection of the live twin revealed an infant practically in a moribund state, markedly cyanosed, the abdomen tremendously enlarged, breathing shallow, extremities cold, radial pulse imperceptible, heart rapid and feeble; temperature, 96 F. Popper experienced a slight difficulty in passing the anal sphincter, and after the thermometer was within the bowel it seemed that the gut was unusually roomy. Popper then withdrew the thermometer and in its place inserted a glass test tube about four and one half inches long and three eighths of an inch in diameter. This tube also had to be forced through the anal sphincter. Exerting considerable pressure on the distended abdomen, a large amount of fluid mixed with meconium and gas was expelled past the tube. This treatment was continued until the abdominal distention was almost completely reduced. The relief experienced by the infant was immediately apparent, the heart action improved, the cyanosis cleared up, the breathing became deeper, and within less than an hour water was retained by mouth and the baby even made an attempt to take the breast. The diagnosis was verified by fluoroscopic examination as well as by a roentgenogram made when the baby was 16 days old. The baby is now 28 weeks old. The only measures that have succeeded in keeping this baby comfortable thus far are a proper diet, an abdominal binder, and the daily use of saline or sodium bicarbonate irrigations assisted by abdominal massage.

New Site for Vaccination.—Goldberger uses the inner and back side of the arm as the ideal site for vaccination against smallpox to overcome the objection against a visible scar.

New York State Journal of Medicine, New York

December, 1920, **20**, No. 12

*Diagnosis in Sterility. E. Reynolds and D. Macomber, Boston.—p. 373.
Diagnosis of Cholecystitis and Indications for Cholecystectomy. A. E. Garrow, Montreal.—p. 381.
Abduction Treatment of Fracture of Neck of Femur. R. Whitman, New York.—p. 386.
*Value of Position in Operative Treatment of Inguinal Hernia. H. H. M. Lyle, New York.—p. 389.
Problems Encountered in Attempting to Apply Insurance Methods to Sickness Hazard. E. MacD. Stanton, Schenectady.—p. 390.
*Report of Committee on Compulsory Health and Workmen's Compensation Insurance of Medical Society of County of New York. E. V. Delphey, New York.—p. 394.

Operating for Sterility.—Reynolds and Macomber condemn strongly the far too common step of persuading a woman into an operation for the correction of an abnormality on the basis that it may be the cause of sterility, without having taken the trouble or acquired the skill to determine with such degree of accuracy as is at present possible whether this particular abnormality is or is not the cause of sterility which exists between her and her husband.

Position in Herniotomy.—Lyle operates with the patient in the customary dorsal position. On completion of this stage, the patient is placed in a position of relaxation with the limbs flexed and rotated inward. This relaxes Poupart's ligament and reduces the distance between the ligament and the conjoint tendon. The reduction in distance varies in different patients from 20 to 70 per cent., the average being 35 per cent. The approachment of these parts is further facilitated by raising the head and shoulders of the patient, which relaxes the rectus and the abdominal wall. In the slighter forms of hernia the gap is almost obliterated. In hernial operations done under local anesthesia this position aids in combating muscular tension. To insure relaxation during the period of healing, the position is maintained for at least seven days.

Compulsory Health and Workmen's Compensation Insurance.—The committee of which Delphey is chairman, recommends to the legislature the passage of certain proposed amendments to the Workmen's Compensation Law, and that the Medical Society of the County of New York oppose further health insurance bills, the scheme for "health centers" because the committee believes, as the result of a survey, that they are not needed.

Pennsylvania Medical Journal, Harrisburg

December, 1920, **24**, No. 3

Rectal Drainage for Pelvic Abscess. R. M. Entwisle, Pittsburgh.—p. 128.
Abdominal Drainage. A. E. Crow, Uniontown.—p. 129.
Cecal Stasis and Its Relationship to Appendicitis. R. J. Behan, Pittsburgh.—p. 130.
Appendicitis in Children; Study Based on Five Hundred Cases. E. G. Alexander, Philadelphia.—p. 135.
Outlook of Chronic Nephritis. J. M. Anders, Philadelphia.—p. 142.
Mastoiditis in Children. F. Krauss, Philadelphia.—p. 147.
Industrial Physician. J. W. Ellenberger, Harrisburg.—p. 151.
Tonsils Considered from Viewpoint of Specialist and General Practitioner. H. M. Goddard, Philadelphia.—p. 153.

Rhode Island Medical Journal, Providence

December, 1920, **3**, No. 12

Wider Use of Tuberculosis Clinics and Hospitals. E. Washburn, Providence.—p. 229.

Southern Medical Journal, Birmingham, Ala.

December, 1920, **13**, No. 12

Syphilis as Problem in Group Diagnosis. A. Keidel and J. E. Moore, Baltimore.—p. 857.
*Circulation in Infectious Diseases. G. Nelson, Richmond, Va.—p. 861.
Practical Importance of Effort Syndrome in Civil Practice. H. R. Carter, Birmingham.—p. 865.
*Diarrhea Resulting from Biliary Insufficiency. W. H. Lewis, Rome, Ga.—p. 868.
Herpetic Sore Throat. J. Zahorsky, St. Louis.—p. 871.
Yellow Fever: Its Distribution and Control in 1920. W. C. Gorgas, H. R. Carter and T. C. Lyster.—p. 873.
Relationship of Alcohol to Modern Health Ideals. E. L. Fisk, New York.—p. 880.
Laboratory Phase of Public Health Work. W. H. Seeman, New Orleans.—p. 885.
*Bone Tumors: Benign Bone Cysts and Osteitis Fibrosa. J. C. Bloodgood, Baltimore.—p. 888.
Rôle of Obstructive Lesions of Ureter in Production of Recurrent or Persistent Pyelitis. J. N. Baker, Montgomery, Ala.—p. 898.
Abnormal Uterine Bleeding. R. E. Wobus, St. Louis.—p. 902.
Fee Splitting. S. H. Hodge, Knoxville, Tenn.—p. 905.

Circulation in Infectious Diseases.—The indications for the use of atropin, Nelson states, are fairly definite. It should be used in that group of cases where the circulatory disturbances, such as fluctuating blood pressure, alternate flushing and pallor, or other symptoms indicate vagotonia. The result in this group of cases from the use of atropin in large enough doses, such as 1/50 grain hypodermically, every four hours, are quite as graphic as a speedy response to properly used digitalis. Strychnin has no place in the management of circulatory disturbances, except to the extent that it acts as a general muscular tonic. In all cases where rapid heart action is a conspicuous feature the ice bag over the precordium is indicated.

Biliary Insufficiency Causing Diarrhea.—Lewis's patients were all adults—in three instances with no antecedent digestive nor bowel disburbance of any moment, nor history in any way suggestive of gallbladder disturbance at any time in their lives; and in four never jaundice nor acute abdominal attacks. With no evident exciting factor they were taken within the course of a few days with abdominal uneasiness, rumbling and gas accompanied by frequent semiformed or semiliquid bowel movements. These increased to as many as from ten to fifteen in twenty-four hours and were absolutely indifferent to diet, fasting or medication. The stools were grayish and offensive, never a normal color and undigested elements were grossly evident. In spite of the intake of a reasonable amount of food, weakness and emaciation became rapidly marked, in several months as much as from forty to sixty pounds being lost. Consideration of the intestinal physiology in the original instance suggested to Lewis that the condition was due to perverted bowel digestion. Acting on this hypothesis, in the lack of all other reasonable evidence, the patient was given ox gall at regular periods with and after food. The result was immediate and remarkable. The bowel movements within forty-eight hours became of almost normal consistency, resumed a natural color, were reduced to two or three in twenty-four hours; all abdominal distress disappeared; and, in fact, the entire disturbances ceased. From 30 to 60 grains of ox bile was administered in twenty-four hours. The first patient could not for over a year discontinue the bile without the return of the diarrhea, at the end of which time she was lost track of. The recent cases are still on bile feeding.

Bone Tumors.—Bloodgood summarizes the salient features based on recent experience with benign bone cysts and osteitis fibrosa and describes especially the differential diagnosis at the exploratory incision. The paper is supplementary to one published in 1910 and two critical reviews made by the author since 1899.

Tennessee State Medical Ass'n Journal, Nashville

December, 1920, **13**, No. 8

Hodgkin's Disease; Case of Pel-Ebstein Type. W. H. Cheney and F. B. Bogart, Chattanooga.—p. 281.
Tuberculous Salpingitis. P. H. Wood, Memphis.—p. 286.
When Should a Total Hysterectomy Be Performed in Preference to Subtotal Operation? W. T. Black, Memphis.—p. 289.
Passing of Country Physician. I. A. McSwain, Paris.—p. 292.
Twenty Cases of Foreign Body in Trachea and Esophagus. H. Wood, Nashville.—p. 295.
State Care of Insane. W. S. Farmer, Nashville.—p. 297.
Traumatic Musculospiral Paralysis Complicating Fracture of Humerus. J. L. Crook, Jackson.—p. 303.
Dentigerous Cyst of Mandible. R. W. Grizzard, Nashville.—p. 308.
Lethargic Encephalitis. C. C. Turner, Memphis.—p. 309.

West Virginia Medical Journal, Huntington

December, 1920, **15**, No. 6

Some Points in the Physical Examination for Pulmonary Tuberculosis. J. W. Moore, Charleston.—p. 201.
Medical Education Provided by State of West Virginia. J. N. Simpson, Morgantown.—p. 205.
Approved Modern Methods of Anesthesia. L. D. Norris, Fairmont.—p. 212.
The Pre-operative and Postoperative Treatment of Prostatic Hypertrophy. J. C. Matthews and R. M. Bobbitt, Huntington.—p. 216.
A Thousand Babies. C. H. Maxwell, Morgantown.—p. 218.
Hydatidiform Degeneration; Report of Case. C. S. Fleming, Fairmont.—p. 223.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 11, 1920, **2**, No. 3128

*Diagnosis of Acute Abdominal Crises. A. H. Burgess.—p. 877.
*Study of Heart Disease. F. J. Poynton.—p. 882.
*Effect of Pregnancy on Size and Weight of Some Organs of Body. P. T. Herring.—p. 886.
Risks After Operation for Tonsils and Adenoids in Outdoor Clinics. E. W. Williams.—p. 887.
Diagnosis of Hydatid Disease of Lung. A. Foster.—p. 887.
Volvulus of Small Intestine Following Ileocolostomy. N. Duggan. —p. 889.
Transposition of Viscera in Two Members of One Family. S. L. Brimblecombe.—p. 889.
Pregnancy After Ligature of Fallopian Tubes. A. N. McArthur. —p. 890.
Superiority of Sodium Antimony Tartrate to Emetin in Bilharziasis. A. H. Harkness.—p. 890.
Disappearance of Radial Pulses During Inspiration. W. Edgecombe. —p. 890.

Diagnosis of Acute Abdominal Crises.—Burgess maintains that inasmuch as surgical technic has now reached such a high level of efficiency that further improvement therein cannot be relied on to better the statistical results of the surgical treatment of acute abdominal crises—such can be obtained only by earlier diagnosis on the part of the general practitioner permitting the application of such treatment at an earlier stage. The time that has elapsed between the onset of the attack and the opening of the abdomen is the real deciding factor in the ultimate issue of the case—far more so than the skill of the individual surgeon. Burgess says he infinitely prefers to meet in consultation the practitioner whose diagnosis, made in the early hours of the attack, is limited to "something gone seriously wrong in the belly," than he who, forty-eight hours later, can give a correct description of what an operation will reveal.

Study of Heart Disease.—Heart disease in the young Poynton says is the first step in the study of heart affections. All the skill and science devoted to the perfection of cardiac tonics will never make them more than heart splints; and no drug, short of one that will replace scar by healthy tissue, will ever do more than support the heart. It is to prevention that we are bound to turn—a task of much difficulty in the case of rheumatism, but with great possibilities which have not been thoroughly explored. The disease as seen in hospitals is infrequent in the well to do, and this points to careful systematic inquiry into housing and clothing and school influences. Had the same energy been expended on acute rheumatism as has been on tuberculosis and venereal affections, Poynton believes the study of heart disease would have already made substantial progress. When we are studying heart disease in childhood we are dealing with it at a stage which holds out much greater hope than later in life. If we can do good then, it may well be permanent good. Failing this, if we can prevent advance of the infective processes, we know that with increasing years the infective phase becomes less frequent. In the case of rheumatism the incidence is most frequent between the seventh and ninth years, and then it begins to decline, though still far too rifle through late childhood and adolescence.

Effect of Pregnancy on Viscera.—In the healthy albino rat which was the subject of Herring's study, the occurrence of pregnancy has little effect on the length and weight of the body, excluding the increase of weight due to the uterus and its contents. The heart, kidneys, and spleen are little affected; there is certainly no enlargement of the heart in pregnancy. The liver is greatly enlarged. The thymus undergoes rapid involution and is much diminished in size. The suprarenals are slightly hypertrophied. The thyroids are diminished in size in pregnancy, and there is a notable diminution in the weight of the pituitary, attended by histologic changes.

Glasgow Medical Journal

December, 1920, **12**, No. 6

Physiology: Institutes of Medicine. D. N. Paton.—p. 321.
Diagnostic Hints. R. Fullerton.—p. 330.
Scurvy Among Adults in Glasgow. W. J. Richard and W. D. Mackinnon.—p. 336.
Tonsil and Its Function. J. Harper.—p. 344.

Journal of Neurology and Psychopathology, London

November, 1920, **1**, No. 3

*Psychology and Medical Curriculum. C. L. Morgan.—p. 211.
Epidemic Encephalitis. T. Horder.—p. 221.
Mental Effects of Lethargic Encephalitis. G. Parker.—p. 223.
Lethargic Encephalitis. J. O. Symes.—p. 226.
An Impression of Lethargic Encephalitis. N. Neild.—p. 227.
"Epidemic" Encephalitis. C. Coombs.—p. 230.
Cases of Lethargic Encephalitis. S. J. Kerfoot.—p. 232.
Case of "Epidemic" Encephalitis. F. H. Rose.—p. 233.
Case of Lethargic Encephalitis. S. A. Tidey.—p. 235.
*Education and Its Rôle in Prevention of Neuroses. J. E. Nicole. —p. 236.
*Familial Tabes Dorsalis. J. Le F. Burrow.—p. 246.

Value of Psychology in Medical Curriculum.—Man is not only a complex physiologic system, but an equally complex psychical system—conscious, but with unconscious foundations; the medical practitioner has to deal with the man as a whole; therefore, Morgan says, in current practice some knowledge of psychology is of real value; in specialized practice it is essential. The time has come to consider whether the psychologist should not have a status on the staff of a medical school analogous to that of the physiologist. Some adequate instruction should be given to all medical students, not too early, say after they have been well grounded in physiology; and that more should be given to specialists toward the close of their curriculum, or in a postgraduate course. The work should be given by a psychologist who has been trained not only in a school of philosophy but also in a school of biology. He must not be out of touch with his colleague, the physiologist. He must know not only about the emotions but about internal secretions. And he must have adequate acquaintance with the manner in which what he teaches shall be applied in the practice of the profession. If he himself be a member of the profession, so much the better; but he must be a psychologist.

Education to Prevent Neurosis.—Nicole points out that from an educational point of view, the importance of the unconscious mind should be appreciated; its characteristics in the different types of psychologies; the significance of the primitive tendencies responsible for the faulty repressions, the signs of which must be recognized; the normal and abnormal developments of child mentality and their influence on adult character; and finally, the necessity for an individual and rational education that will help to close the wrong paths, and open up the right ones for the various sublimating processess essential to human progress and development. Moreover, it is not enough for a few people to become versed in analytical psychology in order to correct in children the faulty influences of an ignorant home education; for it is only when every one is acquainted with the psychic principles that will help toward the avoiding of developmental errors, that we may cease to do harm and perhaps do a little good.

Familial Tabes Dorsalis.—Of six surviving members in a family of eight, born of healthy parents, four have acquired undoubted syphilis from various different sources, with a resulting tabes dorsalis in all. A fifth member of the family acquired gonorrhea (syphilitic infection being doubtful), and probably has early tabes dorsalis. A sixth escaped venereal infection and remains healthy. It is suggested by Burrow that tabes dorsalis cannot be attributed to a special strain of spirochete introduced at the initial infection, but is much more likely to be due to the spirochete acting on tissues specially sensitized, either by natural family peculiarity or by certain methods of treatment.

Medical Journal of Australia, Sidney

Nov. 13, 1920, **2**, No. 20

Operative Treatment of Hemorrhoids. C. E. Corlette.—p. 449.
Ulnar Paralysis Following Indirect Violence Through Feet. K. Byrne. —p. 457.

Nov. 20, 1920, **2**, No. 21

Heart Action and Murmurs. J. M. Gill.—p. 469.
Epithelioma of Lip. P. A. Stevens.—p. 472.
Three Cases of Intestinal Obstruction. A. Aspinall, Sydney.—p. 475.

Tubercle, London

December, 1920, **2**, No. 3

Coordination of Statistics of Tuberculosis Institutions. N. Robertson —p. 97.
*Suggested Classification of Tuberculosis. W. B. Knobel.—p. 110.

Classification of Tuberculosis.—The classification suggested by Knobel is based on the presence or absence of tubercle bacilli in the sputum and the presence, absence and extent of moist sounds (crepitations).

Archives des Maladies du Cœur, etc., Paris

August, 1920, **13**, No. 8

*Spontaneous and Induced Variations in Beat with Heart Block. R. Lutembacher.—pp. 337-345.
*Erythremia with Inherited Syphilis. E. Schulmann and Weismann.—p. 354.
*Blood Pressure in Arteriosclerosis. W. Janowski (Warsaw).—p. 358.

Variations in the Rhythm in Heart Block.—Lutembacher gives some tracings to show the spontaneous variations possible with incomplete heart block. The rate may suddenly increase or slow down, although the dissociation persists unmodified. Toxic action or disturbance in circulation or nourishment is the probable explanation.

Action of Epinephrin in Heart Block.—Lutembacher found that the heart beat became accelerated at once after intravenous injection of epinephrin in two cases of complete heart block, but the block itself was not modified. After the period of acceleration, the beat was extremely retarded for several days. He noted also that the accelerated ventricle beat was often interrupted by long pauses followed by syncopes.

Vaquez' Erythremia with Inherited Syphilis.—The man of 40 showed symptoms of mild hyperthyroidism when the erythremia developed, and he as well as his ten brothers and sisters presented more or less signs of inherited syphilis. Under a course of neo-arsphenamin the numbers of red corpuscles rapidly declined from 12 million to less than 6 million, while the leukocytes kept at about the same figure, 8,000. The general condition improved also at the same time.

The Blood Pressure with Arteriosclerosis and Nephritis.—Janowski recorded the blood pressure in 200 patients with arteriosclerosis but no signs of nephritis; in 100 with nephritis but no signs of arteriosclerosis, and in 50 with both nephritis and arteriosclerosis. He regards 120 mm. mercury as the upper limit of normal pressure, and states that in 38 of the 200 with arteriosclerosis alone the maximal pressure ranged from 120 to 140, and was above this, up to 240 mm., in 107. In only 55 was the pressure within normal range, and in all but 3 in this group there were signs of disease of the heart muscle. In these 3 endocrine disturbance was probably responsible for the low pressure. External factors, tobacco, alcohol, lead and other poisonings, and chronic infections or acute infections after middle age, and factors of internal origin, such as nephritis, diabetes, hyperfunctioning of any of the endoctrine glands, prolonged severe digestive disturbance, overeating and improper food, all contribute to a stable or transient rise in the blood pressure and exaggeration of the work of the heart. These mechanical causes all raise the blood pressure, and this rise in the blood pressure is the only ultimate cause of arteriosclerosis, and hence is often the first of its symptoms.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 5, 1920, **44**, No. 33

Amyotrophic Encephalitis. Sicard and Paraf.—p. 1289.
Radioscopy of Aneurysm of Abdominal Aorta. C. Laubry.—p. 1293.
Venous Thrombosis in Chronic Hemorrhagic Conditions. P. E. Weil and M. Bloch.—p. 1295.
*Benzoin Precipitation Reaction in Syphilitic Cerebrospinal Fluid. G. Guillain, G. Laroche and P. Lechelle.—p. 1299.
*Hypertrichosis with Psychopathy. Laignel-Lavastine and A. Boutet.—p. 1303
Megaesophagus from Cardiospasm. M. Villaret et al.—p. 1314.
Improved Staining Technic with Polyeosinate of Methylene Blue. A. Cretin.—p. 1320.
Gangrenous Sore Throat Rapidly Cured with Antigangrene Serum. L. Tixier.—p. 1323.
Gangrene of Lung Rapidly Cured with Antigangrene Serum. Houzel and Sevestre.—p. 1325

Benzoin Spinal Fluid Test.—Guillain and his co-workers describe the technic for a simple benzoin precipitation test for pathologic cerebrospinal fluids. The reaction has nothing to do with the albumin or the cellular elements of the cerebrospinal fluid, but it always paralleled the Wassermann reaction in their numerous tests except in one case of brain tumor and in two cured cases of syphilis. A set of five tubes with one control tube is all that is necessary. In the first tube is placed 0.25 of a 1:1,000 solution of sodium chlorid; in the second, 0.5 c.c. and in the third, 1.5 c.c.; in all the others, 1 c.c. To the first tube is then added 0.75 of the spinal fluid, and to the second and third tubes 0.5 c.c. Then 1 c.c. of the mixture in the third tube is transferred to the fourth tube, and after thorough mixing by aspirating it several times with a pipet, 1 c.c. is transferred from the fourth tube to the fifth tube. Then 1 c.c. is drawn out of the fifth tube and thrown away. The suspension of 1 gm. of benzoin in 10 c.c. of alcohol is set aside for forty-eight hours. Then 0.3 c.c. of the supernatant fluid is transferred to a tube with 20 c.c. of distilled water, and the whole is heated to 35 C. This insures an extremely homogeneous suspension, and 1 c.c. of this is added to each of the six tubes. The decisive precipitation occurs in from twelve to twenty-four hours at room temperature. The reagents and distilled water must be freshly prepared. With syphilitic spinal fluid the colloidal benzoin is completely precipitated.

Hypertrichosis with Virilism and Psychopathy.—Extensive tests of endocrine functioning were made in the two cases reported in which the women presented full beards and the hypertrichosis involved nearly the entire body. It seemed to have some connection with exophthalmic goiter in one, and it had developed at puberty in the other. Both of the women were feebleminded, with periodical depression. The responses to the endocrine tests suggested ovarian insufficiency with secondary excessive suprarenal functioning.

Journal de Radiologie et d'Electrologie, Paris

August, 1920, **4**, No. 8

Fractures of Head of Radius. Laquerrière and Delherm.—p. 337.
*Volvulus of the Stomach. D. Rosselet.—p. 341.
Radioscopic Control of Bone Peg Fixation. F. Tribout.—p. 350.
Electrodiagnosis. Laquerrière and Delherm.—p. 353.
Radiotherapy in Germany, 1914-1919. I. Solomon.—p. 358.
Diaphragmatic Hernia. P. Aimé.—p. 365.
Galvanic Electric Treatment of Goiter. Drevon.—p. 368.

Volvulus of the Stomach.—Rosselet relates that in examining a woman on three separate occasions, the roentgen rays showed once that the stomach had become twisted on its axis. This was spontaneously corrected, having evidently been brought about by abdominal meteorism. The torsion had not quite reached the point where acute symptoms would have been produced, but the torsion persisted during the three hours the woman was being examined. He reproduces the puzzling shadow cast by the twisted organ.

Lyon Chirurgical

September-October, 1920, **17**, No. 5

Surgery of Lower Portion of Bladder. Rochet.—p. 541.
*Fractures at Base of Neck of Femur. P. Santy and G. Aigrot.—p. 553.
Pathologic Anatomy and Pathogenesis of Congenital Occlusion of Small Intestine. P. Rochet and P. Wertheimer.—p. 561.

Fractures at Base of Neck of Femur.—Santy and Aigrot emphasize the difference in the lesion when the fracture occurs in the robust and in the elderly. In the latter the fracture at the base of the neck is accompanied with injury of the trochanter, as a rule, instead of the clean cut fracture common in more vigorous subjects. Treatment has to be different; the screw inserted axially in the neck up into the head, which answers its purpose so admirably with fracture otherwise, cannot be applied in these neck trochanter fractures with extensive fissure or splitting of the trochanter. But the condition can be improved by continuous traction, applied under spinal anesthesia, the traction maintained by immobilization in a plaster cast embracing pelvis, back and foot, holding the limb in slight abduction, preventing coxa vara and the outward rotation of the foot which otherwise compromise the results of treatment of this form of fracture.

Lyon Médical

Nov. 10, 1920, **129**, No. 21

*Obesity in Children. G. Mouriquand.—p. 883.
Purpura as Sign of Septicemia in Cerebrospinal Meningitis. S. Bonnamour.—p. 893.
Recent Swedish Legislation on Venereal Diseases. L. M. Bonnet.—p. 916.

Obesity in Children.—Mouriquand warns to be on the alert to detect incipient obesity in the children of the obese, the diabetic, and the arthritic or gouty. When the mother is glycemic the fetus, floating in an actual sugar syrup, may become obese, and this entails dystocia. Experience has demonstrated that with early, inherited obesity nearly all develop diabetes before 40, but only about 50 per cent. when the inherited obesity does not develop till late, and only 15 per cent. when the obesity is acquired. After puberty, if the obesity declines, the outlook is favorable, at least to 35 or 40. But if the endocrine glands show insufficiency, progressive dystrophy may be anticipated. Obesity in the parents should be combated; especially during pregnancy the diet should be supervised. Overfeeding and sedentary habits in the family may render it necessary to remove the child to another environment where he will be stimulated to physical exercise. Organotherapy is indicated in certain cases. For example, a girl at puberty threatened with the adiposogenital syndrome may be given thyroid, ovarian and pituitary treatment in turn for ten days each, or the three may be combined. Or potassium iodid might be given for ten days each month (10 or 20 cg. daily).

Paris Médical

Dec. 11, 1920, **10**, No. 50

*Acute Paroxysmal Hypertension. H. Vaquez.—p. 433.
*Mercury Colic. G. Milian.—p. 437.
Spirochetal Jaundice. in a Child. E. Lesné.—p. 443.

Acute Paroxysmal Rise of Blood Pressure.—This is encountered, Vaquez explains, in lead poisoning, in the course of eclampsia, and in a tabetic visceral crisis. In lead poisoning, the retraction of the liver in the course of the lead colic, the collapse of the arteries in the papilla, and the lack of organic lesions at necropsy all point to vasoconstriction and arterial hypertension as the cause of the disturbances. We can trace the course of the lead poisoning with sphygmomanometer in hand, and foretell the imminent encephalopathy when the pressure rises. Sudden amaurosis, transient aphasia and convulsions can occur in both acute and chronic lead poisoning, before any organic lesion has developed, solely from the effect of the vasoconstriction and rise in blood pressure. The albuminuria of pregnant women and their acute insufficiency of kidneys and liver are all causally linked with the other phenomena of eclampsia. Like the amaurosis, transient aphasia and convulsions, they result from sudden and profound modifications of the circulation induced by the arterial hypertension. The latter is the major symptom which dominates all others, and measures for prevention and treatment of eclampsia must aim to keep the blood pressure normal or bring it down to normal.

Mercury Colic.—Milian called attention in 1907 to the symptoms in chest or abdomen resembling pneumonia or peritonitis which are manifestations of general poisoning from mercury. The mercury colic generally comes on suddenly or may be preceded by weakness in the legs, pain in stomach and kidney region, a small dry cough, anorexia and headache, with much thirst. There may also be nausea and a tendency to syncope, pallor and subjaundice. These symptoms increase in intensity, and in twenty-four hours the "thorax colic" becomes installed. If the physician consulted is not aware of the mercury being taken (and the patient frequently conceals this), he is liable to be led entirely astray. As auscultation and percussion are negative, he may diagnose influenza. In one case a uremic attack was diagnosed and treated, and in another case amebic dysentery seemed the only explanation for the symptoms. In one case the abdomen was opened on account of the intense pain in both flanks, the only symptom except the fetid breath. The viscera were found clinically normal, but hysterectomy was done as there were traces of annexitis. The mercury colic reaches its height in one day and subsides completely by the third, fourth or fifth day, passage of stool completing the recovery, as with lead colic. Mercury colic is an acute poisoning of the chromaffine system, often favored by massive absorption of the drug owing to horseback riding, a long walk or similar muscular exertion, on a basis of preexisting suprarenal deficiency. Treatment should include an abundant diet, regardless of the anorexia, as the mercury forms insoluble albuminates, etc., with the albuminoid elements of the food. The physical depression requires bed rest, and the pain, sedatives. A full daily bath at body temperature for half an hour is one of the best means to relieve the pain while it promotes diuresis and elimination of the mercury by the kidneys and skin. Purgatives should not be given, as they merely increase the pains, but a belladonna and opium suppository may be useful. The main indication is to give epinephrin, 20 drops of the 1 : 1,000 solution three times a day in a little water. In resuming the mercury, smaller doses and by another route should be preferred, with intervals not less than seven days, giving calcium salts with it, and 40 drops of the epinephrin solution daily.

Progrès Médical, Paris

Oct. 30, 1920, **35**, No. 44

*Lethargic Encephalitis. A. Hanns.—p. 473.
Lecture on General Paresis. Laignel-Lavastine.—p. **474**.

Lethargic Encephalitis.—Hanns reports from Strasbourg a case of what he thinks is a new form of epidemic encephalitis. The young woman developed first what seemed to be an infectious sore throat with an eruption on the limbs and intense meningeal reaction but no pronounced lymphocytosis in the spinal fluid. Intense conjunctivitis with edema and ptosis of the lids and double bronchopneumonia completed the clinical picture. The temperature was only slightly above normal and the pulse was quite normal. The agitation at first was followed by somnolency, with recovery in two weeks.

Revue Franç. de Gynécologie et d'Obstét., Paris

July, 1920, **15**, No. 7

*The Parturient Muscles. L. Demelin.—p. 289.

The Parturient Muscles.—Demelin analyzes the different ways in which the muscles involved in childbirth can manifest insufficiency.

Revue Médicale de la Suisse Romande, Geneva

November, 1920, **40**, No. 11

*Etiology of Goiter. W. Boitel.—p. 717.
*Famine Osteomalacia. A. Cramer and P. Schiff.—p. 746.
Tardy Jaundice After Arsphenamin Treatment in Three Nonsyphilitics. J. Golay.—p. 764.
Epidemic of Ringworm Due to Microsporon Lanosum. Cornaz.—p. 767.

Etiology of Goiter.—Boitel has been studying the records of goiter for thirty years at the public hospital at Lausanne, listing 1,308 cases, with their geographical distribution, heredity, and comparison with the incidence of typhoid. Goiter is thus shown to be more prevalent in the plains and valleys than in the mountain districts, especially the plain of the Rhône. Heredity was manifest in 47 per cent. of the cases. The people long residing in the district do not seem to be more or less affected than the comparative newcomers. His research failed to show that lack of iodin in the air is the cause of goiter, and no treatment to date seems to be an actual causal treatment. The history and an extensive bibliography of goiter are given.

Famine Osteomalacia.—Cramer and Schiff report the details of a case of changes in the bones resulting from dietetic privations, the woman in question having been in Russia for the last two years. The changes are not very profound in these famine osteomalacia cases, as they subside in a few weeks under nourishing food, calcium and phosphorus.

Schweizerische medizinische Wochenschrift, Basel

Nov. 18, 1920, **50**, No. 47

*The Bases of Hormone Therapy. L. Asher.—p. 1057.
*Relations Between Blood and Organs. K. Kottmann.—p. 1060.
*Cancer Mortality at Basel. Jessen.—p. 1064.
The Latest Methods for Testing Blood Pressure. S. Hediger.—p. 1073.

The Bases for Hormone Therapy.—Asher recalls that the hormones, not being colloids, are able to pass rapidly into the blood and thence into the cells, while the lack of a ferment or protein nature deprives them of any action as antigens. Our knowledge of the suprarenal hormone is most complete, but we are learning much about the hormone of the thyroid, which Kendall defines as a triple iodized derivative of indol. Abelin and Abderhalden have demonstrated the full potency of the action on metabolism of thyroid preparations freed from every trace of albumin. Organotherapy and hormone therapy are not identical, as with the former there is ballast which may induce undesired reactions. All the hormones can be injected by the vein, but it is fortunate that the thyroid and pituitary hormones exert their action by the mouth also. Clarke has reported exceptional production of eggs in hens given the pituitary hormone in their feed. Another factor that has to be considered is what might be called the humor or mood of the organism. The same dose acts on the same organ differently at different times. Some light has been thrown on this apparent mystery by Magnus' demonstration that weak doses of atropin stimulate or inhibit peristalsis according to the proportion of cholin in the bowel wall at the moment. By regulating the cholin content we can regulate the action of the atropin. Cholin is a specimen of what might be called the individual hormone. It may have other actions, but to date only one action has been discovered, namely, its control of the automatic movements of the bowel by its influence on the ganglia of the mesenteric plexus. The thyroid or pituitary hormone reenforces the suprarenal hormone, while the pancreas hormone has an antagonistic action. "Removing the organ producing the hormone may be called negative hormone therapy. . . . In hormone therapy we are adopting Natures' most secret methods."

Relations Between the Blood and the Organs.—Kottmann states that different serums display a difference in the degree of dispersion which they permit on addition of a colloid. He estimates this by generating in the serum a colloid silver iodid. The serum is then exposed to the light and hydrochinon added. The fluid turns brown or black by a kind of developing process, and the rapidity and intensity with which this occurs form an index of the degree of dispersion of the colloid. With serum from exophthalmic goiter patients, the dispersion is extreme while with ordinary goiter there is very little dispersion. Similar differences are found in other pathologic conditions. With cancer of the liver, the dispersion was twenty-four times as intense as with normal serum in his tests of fifty-one cancer cases and 159 controls. Another illustration of the relations between the blood and the organs is the exceptionally abundant elimination of creatin in exophthalmic goiter. As guanidin is readily formed from creatin, this may explain certain symptoms. When guanidin accumulates in blood and tissues from derangement of the normal balance between the thyroid and the parathyroids, tetany is almost inevitable.

Cancer Mortality in Switzerland.—In this long statistical communication, with comment, Jessen shows that the death rate per thousand inhabitants at Basel in the last fifty years has declined from 23.25 to 12, but the cancer death rate has increased from 0.86 to 1.31. The proportion of deaths from cancer in relation to the total mortality has increased from 3.69 to 10.90 per cent. Cancer of the stomach outranks about fivefold all other cancers at Basel, and about threefold throughout the whole of Switzerland.

Annali d'Igiene, Rome

July, 1920, **30**, No. 7

*Choleraic Peritonitis of Guinea-Pigs. G. Sanarelli.—p. 381.
Serologic Findings in Typhus. G. Ficai.—p. 395.
Action of Electric Current on Agglutinating Serums. P. Zannelli.—p. 405.
*History of Typhus. A. Ilvento.—p. 407. Conc'n.
Hygiene of Exercise. V. Puntoni.—p. 415.

Pathogenesis of Cholera.—In this second report of experimental and clinical research on cholera, Sanarelli relates that guinea-pigs dying after injection of cholera vibrios into the peritoneum, do not succumb to the local process, the peritonitis. This is found partially or entirely healed when the animals are not slaughtered at once. The cause of death has to be sought elsewhere.

History of Typhus.—Ilvento's long historical sketch of typhus presents evidence to show that the Italian internists of the sixteenth century had noted that typhus was transmitted only by direct contact, different from plague and other diseases, and that the epidemics occurred only in certain social environments. The descriptions of the disease in that early day are as perfect as could be written today. Only three new facts have been added: the pathologic anatomic finding of the endaortitis of the small vessels; the share of the louse, in transmission, and the diagnostic Weil-Felix proteus reaction.

Chirurgia degli Organi di Movimento, Bologna

October, 1920, **4**, No. 4

*Malformation of Cervical Spine. M. Bertolotti.—p. 395.
"Circulation in Isolated Nerves." G. Anzilotti.—p. 500.

Congenital Anomalies in the Cervical Spine.—This whole issue of *Chirurgia* is devoted to the clinical description and roentgen-ray findings in eighteen cases of congenital malformation of the spine in the neck. Fourteen presented such an identical clinical and roentgenoscopic picture, with fusion of the atlas and the occiput, that this seems to form a morphologic entity with a distinct clinical and anatomic physiognomy. Eight different groups of malformation were represented in the total eighteen cases, as Bertolotti shows by his eighty-four illustrations. One case of congenital torticollis showed ossification of some of the deep muscles in the neck. In another case multiple anomalies along the whole course of the spine associated with regional malformations confirms Putti's theory in regard to the segmental development of anomalies in connection with malformation at different parts of the spine.

Pediatria, Naples

July 1, 1920, **28**, No. 13

*Chloroma in Children. E. Mensi.—p. 593.
Changes in Composition of Blood in Influenza. G. Milio.—p. 627.

Chloroma in Children.—Mensi reports the details of three cases in children, 21 months and 4 years old, and tabulates from the literature 46 cases in children from 1 to 14. Lehndorff states that 50 per cent. of cases of chloroma are in children. The records show that the children are usually otherwise healthy, with normal parents. No connection with trauma has been discovered. Chloroma is a systemic disease which evidently belongs in the group of leukemias, and may reproduce any one of six different types of leukemia. He concludes his long study of the subject by reiterating that the etiology is still a mystery, the prognosis grave, and all treatment ineffectual.

Policlinico, Rome

Nov. 15, 1920, **27**, No. 46

*Pulmonary Syphilis. T. Pontano.—p. 1299.
Reliability of Sachs-Georgi Reaction. P. F. Zuccola.—p. 1306.
Double Uterus plus Double Vagina. E. Gallo.—p. 1308.
*Transverse Presentation in Twins. T. Lazzarini.—p. 1311.
When Umbilical Cord Does Not Drop Off. E. Bellandi.—p. 1311.

Pulmonary Syphilis.—Pontano calls attention to an instructive case in a man of 23 with remittent fever for four months. The intense leukocytosis, traces of peripheral facial paralysis and slight enlargement of the spleen cast doubt on the findings at the right apex which seemed to indicate a considerable tuberculous lesion. The course of the case confirmed that this lesion was a syphilitic gumma and it retrogressed completely in three weeks under arsphenamin and mercury.

Transverse Presentation in Twins.—Lazzarini relates that twice in the course of three weeks he had the responsibility of delivering an elderly primipara, twin sisters, with the fetus in irreducible transverse presentation. In both cases decapitation was impossible and evisceration of the fetus was the only means to deliver the women after long ineffectual labor.

Riforma Medica, Naples

Oct. 9, 1920, **36**, No. 41

*Influence of Food on Metabolism. S. Corinaldesi.—p. 925.
*Infections and Diabetes. G. Castronuovo.—p. 927.
*Ether by the Rectum. V. Aloi.—p. 931.
Congenital Anomaly of the Intestine. B. Polettini.—p. 934.
*Test for Formaldehyd in Urine. E. Pittarelli.—p. 936.
Present Status of Yellow Fever. I. Iacono.—p. 937.

Modification in Nitrogen Metabolism from Nature of Food.—Corinaldesi applied the Bang micromethods and found it possible to follow the changes in the intermediate and external metabolism from hour to hour. He thus established a curve of metabolic disintegration and catabolic elimination of the nitrogenous substances introduced in the food. The minute details in four cases are recorded, and the practical conclusion emphasized that as the urea content of the blood and urine fluctuates within such a wide range in normal conditions during the hours of digestion, the clinical record of the intermediate and external metabolism should be taken always fasting and at least seven or eight hours after a meal.

Infections and Diabetes.—Castronuovo has been impressed with the fact that in the hundreds of diabetics he has encountered in his twenty-five years of practice, over 50 per cent. had a history of chronic and possibly latent infections. Treatment of these infections often had a remarkable mitigating effect on the diabetes, especially treatment for malaria, tuberculosis or syphilis. He ascribes the exceptional prevalence of diabetes in southern Italy to the malaria and tuberculosis factors. These damage the liver and pancreas and thus predispose to diabetes. It often seems as if the tuberculosis had become installed secondarily, when in reality it preceded the diabetes, prepared the soil for it, aggravated it after its development, and finally flared up virulently itself in the weakened organism.

Ether-Oil by the Rectum.—Aloi relates that only rarely was he able to induce profound anesthesia in dogs injected with ether-oil by the rectum. There was always superficial inflammation of the rectal mucosa or a special dryness, with inclination to bleed readily, and frequent desires to defecate, with bloody diarrhea. These changes in the intestinal wall are transient when the anesthesia is of brief duration and if the oil mixture is carefully rinsed out afterward. The epithelium did not seem to be altered.

Test for Formaldehyd Derivatives in the Urine.—Pittarelli describes a very sensitive color test for hexamethylenamin or other derivative of formaldehyd in the urine. It calls for a 1 per cent. solution of phenylhydrazin, and a 1 per cent. solution of the photographic developer metol (methylparamidophenol). To 25 c.c. of the urine are added 10 drops of the phenylhydrazin solution and it is heated to 100 C. It is then set aside for a few minutes, and then 5 drops of the developer and 3 drops of a 25 per cent. solution of sodium hydroxid are added. The fluid turns scarlet when formaldehyd is present. Adding a saturated solution of magnesium sulphate, turns it blue.

Oct. 23, 1920, **36,** No. 43

Cystic Adenoid Epithelioma. L. Torraca.—p. 974.
*Case of Anthrax. L. Martinotti.—p. 976.
*Percussion of the Kidneys. F. Galdi.—p. 978.
Acute Postoperative Dilatation of the Stomach. E. Marsili.—p. 982.
*Catheter in Peritoneum. S. Rolando.—p. 984.
Modern Views on Prolapse of the Rectum. E. Aievoli.—p. 986.
*Cancer of the Mouth. B. de Vecchis.—p. 987.

Anthrax.—In the case illustrated the large, symmetrical carbuncles on the wrists of the farmer of 53 subsided under local treatment with 1 per cent. phenol. The fever dropped the fourth day.

Percussion of the Kidney.—Galdi has found percussion at the back extremely useful in cases of movable kidney, showing that the normal bed of the kidney is empty. Percussion of the kidneys in the cadaver is more difficult than in the living subject, and yet he was often able to determine the outlines of the kidney with surprising precision, Skewers driven in to mark the outline corresponded closely to the anatomic outline in the accessible regions which he defines in detail. He commends percussion of the spine as liable to give instructive findings in certain cases, especially percussion in the dorsal zone.

Foreign Body in Peritoneum.—Ronaldo had diagnosed a tumor in the left lower abdomen. Roentgenoscopy and palpation showed the intestines and genitals apparently sound, but the woman confessed an attempt at criminal abortion, and a laparotomy revealed a catheter in the peritoneal cavity, the end projecting into the cavity of the cecum for about 5 cm. The rest of the catheter extending toward the left side was enveloped in omentum. The catheter was easily removed and the inflammatory tumor subsided spontaneously thereafter. If the catheter had been shorter, there is no doubt it would have worked its way entirely into the cecum and have been spontaneously voided by the natural route.

Cancer of the Mouth.—De Vecchis exclaims on the increasing frequency of malignant disease of the mouth. He has encountered himself over twenty cases in less than a year. The extreme rarity in animals, the relative rarity in women, and the increasing prevalence in men all give food for thought. The physician or the dentist who first sees the apparently insignificant lesion, stomatitis, aphthae, leukoplakia, should realize that this is the key to life or death. The dentist should watch out for precancerous lesions and cure them, but beware of inducing malignant transformation by improper treatment, such as cauterizing an ulceration in the mouth with silver nitrate. De Vecchis adds that as cancer develops preferentially in an acid medium, the specific and surgical measures should be supplemented by alkaline mouth washes.

Nov. 6, 1920, **36,** No. 45

*Urinary Sepsis in Children. R. Jemma.—p. 1021.
*Defensive Potency of Serum. M. Gelera.—p. 1024.
*Protein Therapy of Puerperal Infection. B. Bianchi.—p. 1026.
*The Convergence Oculocardiac Reflex. E. Ruggeri.—p. 1029.
Strangulated Inguinal Hernia in Woman. G. Razzaboni.—p. 1034.
Endocrine Organs and Diabetic Syndrome. Castronuovo.—p. 1036.

Nov. 13, 1920, **36,** No. 46

Inguinal Periadenitis of Venereal Origin. L. Morini.—p. 1046.
Chronic Fibrous Bronchiolitis. D. de Conciliis.—p. 1048.
Albumin and Albumose in Sputum. G. Felsani.—p. 1051.
Horizontal Luxation of Patella. G. Piccoli.—p. 1055.
Pathogenesis of Gastric Ulcer. A. Chistoni.—p. 1058.

Septic Infection of Urinary Passages in Children.—Jemma warns that when children have fever for a long time, not to be explained by the clinical findings, the possibility of cystitis or pyelocystitis should be borne in mind before attributing the disturbances to the intestines as is too often done. In a few months a total of 180 cases has been encountered in the dispensary and hospital at Naples and Palermo. With general hygiene and a mostly fluid diet (but not exclusively milk), vegetable purées, egg yolks, hexamethylenamin, changing to salol, etc., the disease can generally be conquered. Local treatment of the bladder may be useful when the cystitis has lasted for some time and the bladder alone is involved. Excellent results have been obtained also in Jemma's service with vaccine therapy. Recurrence is not rare.

Defensive Potency of Serum.—Gelera injected into the rabbit ear washed leukocytes from the guinea-pig peritoneum after induced leukocytosis. Study of the defensive potency of the rabbit serum thereafter showed that its power as a complement is a reliable index as to the reaction of the organism to an infectious process. This index is much more dependable than the leukocytosis figure and the blood count. The complement power throws little if any light on the diagnosis, but it is a valuable element for the prognosis in connection with the clinical even more than with the laboratory findings. The proportion of complement is determined by the amount of leukocytosis and of the consequent leukocytolysis. His research confirms the advantages of seeking to stimulate leukocytosis to reenforce the organism in its struggle against infection.

Protein Therapy in Puerperal Infection.—Bianchi refers in particular to parenteral injection of milk, relating that he gave this treatment a thorough trial in thirty-six obstetric and twenty-one gynecologic cases., He reviews the history and the probable mechanism of its action, and reports that it seemed to promote and accelerate the cure in certain cases and ward off serious disturbances, but when severe puerperal septicemia was under way, no benefit could be detected. Under any conditions the effect did not much surpass that from the ordinary measures, drugs, vaccines, fixation abscess, mercuric chlorid by the vein, etc. But the harmlessness of this milk form of protein therapy, its availability, and its excellent influence in reducing objective and subjective pain and in enhancing the defensive powers of the organism, impose its use on a large scale, he declares, especially during the early stage, when it is most potent.

The Convergence Oculocardiac Reflex.—Ruggeri gives tracings of the pulse showing the marked effect under certain conditions of extreme convergence of the eyes. This is accomplished by having the reclining patient gaze at the forefinger held 1 cm. from the tip of his nose. The pulse was not affected or was increased merely by 3 or 4 beats in the numerous normal subjects tested. But in 5 patients with polyneuritis from malaria, diphtheria or influenza, the pulse ran up at once by 20 or 30 beats; in 5 with thyroid dysfunction the increase was from 25 to 30. The findings were negative, the pulse growing slower, in bradycardia of vagus origin and in 4 cases of the Bernard-Horner syndrome. In 3 cases of pulsus alternans the response was negative in 2, but was positive in the third case which soon terminated fatally.

Rivista Critica de Clinica Medica, Florence

Sept. 15, 1920, **21**, No. 26

The Roentgen-Ray Findings with Valvular Defects. C. Minerbi.—p. 301. Idem. G. G. Palmieri.—p. 303. Idem. L. Siciliano.—p. 319 in No. 27.

Sept. 25, 1920, **21**, No. 27

*Chronic Acquired Trophedema. G. Garin.—p. 313. Conc'n in No. 29, p. 337.

Trophedema.—In the case described by Garin in a linotype operator of 41, the feet and legs have enlarged until a condition of hard, symmetrical chronic edema became installed in time. The edema does not seem to be influenced by gravity, but it has developed since 1913 in waves of acute increase, with redness and aching in the regions involved. The size and aspect now suggest elephantiasis. There is nothing to indicate polyneuritis, but many features of the case suggest deficient thyroid functioning. This is sustained by the sluggishness of the sympathetic system and the arrest of the progressive process under vigorous thyroid and suprarenal treatment. The clinical picture is that described by Meige, except the lack of hereditary features.

Rivista di Clinica Pediatrica, Florence

September, 1920, **18**, No. 9

*Congenital Hypertrophic Stenosis of the Pylorus. G. Squarti.—p. 513.
*Congenital Deformities and Epilepsy. F. Tavernari.—p. 538.
O. Ferrari's Manual on Pediatrics, 1577. A. Spallicci.—p. 550.

Congenital Stenosis of the Pylorus.—Medical treatment proved futile in the three cases reported by Squarti; necropsy in one and the operative findings in another confirmed the diagnosis of congenital hypertrophic stenosis. The operation came too late to save the two infants treated by gastro-enterostomy. The first symptoms rarely appear before the second to the eighth week or even later. The explosive vomiting may occur during feeding and rarely more than an hour or two later. Pylorospasm can be differentiated by the painful vomiting and its attenuation under sedatives, the global contraction of the stomach, the occasional absence of a tumor at the pylorus, the milder course and the aspect of the stools. With the hypertrophic stenosis the stools grow less frequent and smaller, assuming the characteristics of meconium or fasting stools. The statistics as to cures under operative treatment are not dependable on account of the confusion of spastic with organic stenosis, but the lowest mortality recorded, 18 per cent. in twenty-six cases, was realized with the Rammstedt technic. With this the cylinder of muscle is slit longitudinally down to the mucosa, leaving the latter intact, and not suturing. Hypertrophic stenosis seems to be more frequent in boy babies and in the breast fed and the first born. To avoid further irritation while deciding on the preferable treatment, he advises to take the child from the breast and feed breast milk by the rectum.

Congenital Malformations and Latent Epilepsy.—Tavernari argues from a case described in detail the possibility of mechanical causes in the uterus impeding normal development of the cortex and thus being responsible for epilepsy, etc., later. The mother recalled that there had been transverse presentation at her previous deliveries, and this suggests some malformation in uterus or pelvis.

Archivos Españoles de Pediatría, Madrid

September, 1920, **4**, No. 9

*Pathogenesis of Laryngospasm in Children. A. Martín Calderín.—p. 513. Conc'n.
Invasion of the Mastoid in Children. Cristóbal Jiménez Encina.—p. 534.

Pathogenesis and Cure of Laryngospasm.—Martín reports experimental research which apparently demonstrated that lack of calcium is the main cause of laryngospasm, and that the parathyroids play an important part in the calcium metabolism. The convulsions induced by lack of calcium were cured by administering calcium and parathyroid extract. The conclusions from these experimental findings were applied to infants with laryngospasm, the results harmonizing in every respect with those obtained with the animals. He describes in detail the experiences with eight guinea-pigs injected daily by the vein with 1 or 2 c.c. of a 1 : 1,000 solution of a decalcifying salt (potassium oxalate). The animals all developed convulsions in from three to six days. They were then injected with parathyroid extract by the vein, and the benefit was apparent almost at once, and the cure soon complete. Thymus extract seemed to have a similar but less pronounced action. He explains the clinical sequence as first fat dyspepsia, then disturbance in the endocrine system from the poisons generated by the dyspepsia. The parathyroids and thymus then suffer, and this upsets the calcium balance, and this entails spasmophilia with its laryngeal spasm. Treatment must attack the dyspepsia, supply the lacking calcium, and insure its proper assimilation by parathyroid and possibly thymus extract treatment as in the eight infants cited.

Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

1920, **12**, No. 1. With translations

*Effect on Guinea-Pigs of Bilateral Vagotomy. M. Ozorio de Almeida.—p. 5.
*Certain Brazilian Midges: the Blepharocidae. A. Lutz.—p. 21.
*Helminthologic Fauna of Brazil. IX. L. Travassos.—p. 44; X.—p. 73.
Research on Flagellate Parasites. II. O. Oliveira Ribeiro da Fonseca.—p. 51.
*Prevention of Foot-and-Mouth Disease. H. Marques Lisboa and A. Alves da Rocha.—p. 66.

Bilateral Vagotomy.—The experimental research reported shows that irritation of the vagi induces fatal congestion and edema in the lung, while merely severing the vagi, without irritating them, does not induce this reaction.

Study of Midges.—Seven plates showing 112 separate microscopic views accompany Lutz' study of the blepharoceridae.

Helminthologic Fauna.—Travassos' work is also profusely and handsomely illustrated, especially of the genus *Turgida.*

Prevention of Foot-and-Mouth Disease.—This report of six years of experimental study of this disease in different foci announces that of the hundreds of animals treated with the anti-aphthous serum, excluding those that fell sick within forty-eight hours after the vaccination, protection was absolute in almost 100 per cent. The writers found the average immunity conferred by the disease to be about a year. The shortest period observed was four months, and in this instance the original attack had been extremely mild. The longest period was two years, and this had followed a virulent attack. Calves born of cows that had the disease late in gestation always proved remarkably refractory.

Semana Médica, Buenos Aires

Oct. 7, 1920, **27**, No. 41

*Present Status of Treatment of Pulmonary Tuberculosis. F. R. Torres.—p. 475.
*Infarction in the Liver. M. M. Nebbia.—p. 488.
*Necrosis of Eyelids of Newly Born Infant. P. Satanowsky.—p. 490.
Invagination Simulating Prolapse of Rectum in Infant. J. P. Garrahan.—p. 491.
Antipertussis Vaccine. G. B. Cavazzutti.—p. 493.
Report of Surgeons Commissioned to Study Military Medical Organization in Other Countries. C. Trejo.—p. 494.
*Granulomatosis. A. A. da Matta.—p. 496.

Treatment of Tuberculosis.—In this general review by the professor of epidemiology at Buenos Aires, he reiterates that the treatment of tuberculosis must be eclectic and adapted to the individual case, but always combined with out of door living, repose and extra nourishing food. What we know in regard to immunity and biology of other diseases has very little application to tuberculosis.

Infarction in the Liver.—Nebbia analyzes the pathologic anatomy of the changes in the liver with heart disease, studying the various phases of the cardiac liver.

Gangrene of Eyelids in Newly Born Infant.—In Satanowsky's case as also in Schillinger's and Steffens' cases, a new born infant developed partial gangrene of the lids of both eyes, and diphtheria bacilli were found in the pus. A few other cases of diphtheric gangrene of the eyelids in infants are on record, but the lids had been affected secondarily in these cases.

Ulcerating Granulomatosis.—Da Matta's study of granulomatosis shows that the prognosis depends essentially on the region attacked. Even extensive lesions on the skin usually heal harmlessly, while the outcome is dubious when the mucosa is involved, and the prognosis is always grave with granulomatosis affecting cavities.

Münchener medizinische Wochenschrift, Munich

Sept. 24, 1920, **67**, No. 39

Rheumatic Lumbago. F. Schultze.—p. 1109.
*Esophylaxis of the Skin in Relation to Infectious Diseases. H. Menze.—p. 1111.
The Mechanism of Calcaneus Fractures. M. zur Verth.—p. 1115.
*Value of Occult Blood Findings. H. Peiper.—p. 1116.
*Rectal Versus Vaginal Examination. Pfleiderer.—p. 1116.
Diagnosis of Smallpox. E. Becker.—p. 1117.
*Water-Wheel Sound over Heart. O. Specht.—p. 1118.
*Roentgen Irradiation of Skin Cancer. Thedering.—p. 1119.
Retention of Placenta After Child-Birth. W. Zanke.—p. 1120.
Enlightenment on Sexual Matters. E. Fried.—p. 1121.
Uricacidemia in Carbon Monoxid Poisoning. G. Czoniczer.—p. 1121.

Protecting Function of the Skin in Internal Diseases.—Menze uses the term "esophylaxis" to designate the protecting function of the skin in respect to the internal organs, and emphasizes that this element in acute infectious disease has not been accorded the attention it deserves.

The Slight Diagnostic Value of Occult Blood Findings with Gastric and Duodenal Ulcer.—Peiper discusses whether occult hemorrhages in the feces are to be regarded as pathognomonic for gastric and duodenal ulcer and for gastric carcinoma; whether in a doubtful case they present the deciding factor; whether they are equal to or surpass in value other clinical symptoms, and finally, whether by serial investigation we can differentiate, from the character of the hemorrhages, between ulcer and carcinoma. He examined fifteen cases of gastric and duodenal ulcer, seven cases of gastric carcinoma, ten cases of cholecystitis, one case of echinococcus infection of the liver, and six cases of hypochlorhydria. Of the various chemical tests he used: Wagner's and Gregersen's benzidin tests, Kuttner's ether extraction test, Snapper's spectroscopic method, and a modification of Kuttner's test, in which benzidin instead of guaiac was used, with which last the best results were secured. On the whole, all the occult blood tests were subject to a marked element of error. One main source of error was the continually changing sensitiveness of benzidin and guaiac. Differentiation between carcinoma and ulcer on the basis of occult blood findings is not reliable. He concludes that, owing to the difficulty in the way of securing an unequivocal demonstration of occult blood, together with existing diagnostic limitations, the occult blood test has no real importance for the surgeon.

Rectal Versus Vaginal Examination.—Pfleiderer cites Jegge (Basel) to the effect that 11 per cent. of 500 puerperae who were examined vaginally presented fever, as compared with only 6 per cent. in a like number not so examined. Jegge therefore recommends that vaginal examination be resorted to only when the external and the rectal examination fail to give clear results. Pfleiderer states then his personal reasons why for years he has restricted vaginal examination to about 5 per cent. of all cases (including both pregnancy cases and others), and why he prefers the rectal examination. From the rectum the whole pelvic cavity can be examined by palpation much better than from the vagina, since the rectum is more roomy and pliable than the vagina. What is especially important, the posterior half of the uterus can, in some cases, be examined throughout its whole extent. Likewise, the broad ligaments of the uterus, the tubes and the ovaries can be palpated vastly better than through the vagina. Even the os uteri can be palpated in an entirely satisfactory manner through the thin and soft wall between the vagina and the rectum. With practice, many of the abnormal positions of the uterus can be corrected through the rectum. By rectal examination he has learned that shortening of the posterior ligaments of the uterus is much more frequent than is supposed and the discomfort from this is often responsible for certain disturbances now ascribed to hysteria. The lessened danger of infection and the fact that the rectal examination is less embarrassing to the patient are other factors in favor of rectal examination.

Bruit de Moulin Following Contusion of the Chest.—Specht reports a case in which, following contusion of the chest, a water-wheel sound could be heard over the heart. On the first examination he could not interpret the peculiar sound. It seemed to be intrapericardial, but the findings could not be harmonized, in all respects, with this assumption. A hematopneumothorax as the inducing cause seemed doubtful. Weil's article on "Mediastinal Emphysema with Water-Wheel Sound," following plexus anesthesia, fell into his hands just at this time, and a reexamination revealed the fact that also in his case the water-wheel sound was of traumatic origin. He cites Reynier's article of 1880 as authority for the opinion that the water-wheel sound is produced by a collection of air and fluid in the "pneumopericardial space." In Specht's case, on auscultation, synchronous with systole and diastole, a loud gurgling, splashing sound could be heard. After the systole, less pronounced sounds of the same type were heard. The regular heart beat was almost entirely obscured. If the patient sat up, the sound became at once less audible and soon ceased, but when the patient resumed the recumbent position it returned immediately. The pulse was regular and strong, 84 beats to the minute. On the fourth day following the accident the sound had disappeared. Specht thinks that Reynier's explanation of the phenomenon is correct.

Roentgen Irradiation of Skin Cancers.—Thedering urges that, in spite of the excellent progress made in the treatment of skin cancer with roentgen rays, surgical treatment be given the preference under all circumstances in which a carcinoma can be removed by operation with a sure prospect of a permanent cure. He thinks it is useless to worry the patient for months with roentgen-ray treatment and burden him with the considerable expenditure of time and money when the knife would relieve him of his affection, painlessly and surely, in just a few minutes. But there are exceptions to this rule. If the surgical removal is not possible without a disfiguring scar, radiotherapy should be used. He emphasizes the remarkable results of roentgen-ray treatment in cancer of the eyelids and lips, which surgery, with all its plastic skill, cannot equal. After irradiation, closure of the eyelids and the lips is almost always perfect; whereas operation usually leaves disturbed relations or disfigurement. If patients fear an operation, roentgenotherapy is the method of choice. The same is true of rodent ulcer, which, when treated surgically, usually requires more or less extensive intervention, followed by skin transplantation; whereas the roentgen rays realize an easy cure with good cosmetic results. In dealing with skin cancer it must be our endeavor to destroy the growth, if possible, at one sitting by a single maximal dose. Partial doses are very dangerous as they may incite the cancer to renewed growth. Therefore only hard rays, passed through a 3 to 4 mm. aluminum filter, may be used. The dose must be at least 40 X; 50 to 60 X is better. Occasionally we may be able to cure a superficial cancer with weaker doses (15 to 20 X), using a 0.5 to 1 mm. filter, but such doses will not suffice if the deeper tissues are involved. It sometimes happens that the superficial cell layers are destroyed, while the deeper layers receive only a partial dose, which incites them to greater activity. It is often better first to irradiate the lymph glands and afterward the cancer proper. Just the reverse of this, unfortunately, seems sometimes to be done.

Wiener klinische Wochenschrift, Vienna

Sept. 23, 1920, **33**, No. 39

*Diagnostic Experiences with Induced Pneumoperitoneum. H. Faschingbauer and F. Eisler.—p. 853.
The Pharmacodynamic Cutaneous Reaction. A. F. Hecht.—p. 857.
*Pancreas Disturbances in Dysentery. K. Glaessner.—p. 859.
Technic of Urochromogen Demonstration. E. Klaften.—p. 861.
Physicotherapy. J. Kowarschik.—p. 862.

Pancreas Disturbances in Dysentery.—Glaessner reports his observations, in recent and chronic cases of dysentery, bearing on the demonstration of the tryptic pancreatic ferment. In the stools in acute and chronic dysentery cases it may be noted that albumins are very poorly utilized. Not only meat but also milk albumin and egg albumin often pass through the intestine entirely unchanged. Glaessner's researches lead him to believe that these disturbances are due in part to the deficient proteolytic action of the pancreas secretion. He regards the findings of partial achylia pancreatica in acute dysentery and complete achylia pancreatica in chronic cases as of importance in the diagnosis and prognosis of dysentery. He thinks it may have practical value to separate into two groups cases of dysentery with and without achylia pancreatica, since in the former cases the prognosis is less favorable. Also as regards treatment the achylia pancreatica must be taken into account.

Zeitschrift für Tuberkulose, Leipzig

October, 1920, **33**, No. 1

*Wounds of Chest and Tuberculosis. Seitler.—p. 1. Id. Frischbier.—p. 7.
*Kidney Disease in Pulmonary Tuberculosis. O. Kieffer.—p. 9. Cont'd.
Phthisis in Native Africans. B. Gruber.—p. 23.
Partial Antigens in Treatment of Pulmonary Tuberculosis. H. Schulte-Tigges.—p. 26.
*Chronic Pulmonary Tuberculosis with Small Foci. G. Bolle.—p. 32.

Chest Wounds and Pulmonary Tuberculosis.—Seitler states that among the 2,359 tuberculous soldiers in his charge there were 33 with a history of a war wound of the chest, but in only 2 of this group had the men been apparently normal before the trauma. Frischbier encountered 83 men with war wounds of the chest among the 6,000 soldiers that were sent to Beelitz for thoracic disease. In 37 cases there has been no sign of tuberculosis since the extensive wound of the chest; in 2 cases a known active tuberculous process in the lung became exaggerated after the injury, but in 46 an active tuberculous process was evident. In a small proportion the tuberculosis had apparently healed since the injury from the projectile. He points to these figures as testifying to the comparatively small share of war wounds of the lung in the development of pulmonary tuberculosis.

The Kidney with Pulmonary Tuberculosis.—Kieffer compares the clinical and necropsy findings in the kidneys during pulmonary tuberculosis in large numbers of patients at the Mannheim hospital for pulmonary disease. The article is continued.

Chronic Pulmonary Tuberculosis with Disseminated Small Foci.—Bolle warns that the roentgen rays impart no information as to the age of the process they reveal; it may be a fresh or an old healed lesion. In cases with a chronic course and scanty symptoms, the roentgen rays may reveal surprisingly extensive lesions. In four typical cases described there was no cough, no sputum, and the temperature was normal or subfebrile. The subjective excellent condition is contradicted by the severity of the disseminated small foci in the lungs, manifestly of blood-borne origin. There is no dyspnea in repose, and the subject is scarcely incommoded by it during effort. There is weakness and severe anemia but no signs of toxic action, and little if any cyanosis although it becomes more apparent during effort. The symptoms were so slight that there was no suspicion of pulmonary tuberculosis at first. The fatal termination came in four and a half and nine months in two of the cases; one patient is still living at the thirteenth month, and the fate of the fourth is not known.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 30, 1920, **2**, No. 18

Etiology of Congenital Megacolon. R. de J. de Jong and B. P. B. Plantenga.—p. 1773.
Malformations of the Skull and Shape of Orbit. E. Marx.—p. 1785.
*Simultaneous Intra-Uterine and Extra-Uterine Pregnancy. G. C. Nijhoff.—p. 1795.
Advantages of Open Inhaler for Ether. S. Koster.—p. 1804.
Urochromogen Reaction in Typhoid. J. M. Wiggelendam.—p. 1807.

Simultaneous Intra-Uterine and Extra-Uterine Pregnancy.—Nijhoff reports a case in which the tubal abortion and operation had no apparent effect on the normal pregnancy. This proceeded to term unmolested. He cites some cases in which the two pregnancies developed to term, with delivery of the normal fetus and extraction by a laparotomy of the ectopic fetus. Both were 45 cm. long in Bogdanovics' case, but the ectopic child lived only a few minutes after birth. In the case reported by Miller in 1908, after delivery of a boy weighing 2,250 gm. and measuring 46 cm., an ectopic gestation was discovered and a second viable boy was extracted, weighing 2,450 gm. and measuring 47 cm. The mother left the maternity with two living children. Nijhoff thus cites a total of thirty-eight cases of dual pregnancy of this kind, but in fifteen the operation on the ectopic pregnancy was followed by miscarriage; in the other twenty-three the normal pregnancy progressed to term, notwithstanding that in Center's case both ovaries and both tubes had been excised early in the pregnancy. In all these dual pregnancies the intra-uterine gestation was much less manifest than the extra-uterine. Vaginal intervention gave the least favorable results.

Hospitalstidende, Copenhagen

Oct. 13, 1920, **63**, No. 41

Inaugural Lecture of Pathology Course. O. Thomsen.—p. 633.

Oct. 20, 1920, **63**, No. 42

Changes in Fermenting Properties of Bacillus Prodigiosus. P. H. Andresen.—p. 649.

Oct. 27, 1920, **63**, No. 43.

*Chorea Gravidarum. P. Zachariae.—p. 665.
*Present Status of Treatment of Grave Anemias. E. J. Rud.—p. 673. Begun in No. 40, p. 628.

Chorea Gravidarum.—Zachariae reviews four cases of chorea in pregnant women. Under bed rest and sedatives the course is generally mild, especially when there has been chorea before. The mortality according to the records is from 20 to 30 per cent. but this is too high as the milder cases are not recorded. Some writers have reported good results from salicylate treatment, especially in the febrile cases. Some advocate interrupting the pregnancy when sleep and nutrition are interfered with, especially when there is complicating heart disease or a psychosis. But all warn that labor aggravates the condition as a rule, so that cesarean section is the only choice. It should not be postponed till the woman is beyond recuperating. Evacuating the uterus by no means guarantees a cure; some have even reported aggravation thereafter. In only one of his four cases was there no history of preceding febrile rheumatism and in this case the woman had had pregnancy nephritis twice, so that a toxemic origin seems plausible.

Treatment of Grave Anemias.—Rud concludes from his long study of recent literature on this subject that no treatment to date has actually cured pernicious anemia, but that long remissions have been realized in many apparently hopeless cases under various treatments.

Nov. 3, 1920, **63**, No. 44

*Classification of Types of Gonococci. O. Thomsen and E. Vollmond.—p. 681.

Nov. 10, 1920, **63**, No. 45

Adenoma of Sweat Glands in the Axilla. F. M. Illum.—p. 697.

Different Types of Gonococci.—Thomsen and Vollmond succeeded in differentiating three types of gonococci in twenty-six strains from recent cases of urethritis in men.

Ugeskrift for Læger, Copenhagen

Nov. 11, 1920, **82**, No. 46

*Aesthesioscopia Abdominalis. T. B. Wernøe.—p. 1415.
Striae Distensae in the Tuberculous. K. Hamner.—p. 1420.
Calomel Internally as Introduction to Inunctions. S. Lomholt.—p. 1424.
Status Epilepticus. J. Hasrud.—p. 1426.

Esthesioscopy.—Wernøe has coined this term to express the delimitation on the skin of the areas in which pain is felt or the tissues are tender. His experience has shown that these areas thus outlined are always identical with identical lesions, the esthesioscopy thus revealing characteristic differential findings in location, extent and shape, as he shows by a number of examples with illustrations. The delimitation is automatic. His method is based on the observation that when warm skin is exposed to the cooler air of the room, it blanches, evidently from a spinal vasomotor reflex through the coolness-perceiving nerves. In regions of hyperesthesia, these nerves are more sensitive, and hence the reflex blanching occurs quicker and more intensely. If the abdomen is to be examined, he turns the region away from the light and inspects it from the shaded side. The hyperesthetic region can then be distinctly outlined by the eye, allowing a little time for accommodation of vision and for the reflex to occur.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 4 Chicago, Illinois January 22, 1921

THE EVOLUTION OF PREVENTIVE MEDICINE *

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For so long a time as history records, man has been terrified by pestilence and has sought escape. By one means or another he has tried to ward off disease. All through the ages, but particularly in Italy and during the Renaissance, whenever epidemic diseases appeared, organized effort was made by the community to apply such preventive measures as the science or the superstition of the time had to offer. With the passing of the danger, the temporary sanitary organization lapsed. It has been less than a century that a permanent government organization for health purposes has been maintained.

There have been three fairly well defined phases of this movement. The first concerned itself chiefly with the environment, the second with the isolation of the sick, and the present with personal instruction and with cure.

First Period

The modern health movement had its origin in England nearly a hundred years ago in the great wave of altruism which strove, in so many directions, to make more bearable the hard lot of most of mankind. When one reads specific accounts of the filth, crowding, poverty, sickness, child exploitation and excessive hours of labor, one is not surprised that, in a country like England, many were found to undertake the battle for reform. It was seen that one of the greatest afflictions and handicaps of the poor is sickness; and to lessen its amount became the ambition of Edwin Chadwick and his co-workers. The Public Health Act and General Board of Health of 1848 were the outcome of their labors. Interest in public health developed more slowly in the United States, largely, perhaps, owing to the slower development of the evils of urbanization. On both sides of the Atlantic, repeated outbreaks of cholera, and in this country, of yellow fever, did much to arouse the public.

THE FILTH THEORY

During its first thirty or forty years, modern preventive medicine was almost completely dominated by the filth theory of disease. The central idea was that decomposition and fermentation of animal and vegetable matter give rise to poisonous gases or, as some thought, to living germs, which are carried by the air and, falling on human beings, cause in them the epidemic diseases. It was also thought that, besides causing specific diseases like cholera, typhus fever and diphtheria, these emanations from filth could undermine the general health and pave the way for infections that might otherwise be resisted or lead to all sorts of debilitated conditions. As Neil Arnott said: "If you allow sources of aerial impurity to exist in or around dwellings, you are poisoning the people; and while many may die at early ages of fever and other acute diseases, the remainder will have their health impaired and their lives shortened." The means to prevent these evils, according to Arnott, are scavenging, sewers and ventilation. Decomposition is the source of disease. Foul odors are a sign of decay and are a sign that the air is bearing the emanations which are the seeds of sickness and death. Everything which smells bad is dangerous. Such were the slogans of the time.

The principal aims of these early promoters of public health were clean streets and yards, clean houses, removal of all "nuisances," the prevention of crowding, both of houses on the land and of people in the houses, better house construction, the building of sewers, the construction of water closets or yard privies, and the supply of unpolluted water. It it worth noting that special emphasis was not laid on pure water at first, for it was hard to convince such firm believers in air-borne infection that water-borne infection is far more important.

Now, all these aims are most desirable. Comfort and decency, as well as health, demand them. That we have cleaner streets and areas than our ancestors, that we have good plumbing, that our houses are better and that most of our cities have a plentiful supply of good water, which, after use, is carried away by sewers, is due in no small measure to the efforts of the early English sanitarians. That these things would have come in time is probable; but that progress would have been slower is also probable, as is indicated by the comparatively backward state of sanitation in France, which did not feel the direct influence of the English reformers.

GOOD RESULTS

We are here interested only in the effect of these preventive measures on health. It is customary to point to the fall in the general death rate as proof that these measures were successful. The death rate certainly decreased in England, as it has generally over western Europe and in this country. In many of the large cities, where it was the highest, it has been more than cut in half. To claim that the whole of this gain is due to the special measures making for cleanliness is entirely unwarranted. The death of a human being is due to the operation of a great number of causes which it is difficult to unravel. That many causes have

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* Lecture on the De Lamar Foundation, delivered Nov. 22, 1920, at the School of Hygiene and Public Health, Johns Hopkins University.

operated to reduce the death rate besides such sanitary reforms is certain. That some of the decrease was due to these reforms also is certain.

We can now be sure that the proper disposal of human excreta in sewers or privies and the introduction of a pure water supply have been the chief cause of the banishment of cholera and typhoid fever and the diminution of diarrhea. That less overcrowding has been of some help in keeping people free from vermin and hence from typhus fever is probable. It is probable, too, that better housing and plenty of water have helped to make people neater and hence have been of some service in preventing those diseases that are spread by the transfer of the secretions of the nose and mouth; but success in the control of these diseases has not been so startling as to make such a claim of importance.

EARLY SANITATION IN THE UNITED STATES

Our ideas in this country about public health were derived from the English, though we delayed some years in putting them into practice. We promptly accepted the filth theory. The medical profession was strongly influenced in this by the teaching of Murchison, the great English clinician, who was thought most highly of and who strongly urged that diseases arise, de novo, in filth. The epidemic disease most dreaded in the United States was yellow fever; and its distribution seemed to fit in very well with this idea, though we know now that filth has nothing to do with it. The plumbers were especially active in preaching the dangers of sewer air, and the writings of Colonel Waring did much to popularize the idea that municipal cleanliness was all there is in public health. In 1876, when sanitarians across the water were beginning to appreciate the great importance of contagion as a cause of disease, Waring, in forceful and popular language, was teaching that diseases are bred in filth, that all decay is dangerous, that disease poison is air-borne, and that the slightest plumbing defect may flood a house with death-dealing sewer gas. He says that nervous toothache, neuralgia, scarlet fever, cholera, dysentery, diphtheria, cerebrospinal meningitis and consumption are caused by foul air or foul water. In 1877, my own city was visited by an exceedingly severe outbreak of diphtheria causing a mortality of 331 per hundred thousand living. Scarcely any one considered it contagious, and no isolation was attempted. The disease was attributed to foul air from poor drainage and the digging up of the streets. Up to the time of his death in 1889, my predecessor in office maintained that the evidence pointed to scarlet fever as a noncontagious disease caused by some atmospheric epidemic influence.

FILTH THEORY WAS DOMINANT

How exclusively the filth theory dominated preventive medicine is well illustrated by the textbooks of the time, which devoted scarcely one tenth of their space to the direct control of contagion, and the remainder to man's environment. In Boston, the sole duty of the "superintendent of health" was street cleaning and scavenging. The first report of my predecessor, the first superintendent of health of Providence, who was elected in 1856, dealt almost wholly with nuisances. The first report of the Metropolitan Board of Health in New York, organized in 1866, because of cholera, besides an account of the cases and hospitalization of that disease and quarantine, is almost entirely devoted to nuisances, decayed food, offensive trades and the like. About the only employees of boards of health in those days were nuisance inspectors. As late as 1898, after the American occupation of Havana, our government officials, even health officials, were so imbued with the idea that municipal house cleaning is synonymous with preventive medicine, that an engineer, Colonel Waring, was sent to Havana to clean the city and thereby exterminate yellow fever, which had been endemic there for over a century. He did his work so well that all were agreed that Havana had been made the cleanest city in the western world. You all know the sequel. The next year there was an unusually severe outbreak of this disease, which was especially prevalent in the better portions of the city.

Even in 1916, a more energetic abatement of nuisances was advocated and put in practice as a means of controlling infantile paralysis, though there was no more reason for thinking this would control the disease than would the suppression of automobiles or the elimination of mosquitoes.

In a city of more than 100,000 inhabitants which I recently visited, it was found that the control of the contagious diseases, with the exception of tuberculosis, ophthalmia and the venereal diseases, is made a side issue for the two nuisance inspectors. The ancient epidemiologic status of the city is well illustrated by the record card (3 by 5 inches) for contagious diseases which, besides the name and address of the patient, calls only for information as to the sewer, privy, cesspool, water closet, yard, cellar, ash barrel and swill pail. Who will assert that the hand of dead theories does not rest heavily in some places?

ERRORS IN EARLY THEORIES

Although there were some important truths in the generalizations of the early promoters of public health, and although their projects for civic betterment saved many lives and did much for human comfort and convenience, there were several errors which have had an unfortunate influence on preventive medicine and still have today.

One of these is that disease breeds in filth instead of being merely carried in filth.

Another is that all kinds of dirt are dangerous, not merely the secretions and excretions of the human body.

A third unfortunate hypothesis is that infectious diseases are usually air-borne.

FILTH DOES NOT BREED DISEASE

We now know that infectious disease does not breed in filth, or, with the rarest exception, in anything else except the bodies of men and animals. The infectious diseases are transmissible diseases. They spread from person to person. They do not arise afresh in decaying matter. Most of our more exact knowledge, and it is still far too inexact, is due to the laboratory. Nevertheless, the keen mind of William Budd did not require laboratory aid to show that typhoid fever does not breed in filth, but is a contagious disease which is spread by means of filth, a contention which was entirely foreign to the orthodox medical opinion of the time. The belief that the germs of disease propagate in filth and even arise de novo doubtless seriously retarded sanitary progress by turning men's minds in the wrong direction.

This theory had a decidedly bad influence on the popular mind, an influence which it will require yet many long years to counteract. A great many people, and educated people too, believe that filth is a real source of disease. This theory has been crystallized into law in many of our states, a law which provides for the abatement of "any nuisance, source of filth or cause of sickness." The garbage pail, the manure pile, the cesspool, the privy vault, decaying leaves and rubbish, an odorous slaughter house, a public dump, a dead cat or a heap of oyster shells are still, in the minds of the public, a "source of sickness," and it is still believed that it is the first duty of the health officials to cause their abatement.

SOME FILTH DANGEROUS

We now know that although some kinds of dirt are dangerous, extremely dangerous, most kinds are not. It is the dirt that carries the secretions and excretions of the body which is dangerous. The generalizations of the early sanitarians as to the causes of disease included human excrement, and it was because they were right about this and because they removed this kind of dirt from contact with mankind that their successes in disease prevention were attained. Although fearing the dangers from feces and urine, because these offend the senses, they forget the less noticeable but dangerous secretions which are transmitted on every common object which goes to the mouth or nose, and most of all on human fingers. Perhaps our delay in recognizing this mode of infection is in no small part due to the undue importance that was attached to visible filth.

RÔLE OF THE AIR

The theory that infection is usually air-borne greatly retarded the recognition of the great importance of fairly direct contact in the spread of contagious disease. It prevented the employment of economical and effective means of controlling these diseases, and created in the public mind a needless and harmful fear.

The progress of sanitary science was slow. It was long in breaking away from the theories of the early sanitarians; their influence was felt still longer on the practice of health officers, and even now in large measure dominates public opinion. People generally think that the chief duty of the health officer is to abate nuisances and eliminate bad odors. For a number of weeks the health department in Providence has been deluged with complaints about odors from certain new industries. This nuisance has been tremendously exaggerated by old time ideas about air-borne disease and the danger of odors. So far as the nuisance is a real one it should be dealt with by the police department and the engineering department; but the public traditionally looks to the health department, and much time is wasted which should be given to real health work, such as nutritional clinics, tuberculosis dispensaries and the control of venereal diseases.

NUISANCE ABATEMENT A POLICE FUNCTION

In the evolution of sanitary practice, the older and wealthier communities have largely outgrown the first stage of public health work. The streets have been sewered, privy vaults have been abolished, water closets have been properly installed, and good water supplies, properly cared for, have been introduced. The public works or engineering departments should be and usually are competent to look after the maintenance and extension of these improvements. There are a vast number of minor nuisances connected with the care of cellars, yards, lots, garbage disposal, dumps and defective drainage which it is still the fashion to expect the health department to look after, though they usually have scarcely the remotest relation to health. All this should be turned over to the police department which, with its large number of patrolmen, is much better equipped. This was nominally done in Providence a few months ago, though it has been impossible, as yet, to make the public fully realize this. Some Southern friends have criticized me for belittling the relation of nuisances and of the environment generally to disease. Where typhoid fever and dysentery and hookworm infestation abound, where 95 per cent. of the schoolhouses have no privy, where cities are unsewered and surface wells furnish the water supply, the health officer may well give much time to environment, and the sanitary inspector is a real promoter of health. When these communities have learned to dispose of their excreta as safely as have New York and Boston, Brookline, Montclair and Evanston, where the typhoid fever rate almost rivals that of the English cities, they, too, can turn over to the police what remains of nuisance control.

Second Period

There have always been medical men who realized the importance of contagion in the causation of epidemic disease. For a time, as has been shown, it was the fashion to lay undue emphasis on the surroundings of man as a source of disease, and to minimize the danger from man himself. Gradually, however, the pendulum began to swing the other way, and it was realized more and more that most infectious diseases spread from man to man, commonly in a direct manner. The belief grew that for their control the isolation of the sick person is necessary and effective; hence the demand for the notification of communicable diseases to the health officials so that they might enforce isolation. This new attitude of sanitarians led in England to the passage of the Public Health Act of 1879.

While clinical evidence was accumulating slowly as to the importance of contagion and its mechanism, the phenomenal development of laboratory methods and the identification of a number of disease germs extended our knowledge tremendously and suddenly. It was one of the chief reasons for the increased attention given to this class of diseases that the laboratory could serve as the handmaid of the health officer for the detection and control of cases. From 1890 up to the present time the direct control of communicable diseases has been the chief function of the health officer.

INSECT TRANSMISSION

Perhaps the chief merit of this period has been a constantly increasing tendency to suspect broad generalizations and to strive to find for each disease exactly how infection passes from person to person and where the point is at which the chain of contagion can most easily be broken. At first, crude isolation was urged for every communicable disease, but it was so often found useless that, toward the close of the nineteenth century, further study of the problem was demanded. Unquestionably, the most brilliant result of these studies was the discovery of insect transmission. It was demonstrated in 1893 for a disease of cattle by Smith and Kilborne. In the last year of the last century it was proved to be the mode of transmission of malaria, and in the last months of that year, of yellow fever. Within a short time, African sleeping sickness, bubonic plague and typhus fever, as well as several less important diseases, were shown to be spread from person to person by insect carriers. That insects spread disease is the most important discovery of preventive medicine. If it had not been for the interruption of the war, yellow fever might now, perhaps, have become extinct. Typhus fever, the scourge of all wars, and prevalent among allied and enemy forces, was wonderfully controlled on the western battle front. A successful fight is being waged in every direction against malaria. We know that in civilized communities bubonic plague is truly a preventable disease. It is pleasant to remember that, in all these wonderful epoch-making discoveries, English speaking men have played the chief and almost exclusive rôle.

ISOLATION OF SMALLPOX

That the isolation of the sick in the house or in a hospital has prevented much infection and saved many lives, no one doubts. Nevertheless, it is by no means easy to find as much unimpeachable evidence as one would wish. It seems highly probable that the greatly diminished prevalence of smallpox is to a great extent due to isolation. Vaccination has been doubtless a more important factor, but the notoriously unprotected condition of such a large part of the population of England and the United States makes it unlikely that the lessened amount of the disease is due to that alone. There is very little doubt that immense numbers of our people, if exposed directly to smallpox, would contract it. The reason they do not have it is that they are not exposed to it; in other words, those who do have it are isolated. If isolation is successful in any disease it ought to be in smallpox, for this disease, when typical, is easily recognized; and people are so afraid of it that the public strenuously demands rigid isolation.

MILD TYPE OF SMALLPOX

When smallpox assumes a mild type, this does not hold true. Great numbers of cases are not seen by a physician and are unrecognized and therefore not isolated. For nearly twenty-five years such a type of smallpox has prevailed in the United States, and doubtless as many as 50,000 cases have occurred in a single year. During this period the severe type of smallpox has prevailed extensively only over a period of about two years, and then only to a fraction of the extent of the mild type. Scores and scores of times a virulent type has been introduced from abroad, but in nearly every instance its spread has been promptly checked by isolation, aided, of course, by vaccination.

ISOLATION MAKES DISEASE MILDER

The desire to control scarlet fever, which was then a much dreaded disease, was deemed in England an urgent reason for insisting on notification so that isolation might be enforced. That it might be the better enforced, expensive hospitals were constructed; and in some cities considerably more than 90 per cent. of persons with recognized cases of the disease were induced or compelled to enter the hospital. It was frankly hoped that such isolation would come near stamping out the disease. These hopes, however, have not been realized, but I am nevertheless inclined to believe that isolation has been highly successful. It is true that the disease is almost, if not quite, as prevalent as in former years; but the number of deaths has decreased most remarkably. The disease is of a much milder type than formerly. There are many who believe that this is only a periodic change to which this disease is subject, and that it is likely again at any time to assume its old malignancy. Every little while a few cases of a virulent strain do appear, sometimes in one place and sometimes in another; but the virulent strain is quickly recognized, isolated and wiped out. Severe cases are readily recognized and not easily concealed. Mild cases spread the disease. This view, that isolation may be a factor in keeping down the virulence of a disease by a process of selection, as a fancier breeds certain strains of his stock, has never received much consideration; but it seems to me that there is enough evidence in favor of it to warrant further study. This sort of selection probably would not be effective unless the disease happens to develop fairly permanent strains of varying severity. Perhaps not all diseases do this. Perhaps few of them do; but there is considerable evidence that such differing strains are found in smallpox and scarlet fever.

ISOLATION OF MEASLES

Most health officers have been decidedly discouraged about the value of isolating measles. Its great contagiousness, and the long infectious period before the rash appears, apparently make isolation a failure. That in cities and army camps it has been a failure, probably all will agree. Although measles is one of the most unpromising diseases for isolation, this procedure is by no means always a failure. In small communities and rural districts, in which half our population live, it has had much success. Years ago I was much impressed by the experience of Michigan with this disease. The health department of that state published, year after year, the experience of the small communities in controlling the common contagious diseases. It was shown to what extent disease spread in those communities where isolation and disinfection were practiced, as compared with those where they were not. The comparison was of the number of cases per outbreak in the two classes of communities. According to these figures, isolation cut down the measles cases 94 per cent. This was most astounding to one whose experience had been in a city of nearly 200,000. A study of the individual township and village reports made it clear. In small communities, it was often possible to get hold of the first case or the first two or three cases; and often, owing to the comparatively few points of contact in such communities, these had done no harm. Isolation was effective. Sometimes, of course, it was not. If, however, nothing was done, the disease often spread to all that were susceptible. That isolation does protect was shown plainly enough in the camps in 1917. Most of the men from the cities had had measles. Great numbers of those from rural sections had not. Their natural isolation had saved them from it as it had from many other contagious diseases. It is so difficult to trace the source of infection in a large community, whether civil or military, and the points of contact are so numerous and in civil communities so difficult to control, that isolation is usually far less effective in such than in small communities. Unfortunately, health administration is usually much less efficient in the small place, which goes far to offset their natural advantage of size. Even now measles, scarlet fever and diphtheria are less prevalent in rural sections, and it is a reasonable hope that with efficient administration they could be made far less prevalent.

MARITIME QUARANTINE

The same causes that make isolation more effective in small communities than in large make it easier to control outbreaks at the beginning than when they have gained a foothold. It may be impossible to control a disease when it has become widespread, but the chance may be good if it is discovered before the cases have become numerous. This has happened a great many times during the last twenty-five years with the virulent type of smallpox. Indeed, only two or three times has there been an extensive outbreak of this type during this period. Hence it is that quarantine is of great value. This country is very free from severe smallpox and from typhus fever, cholera and bubonic plague. Where most of the travel is by steamships, it is comparatively easy to discover most cases of dangerous exotic disease at the port of debarkation, and when discovered to isolate them until danger has passed. The old fashioned, senseless quarantine which held every ship for an arbitrary period, and which considered the ship itself and cargo as dangerous as the passengers, has passed away. The tendency is to make the restriction on travel and the inconvenience to the ship as slight as possible. With more accurate knowledge they can doubtless be still further lightened, and efficiency at the same time increased. The restriction of inland communication is theoretically as useful as maritime quarantine; but the avenues of travel are so numerous that it has been found to be impossible to control them. Endless trouble, expense and hardship are caused, and all to no purpose. Infection is sure to creep through. Even before the development of modern means of communication, "shotgun" quarantine was deemed a failure. The control of travel was attempted on a considerable scale during the great infantile paralysis outbreak of 1916, but it is generally admitted that it was entirely ineffective.

TYPHUS FEVER KEPT OUT BY QUARANTINE

It seems highly probable that the chief reason for the decrease in typhus fever has been the greater cleanliness of people. It is certain that in our large cities people are not as lousy as they were forty years ago. Nevertheless there are a good many lice now, and I feel sure that there would have been much more typhus in the United States if the incoming cases from Europe and Mexico had not been diligently sought for and isolated.

FAILURES OF ISOLATION

Much has been accomplished by the isolation in the home and in the hospital of the common contagious diseases, and perhaps still more by the isolation of the rarer and more dangerous diseases which only occasionally make their appearance in this country; but the health official of fifty years ago thought that far more would be accomplished. It was even hoped that some diseases, as scarlet fever, might be stamped out. Unfortunately, instead of this result, it is difficult to show that isolation has had much, if any, influence in our cities and considerable towns on the incidence of such diseases as scarlet fever, diphtheria, measles and whooping cough. As for meningitis, infantile paralysis, pneumonia and influenza, the evidence that isolation accomplishes anything is still more shadowy.

ADMINISTRATIVE DIFFICULTIES

Some of the reasons for this failure of isolation are what may be called administrative. In all communities it is difficult to find the source of each case of contagious disease. It is difficult to find contacts and keep them under supervision. All these difficulties are greatly enhanced in large communities. Then there is the difficulty of diagnosis. It is not easy, in many cases, for even experts to determine the presence of contagious disease, and a great many physicians have not had the training and experience to enable them to detect mild cases. In one disease at least, influenza, our knowledge is too uncertain for one to be very positive as to the existence of the disease. To be sure, during an epidemic, it is tolerably safe to make a guess; but the symptoms are so little characteristic that, taken by itself, an individual case is a doubtful case. Then, many persons are negligent. They procrastinate, and do not send for a physician until much harm has been done. Proper isolation, too, in many homes, is difficult or impossible, and hospitals are available for only a few.

DANGER OF PRODROMAL PERIOD

Important as these administrative difficulties are in the way of control, the difficulties due to the nature of disease are still greater. One of these is the contagiousness of the prodromal period, so called. In measles, for instance, there are several days of sickness before the rash appears, during which the patient is very infectious. The symptoms are those of a cold; and the patient, if an adult, or the parents, if a child, do not suspect measles. There is reason to believe that this is the most contagious stage, and in most cases the patient is well enough, for a time at least, to go to school or to work and give the disease to many others. Most people believe that this is the chief reason for the difficulty in controlling this disease. Smallpox, too, is contagious during the stage before the eruption; but the stage is shorter than measles, and in typical smallpox the patient is sicker and so less likely to do harm. The stage before the "whoop" in whooping cough is also the most contagious period and may last two weeks or more, so that the hope of controlling this disease by the isolation of cases after the whooping has developed is nil. Indeed, the most careful observers think there is very little danger of infection after the whooping stage has become well developed. In most of the other common contagious diseases the period before the characteristic symptoms and before the disease is likely to be recognized is the most contagious period; but, fortunately, it is shorter in the other diseases than in measles and whooping cough.

MISSED CASES

Another difficulty in controlling contagious diseases is the existence of so many mild and atypical cases—cases that at no time present the classical symptoms of the disease. Such cases are extremely common in diphtheria and scarlet fever. People cannot be expected to realize this, and they fail to call a physician and, so far as preventive medicine is concerned, the case is "missed." There are certainly cases of whooping cough without the whoop. Many persons have a slight rhinitis due to the germs of meningitis without ever suspecting that they have the disease, and if a medical man should see them he, too, would probably not suspect it. As these atypical cases, which are so generally missed cases, are usually mild, so that the patients mingle freely with the public during the period of the attack, they naturally are the cases that do most to spread the disease. Although clinicians have always recognized that there are some atypical cases of disease, they never began to realize how numerous they are until taught by the laboratory. The laboratory showed us how common are mild infections with the diphtheria bacillus, with the typhoid germ and with the germ of meningitis and, though it cannot as yet help us with scarlet fever, it has put us on the lookout for atypical cases in this as in every other contagious disease.

CARRIERS

Forty years ago I imagined, as did every one else, that if we could isolate every *case* of contagious disease, the disease could be stamped out. We now know that this is far from true. The laboratory has taught us how numerous are the mild atypical cases, which, after all, are cases of illness. The laboratory too has taught us, what we never suspected before, that many recovering from infectious disease carry the infection long after they are well and that many others, from contact with the sick, also have acquired the germs and become healthy carriers of them. The carriers of virulent dihptheria germs are more numerous than are the cases, and the well carriers of meningitis germs are far more numerous still. Much harm and many outbreaks of sickness have been traced to typhoid carriers. Evidence points to many carriers of infantile paralysis. There are probably healthy carriers of nearly every infection, though they do not appear to be very numerous in measles and smallpox. The carrier problem presents great difficulties, as yet unsolved. It is because of the unrecognized prodromal period, because of mild and missed cases, and because of the carriers that decided limitations are set to usefulness of isolation.

FAILURES SHOULD BE ADMITTED

Health officers and laboratory workers alike have been loath to admit the failures in the control of contagious diseases, but they must be admitted; and the sooner, the better. The World War did much to disabuse men's minds and show the limits to the usefulness of isolation, as it did much to show the value of other means of preventing sickness and death, as well as the usefulness of isolation in some diseases. Nevertheless, many medical officers were much chagrined and disappointed that measles and mumps, bronchitis, pneumonia and influenza spread through the camps apparently uninfluenced by methods of control. There were many, however, who were not surprised at this result, for it had been their experience that these diseases had not been controlled in any considerable degree in large communities in civil life.

Now that we are no longer troubled by the fear of the free and widespread aerial transmission of disease, much of the old time rigorousness of isolation has disappeared. One of our most successful epidemiologists has said, "What is needed is not more isolation, but the isolation of more persons," meaning, thereby, that there is no need to place more restrictions about the sick, but there is great need of seeking out and controlling the missed cases.

Third Period

Thus far the promotion of public health has been largely a matter of compulsion. The state took away men's property and men's liberty. During the first stage the abatement of nuisances and the improvement of dwellings forced unwilling expenditures. The rigorous enforcement of isolation took away man's most cherished right, his personal liberty. Police work is not pleasant work. It is slow work, and he who does it finds it difficult to obtain the good will of those whom he coerces.

PERSONAL RESPONSIBILITY

During the latter years of the last century a new field of endeavor for the sanitarian began to open. It was formerly said that for every death from typhoid fever some one ought to be hung, meaning thereby the health officer. It was assumed that freedom from disease depended on community effort, on municipal housecleaning and on the zeal of the health officer. It came to be seen that this is only partly true, and that the individual can do as much, or more, to preserve his health as the state can do for him. It was realized that the fundamental difficulty is that he does not know how. Health officers, or quite as often, public spirited citizens holding no official position, began to see that it was somebody's opportunity and duty to show the people the road to health. Instead of compulsion, persuasion became the watchword. Assistance to right living was to be offered, and the people were to be persuaded to avail themselves of it.

TUBERCULOSIS MOVEMENT

This idea was first developed in connection with the prevention of tuberculosis. The disease was not to be stamped out by a reconstruction of dwellings, though it was recognized that good building laws provide dwellings in which it is easier for the occupants to lead a wholesome life. Nor was it planned to shut up every consumptive as long as he lived, though it was thought that forcible isolation might become necessary. The campaign against tuberculosis developed along the line of personal instruction, personal treatment and personal aid. The nature of the disease, so far as it is known, has been diligently taught. People have been instructed as to the dangers of contact and droplet and dust and milk infection. The well have been shown how to avoid these. The infected have been shown how to avoid transmitting infection. The clinic was opened so that every one might learn whether he had the disease. The nurse showed the way to the clinic. The sanatoriums promised cure to those who would come promptly, and the hospital offered to shelter those who were beyond cure and so help them to keep infection from their loved ones. This was a new kind of health work, in which the nurse supplanted the nuisance inspector, and the physician took the place of the policeman.

PREVENTION OF INFANT MORTALITY

A little later there began a movement for the reduction of infant mortality. There was no compulsion about it, and little attention was paid to changing the environment. At first a good deal of attention was given to milk, for it was thought that stale and dirty milk killed many babies. Clean and fresh milk is needed to rear children that are denied the privilege of the breast, but it was soon learned that far more than good milk was necessary to make any appreciable impression on infant mortality. Good food for the baby is necessary, but the average baby is as hard to find as the average man. There is no standard food, but the food must be modified to suit each baby's needs. In this conception of infant feeding I think the Americans and the English were the leaders. To the medical profession chiefly is due the credit for discovering the principles of baby feeding and for constantly teaching and preaching the newer methods. There is, however, much infant care besides feeding. There is cleanliness, protection from infection, clothing, rest, sleep, outdoor life and a thousand and one little details which make up good nursing. It was for this that the nurse was needed. The reduction of infant mortality is chiefly a matter of education. Sometimes it may be necessary to supply good milk or other things; but for the most part the problem has been to educate the physician and the mother. The leading pediatricians have been doing the former, and countless agencies, public and private, chiefly through their nurses, have been doing the latter. The distribution of literature, lectures, exhibits and movies have all been employed; and though of much value in exciting public interest and of some value in giving direct instruction to the mother, the latter, to be most effective, must be by physician and nurse.

SUPERVISION OF SCHOOLCHILDREN

Then there is the medical supervision of schoolchildren. I know little about its beginnings in Germany, where I believe it originated, but it was certainly introduced into this country primarily for the prevention of contagious disease. It was hoped that the school physician would discover many children in the early stages of contagious disease and would thus stamp out numerous outbreaks. There has been some control of contagion by this means, but it has not been phenomenal. It soon appeared that medical inspection, as it was first called, had a much broader field. The physician saw many children poorly nourished, with defective eyesight, suffering from adenoids and with numerous other disabilities, some, perhaps, marking the beginnings of serious organic defects. A number of causes, prominent among which is the number of "defects" found in men called to military service in the Boer War and the World War, have served to popularize the demand that the state do something to give strength and health to its men and women. Interest has centered on the child, for it is felt that childhood is the time to remedy defects and to teach right ways of living. The medical supervision of schoolchildren is largely educational work. The physician is the one to discover defects and to remove them; he, also, must be the teacher to show the need for action and the way in which betterment can be secured. Here, as in infant welfare work, the nurse must be his lieutenant. She must go into the home and explain to the parents what the physician has explained to her. In the present state of human knowledge, or rather of human ignorance, hers is often an onerous task. The antivenereal campaign which received such an impetus during the war is not so wholly a campaign of education as those just considered, but it is largely so. The effort is made to educate parents and children in matters of sex, and great effort is made to teach the public generally the nature of venereal diseases and their results and the best methods of treatment. Besides this, the provision of this treatment for each infected person is insisted on. Lastly, the police power is invoked to restrict prostitution and to strengthen moral resistance by prohibiting the sale of alcoholic beverages.

IMPORTANCE OF SANITARY INSTRUCTION

There are several other lines of health work which are just now claiming attention and which are largely educational. This is true of hookworm and malarial campaigns, the effort to prevent pellagra, the dental hygiene campaign, the movement for mental hygiene, cancer control and the salvage from heart disease. Although education is not the only weapon made use of in these newer fields of preventive medicine, and although it has always been relied on more or less, it has become prominent enough during the last twenty years to give color to the whole period. The statement "Sanitary instruction is more important than sanitary legislation" represents the point of view held today, but it certainly does not represent that held fifty years ago.

Education has become a distinct branch of health work. Many state health departments and not a few city departments have a separate division with a director and assistants devoted to education, or publicity, as it is at times and perhaps more properly called. All the modern methods of getting at the people are employed. The circular and bulletin and almanac, the press notice, even the distribution of boiler plate, posters, lectures, lantern slides, moving pictures, newspaper advertisement, bill board advertising, exhibits, the "health automobile" and the "health train" are all made use of. The professional advertiser is employed as director, and the methods of the soap manufacturer and the cigaret maker have invaded the realm of preventive medicine.

TREATMENT

Perhaps the greatest divergence from the real conception of the sphere of public health is in the direction of cure. The early notion was that prevention and cure are two distinct arts and that the health officer and the practitioner must be kept absolutely distinct. This is the idea that prevails today, with few exceptions, among practitioners and to no slight extent among health officers. Gradually, however, a great change, as regards both theory and practice, has been developing until there are many, of whom the writer is one, who are heartily in accord with the views of Sir Arthur Newsholme that "the treatment and prevention of disease cannot administratively be separated without injuring the possibilities of both."

Perhaps the earliest step in this direction was in connection with the use of antitoxin. This new remedy promised great things; but it was expensive and hard to get, and health officials began at once to distribute it, to manufacture it and to administer it. It was considered an important feature of health work to urge the use of this remedy. A few years later the development of the tuberculosis campaign resulted in the establishment of dispensaries for the diagnosis and treatment of the disease, and sanatoriums for the cure of early cases were built as a public health measure and were at times under the control of health officials. Although in baby welfare work a decided effort was made to draw a sharp line between well babies' consultations and sick babies' clinics, the effect on the public mind was to associate the two as equally proper functions of the state. As school inspection began to concern itself with the general welfare of the children rather than with contagious diseases alone, the necessity arose for meeting the need for more and better facilities for treatment. Adenoid and tonsil clinics, dental clinics, trachoma clinics and clinics for the prevention of ringworm, to say nothing of the treatment of lousiness, began to be established. The hookworm campaign centered about the dispensary. It served as a demonstration of the reality of the disease and the possibility of its cure and prevention. By curing people, too, the sources of infection could be removed. Malaria, also, is combated by the administration of quinin to cure and sterilize the patient, and this is now recognized as a legitimate and necessary public health function. There are many other directions in which preventive medicine has invaded the field of curative medicine, but perhaps the most noticeable is the scheme for the control of the venereal diseases. One of the corner stones of this movement is the clinic. No community is considered as doing its duty unless a clinic is provided which is available for every one. Among the reasons for this frank assumption of curative work by the health department in these diseases is that effective treatment is expensive, that comparatively few physicians are by training qualified to administer it properly, and that treatment quickly eliminates the danger of contagion, in syphilis at least, and minimizes the danger of such impairment of health that the victim will become a burden on the state.

HEALTH CENTERS

Lately, largely through the influence of the Red Cross, there has been a powerful effort made, avowedly and openly, to join curative and preventive medicine in the health center. Better facilities for diagnosis, better opportunities for treatment by specialists, more hospital beds and more good nursing are recognized as powerful factors, not only in the immediate restoration of health to the sick, but also in making them personally acquainted with scientific medicine and instructing them in hygienic methods of living. Some of our health officials are avowedly entering on a campaign to improve the medical facilities of the masses of the population.

The bulk of the medical profession still looks askance at the invasion of the field of curative medicine by the state, and the leaders and molders of public opinion do not take kindly to medicine's becoming more of a governmental function. Nevertheless, it seems unlikely that the movement is going to be checked and it is a tremendous responsibility for those to whom is given the opportunity to direct the movement aright. It is perhaps best that progress should be slow and that we should feel our way. It is perhaps also good that attention at present seems to be directed chiefly to improving the clinic or dispensary and making it available for all of the poorer portion of our population. There is much to be done right there.

MUCH TEACHING OF ERROR

Mistakes have been made in the past and they are likely to be made in the future. Some of these dangers ought now to be seen and guarded against. As has been referred to, education of the people, considered the foundation of the modern health movement, has borrowed much from the professional advertiser. A good deal can be borrowed from this source with advantage, but much commercial advertising is almost criminal. The professional advertiser often forgets that there is such a thing as truth, and the teacher of public health also sometimes forgets it. He aims to be effective first, last and all the time. It is how he says and not what he says that worries him. A few years ago some one started writing ridiculous verses about the fly which seemed to please the peoples' fancy, and there has been a constant output of this "poetry." It usually inculcates the most erroneous ideas about physiology, germs and the cause of disease, as well as greatly overemphasizing a source of sickness which is really comparatively unimportant, at least in the northern part of our country. Much, very much, health instruction is hopelessly behind the times, or else errs as much the other way by teaching as fact the most fanciful theories.

The health bulletins are still harping on the idea that all dirt is dangerous and that disease germs breed in dirt and fly through the air. A wash pail and scrubbing brush are pictured as keeping tuberculosis from the house. Breathed air is represented as loaded with poison. The age is in too much of a hurry. Disease is killing people. Let us do something about it, no matter what so long as we do it, is the attitude of many. Arterial disease kills thousands and handicaps more. Let us start a campaign against it, whether we know its cause or not. Some say it is caused by too little exercise, some say by too much; but never mind, let's start a campaign anyway. The greatest danger of the educational movement in public health is that it will be wrecked on the shoals of error.

I am told that a common admonition of Osler, when at the bedside with his patients, was: "Have the courage to do nothing." I would paraphrase this and say to the writers of press articles and to the compilers of health almanacs: When facts are not at hand, have the courage to say nothing.

COMPULSORY TREATMENT

In an address which Viscount Bryce gave in Providence many years ago, while speaking of the influence of Roger Williams, Rhode Island's apostle of soul liberty, he called attention to the jealousy with which most men regard body liberty. What Viscount Bryce's views are in regard to the effects of vaccination or the curative value of arsphenamin I do not know, but I am sure he was right when he urged the danger of trespassing on individual liberty in such matters. Let us beware of the compulsory treatment of disease. That is another rock on which the future of preventive medicine may be wrecked. Education is better than legislation. It is slower, but surer.

SYNERGISTIC COLONIC ANALGESIA

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In 1913, I [1] presented the results of the experiments by Prof. George Barclay Wallace and myself with the colonic administration of oil and ether in animals for the purpose of inducing anesthesia. Seven years later, Lathrop [2] detailed the results of more than 1,000 cases of oil-ether colonic anesthesia in his individual parctice. Oil-ether anesthesia is now used throughout the world. Whenever the fundamental principles are understood and applied, only satisfactory results follow.

PHYSICAL FUNDAMENTALS

As determined by Baskerville,[3] the physical fundamentals are:

> While ether boils at 34.6 C., it does not escape as violently from an oil-ether mixture as from an aqueous mixture, when the mixture is heated higher, namely, to the body temperature of 37 C. The rate of separation from the oil quickly acquires a definite and fairly fixed speed.
>
> The significance of this cannot fail to be of great import, for by this means the proper content of ether may be maintained in the blood to produce any desired physiological effect that has a quantitative relation thereto—for example, the third or surgical stage of anesthesia.

PHYSIOLOGIC FUNDAMENTALS [4]

1. It is necessary to give at one time the total amount, as determined by age, weight and the general condition of the patient, in order to establish the ether tension in the blood, which is necessary to produce anesthesia. It is a fallacy to assume that the total amount given to a patient is immediately utilized. If this were so, there

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[1] Gwathmey, J. T., and Wallace, G. B.: Seventeenth Internat. Cong. Med., London, 1913, subsection vii (b), p. 163.

[2] Lathrop, Walter: Ether-Oil Colonic Anesthesia, J. A. M. A. 75:82 (July 10) 1920.

[3] Baskerville: J. Indust. & Engin. Chem. 7:868 (Oct.) 1915.

[4] Gwathmey, J. T., and Baskerville, Charles: Anesthesia, New York, D. Appleton & Co., 1914, p. 458.

would be shock and gradual recovery with every oil-ether administration. As the plane of anesthesia is constant, it is now definitely established that the patient absorbs 2 ounces of ether an hour—a smaller amount than by any other method in common use.

2. After administering the oil-ether mixture, it is impossible to withdraw the oil and leave the ether, or to withdraw the ether and leave the oil. Every molecule of ether is bound to a molecule of oil, and this union is broken only when vaporization occurs. In no other way can they be separated.

When anesthesia is established, it is automatically maintained by the ether separating from the oil according to certain inflexible physical laws. The amount of this vaporization never varies. Therefore it is impossible to have deep anesthesia at one time and a light anesthesia at another, unless the anesthesia is deepened by rebreathing or lightened by an airway tube. Thus the administration is as definitely under the control of the anesthetist at all times as if he were giving it by an inhalation method. While the total amount of the mixture is within the body, the patient is as safe from an overdose as if it were in a container outside the body.

The patient under oil-ether colonic anesthesia inhales a warm, moist vapor at all times. When the ether is taken up by the small blood vessels surrounding the colon, it is carried thence through the liver by the greater circulation and on to the heart; from there it is pumped into the lungs. By the time the anesthetic has reached the lungs, it is moistened and thoroughly warmed to the body temperature. There is no irritation to the lungs, and mucus and saliva are usually absent.

4. When the ether evaporates from the oil in the colon, a frigid condition ensues, which cools the mixture and retards evaporation. This process recurs automatically until all the ether has parted from the oil. During this time the temperature of the patient remains normal, as determined by a thermometer placed in the axilla. The skin is warm to the touch; the color of the face suggests thorough oxidation all the time. The cold, clammy sweat often noticed with ether given by other methods does not exist with oil-ether.

5. Quiet respiration, normal pulse, and good color during the anesthesia indicate that no toxic condition exists.

The absence of nausea and vomiting in the large majority of cases, with no change in the urine or blood, in conjunction with the other clinical facts just noted, would indicate that there is less toxicity in connection with this form of anesthesia than with the usual inhalation methods.

Dr. G. K. Dickinson [5] of Jersey City thus sums up the argument for oil-ether anesthesia:

> To any one who has witnessed anesthesia by the inhalation method, and then watches the most delightful, childlike slumber of the person under rectal anesthesia, there will be a great and comforting surprise. The cone to the face, even with gas-oxygen, is an affront. Those who prefer local anesthesia also give affront by their presence and manipulation; but the surgeon who quietly steals up behind and induces anesthesia per anum does not in any way disturb the psyche, and the chain of reactions so detrimental are not instituted.

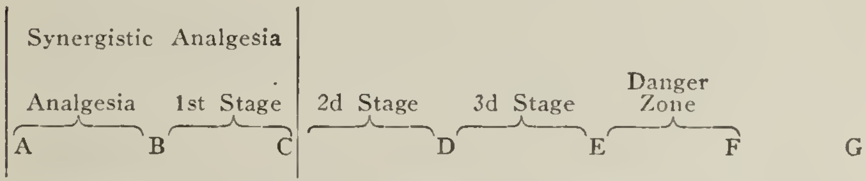
One great objection to the practical application of this method is the fact that so few anesthetists or surgeons understand the difference between the signs of analgesia and anesthesia.

PRINCIPLE OF SYNERGISM

We propose now to introduce another element into colonic anesthesia, which will render expert supervision unnecessary. This element or fundamental principle is now being tested clinically at the Presbyterian Hospital under the supervision of Dr. Adrian V. S. Lambert. It is termed synergistic analgesia. By synergism is meant the reciprocal augmentation of the action of one drug by that of another. This effect is not due to a simple summation of similar pharmacologic actions, for they are altogether too great. Dr. Hans Meyer states that "at present no satisfactory explanation for this action can be given." [6]

The late Dr. Samuel J. Meltzer [7] thus expressed the synergistic property of magnesium sulphate: "When after the administration of a very small amount of ether, insufficient to cause anesthesia, an inefficient amount of magnesium sulphate is injected intramuscularly, a profound anesthesia follows, which can be maintained for several hours." To Meltzer is due the honor of introducing magnesium sulphate as an anesthetic agent. The mistake that he made was in attempting by various ways to use this agent as the single factor in producing the effects desired. A search of the literature does not give a single reference to the use of magnesium sulphate with morphin for analgesic purposes.[8] Meltzer, in writing up clinical cases, says: "No morphin was used."

At the Presbyterian Hospital it has been definitely determined that the addition of a small amount of magnesium sulphate to the usual hypodermic of morphin increases the value of the hypodermic from 50 to 100 per cent. We propose to take advantage of the knowledge thus gained and convert colonic anesthesia into synergistic colonic analgesia. In other words, we propose to get a complete brain block by using much smaller amounts of ether than heretofore employed and adding to this effect of ether the synergistic effects of the combined morphin and magnesium sulphate. It will depend entirely on the operation and the patient's mental attitude as to whether or not unconsciousness also shall be induced. A patient under synergistic colonic anesthesia will not be in a third stage anesthesia, but will be analgized and unconscious as represented in the accompanying chart.



Stages of anesthesia: *A*, commencement of anesthesia; *A B*, analgesia; *B C*, first, or excitement, stage; *C D*, second stage; *D E*, third, or surgical, stage—the usual stage in which operations are performed with inhalation anesthesia; *E F*, danger zone; *F*, respiratory arrest; *G*, death.

The danger of the relaxed tongue, obstructing the airway, will be eliminated, and as the patient will be separated from the danger zone by the second and third stages of anesthesia, expert supervision will be unnecessary.

MAGNESIUM SULPHATE

Since the use of magnesium sulphate is new in this connection, a brief review of its history and physical characters may be timely.

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[5] Dickinson, G. K.: Personal communication to the author, November, 1920.

[6] Meyer, H. H., and Gottlieb, R.: Pharmacology, Clinical and Experimental, Philadelphia, J. B. Lippincott Company, 1914, pp. 510, 575.

[7] Meltzer, S. J.: J. Exper. Med. **23**: 641 (May) 1916.

[8] Dreyfus and Unger: München. med. Wchnschr., 1914, No. 51, p. 2417.

History. — Magnesium sulphate, $MgSO_4$ (Epsom salt), was first discovered by Dr. Nehemiah Grew, an English physician, in 1694, and is undoubtedly one of the most widely known and most extensively used medicinal chemicals, being official in every known pharmacopeia. It was first obtained by evaporating the water of a spring at Epsom, in Surrey, England; hence the popular name, Epsom salt.[9] Later, in Massachusetts, it was obtained as a by-product in the manufacture of salt from sea water. Still later, it was manufactured from native magnesite found near Baltimore. It is now obtained also by the interaction of the native magnesium carbonates and diluted sulphuric acid. It occurs native in certain rocks and soils which contain magnesia and a sulphate or sulphid. In the United States, it is found in caves west of the Alleghany Mountains, and it is also obtained from kieserite from the Stassfurt mines in Germany. It occurs in small, colorless, prismatic needles or rhombic prisms, is without odor, and has a cooling, saline and bitter taste. Comparatively it is very cheap, and it is available in three qualities — commercial, purified and chemically pure. The only quality permissible in anesthesia or analgesia is the "chemically pure." It is also well to remember that the salts of magnesium, along with the salts of sodium, potassium and calcium, are the chief inorganic compounds present in the tissues and the fluids of animal bodies.[10] For more than 200 years, Epsom salt has been largely used to relieve constipation. The late Dr. Meltzer [11] of the Rockefeller Institute, while experimenting for other purposes, noticed that two drops of a 5 per cent. solution of magnesium sulphate, injected intracerebrally in a rabbit, produced completed anesthesia and relaxation lasting several hours. From that time, Dr. Meltzer labored to establish its value as an anesthetic. Before subjecting any human being to its, at that time, unknown qualities, he conscientiously experimented for many years on different species of the lower animals, using rats, guinea-pigs, fowls, cats, dogs and monkeys. The agent was used intravenously, subcutaneously, intramuscularly, intraspinally and as a local anesthetic.

While we have not employed it in any of these ways, and do not intend to do so, and while we do not intend using it as an anesthetic or analgesic, but simply and solely for its synergistic effect with other agents, yet the observations and results of Meltzer's animal experiments and the clinical results of his collaborators have an important bearing on our work, and it is best to mention these results here.

Meltzer's Results and Observations. — Meltzer [10] wrote:

> Magnesium exerts a profound effect upon the nervous system. The hypodermic injection is painless; the effect seems to be exclusively of an inhibitory character. Complete anesthesia, including relaxation of all voluntary muscles with subsequent full recovery in animals, may be obtained by employing magnesium sulphate in 25 per cent. solution subcutaneously. The *subcutaneous injection* of magnesium sulphate never led to an immediate or late appearance of diarrhea or more frequent stools. The salts are eliminated to a great extent through the kidneys.
>
> Absence of pain sensation and complete muscular relaxation can be fully developed before the stage of complete abolition of the conjunctival reflex is reached. Not a single instance was observed in which magnesium sulphate produced an increase of excitation.
>
> In *intravenous injections*[12] it is very toxic, even in small doses. The first effect is upon the respiration.
>
> Among the effects of these salts,[13] not a single phenomenon was noticed which could be reasonably interpreted as an irritating influence.
>
> The direct application of solutions of magnesium salts, even in strong concentration, to the nerve trunks of animals, never seems to produce irritation. The conductivity can be interrupted and a more or less complete block for afferent and efferent, for normal or artificial impulses, can be established. This can be accomplished by hypertonic, isotonic and hypotonic solutions. The more concentrated the solution, the sooner the effect is established. In general, it takes more time for the magnesium solution to cause a nerve block than for other known local or general anesthetics. Intravenous infusions of various calcium salts [14] are capable of completely reversing the pronounced inhibitory effects brought on by various magnesium salts. The respiratory paralysis, etc., are all completely reversed and restored in a very short time by the injection of a comparatively small quantity of calcium salt. The antagonism of calcium to magnesium is a phenomenon common to animals and plants. Chloride, nitrate, and acetate salts of calcium were used. Calcium salts were M/8.
>
> The dangers of anesthesia by magnesium sulphate come practically only from respiration.[15] Heart and pulse remain normal.
>
> The effect upon the central nervous system appears to set in sooner than the peripheral.[11] This effect, and especially the effect on pain and on consciousness, can be attained with a smaller dose of magnesium salts than that which is required for a paralysis of the motor nerve ending.
>
> Death is due in all cases to inhibition of the respiratory center.[16]

With dosage and safeguards alike determined by the animal experiments, magnesium sulphate was now used clinically. As an anesthetic in man, it was a disappointment—as also in chorea, in which, theoretically, it was indicated. It has proved most valuable in tetanus, and will probably continue to be used with this condition.

Laboratory and Clinical Observations of Meltzer, Auer and Others.—Dr. Joseph A. Blake, after trying it in a case of tetanus,[16] found:

> 1. A marked effect in restraining the convulsions and relieving pain, thereby conserving strength and preventing excessive metabolism and heat production. 2. Spasm of muscles of mastication and deglutition is at least lessened, thereby permitting feeding. 3. Its action is continued for a considerable period, without depressing action upon the heart muscle. Repeated injections produced no harmful effect, except the inhibition of the bladder, thus requiring catheterization.

Another observer states that:

> The severe spasms or convulsions [referring to tetany in children] may be temporarily relieved by subcutaneous injections of a solution of magnesium sulphate.

A personal communication to the author states that:

> An 8 per cent. solution of chemically pure and sterilized magnesium sulphate is used in young infants under 1 year of age. From 25 to 30 c.c. is injected subcutaneously. Occasionally this is repeated once or twice in twenty-four hours, but usually one injection is sufficient to control.

Another writer warns that:

> On account of the slowness of its excretion from the system, magnesium sulphate given repeatedly in a concentrated solution may produce poisoning by accumulation.

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[9] Proc. Am. Pharm. Assn., 1904, p. 351.

[10] Meltzer, S. J.: Am. J. Physiol. **14**: 366, 1905.

[11] Peck, C. H., and Meltzer, S. J.: Anesthesia in Human Beings by Intravenous Injection of Magnesium Sulphate, J. A. M. A. **67**: 1131 (Oct. 14) 1916.

[12] Meltzer, S. J.: Am. J. Physiol. **15**: 387, 1905.

[13] Meltzer, S. J.: Am. J. Physiol. **16**: 233, 1906.

[14] Meltzer, S. J.: Am. J. Physiol. **21**: 300, 1908.

[15] Meltzer, S. J.: Med. Rec. **68**: 965, 1905.

[16] Meltzer, S. J.: Surg., Gynec. & Obst., May, 1906.

While the intraspinal injection of magnesium sulphate has been discarded, the dosage with this method is important in connection with its use subcutaneously. "Inject 1 c.c. of a 25 per cent. solution for every 18 to 20 pounds of body weight, and wait about two hours."[17] Thus, a man weighing 160 pounds would receive 8 c.c.

MAGNESIUM SULPHATE AND MORPHIN

From the foregoing data, it may be concluded that magnesium sulphate is a safe agent in producing anesthesia, although not as valuable as some other agents when used alone. When used synergistically, it is absolutely harmless and one of the most effective agents of which we know. Its combination with morphin was first suggested by Dr. E. J. Pellini of the pharmacologic department of the University and Bellevue Hospital Medical College, and in association with the writer the effect of this combination was determined, as follows:

A sufficient number of animal experiments was conducted to prove that one-eighth grain of morphin in 2 c.c. of a 25 per cent. solution of chemically pure and sterilized magnesium sulphate, given hypodermically and repeated twice at half-hour intervals, analgized an animal sufficiently for the full force of an artery clamp to be placed anywhere on the skin without being noticed by the subject. The controlled animal, with the same dosage of morphin, given in plain water hypodermically, was not analgized to anything like this degree.

The clinical results at the Presbyterian Hospital, the same technic being used, showed that: 1. General analgesia could not be obtained by morphin and magnesium sulphate alone. 2. With three hypodermic injections, each of $\frac{1}{8}$ grain of morphin and 2 c.c. of magnesium sulphate, supplemented by nitrous oxid and oxygen, the oxygen in a much higher percentage than usual, an analgesic state with unconsciousness and complete relaxation is secured, entirely eliminating the use of ether. 3. Morphin, whenever indicated, may be given in a 25 per cent. sterilized solution of chemically pure magnesium sulphate. This procedure increases the value of morphin from 50 to 100 per cent.

To illustrate: One-eighth grain of morphin in 2 c.c. of magnesium sulphate solution by hypodermic injection will abolish pain for two, three and four times as long as morphin given alone. The value of these observations in determining synergistic colonic anesthesia is apparent. One-eighth grain of morphin by hypodermic injection in 2 c.c. of magnesium sulphate solution, given two hours before operation and twice repeated at half hour intervals, is sufficient to reduce the amount of ether heretofore used in oil-ether colonic anesthesia by about one half. With this hypodermic dosage, perfect analgesia with unconsciousness has been obtained by the addition colonically of 3 ounces of ether and 2 drams of paraldehyd in oil. This amount is amply sufficient for a two-hour operation. With greater experience and improved technic, the amount of ether required can doubtless be reduced as low as 1 ounce an hour.

SUMMARY AND CONCLUSIONS

Two definite facts are established:

1. When magnesium sulphate (from 1 to 2 c.c.) is used with morphin (from $\frac{1}{12}$ to $\frac{3}{8}$ grain) instead of plain water, and given by hypodermic injection, the value of the morphin is increased from 50 to 100 per cent. That is, one hypodermic injection will do the work of from two to four. This knowledge is immediately available for physicians and surgeons who use morphin for any purpose. It will prove of inestimable value in the transportation of the sick from place to place, especially in the transportation of the wounded from the battle field. The possibility of morphinism should be materially reduced.

2. Magnesium sulphate (from 6 to 15 c.c.) given by hypodermic injection two hours before an operation, followed by morphin sulphate hypodermically (from $\frac{1}{12}$ to $\frac{3}{8}$ grain) one hour before the operation, when supplemented by nitrous oxid and oxygen (the oxygen being employed in a much higher percentage than usual) gives a safer and better relaxation than when ether is used.

Furthermore, synergistic analgesia is the logical evolution of general anesthesia. Analgesia with consciousness is present oftener with colonic anesthesia than with other methods of administering any of the general anesthetics. This fact has been noted and commented on by every surgeon and anesthetist who has used the method sufficiently to be familiar with the technic. Obviously, colonic anesthesia was the first to be improved; and now an attempt is being made to improve anesthesia for general surgery by synergistic methods.

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[17] Haubold, H. A., and Meltzer, S. J.: Spinal Anesthesia by Magnesium Sulphate, J. A. M. A. 46: 647 (March 3) 1906.

DETERMINATION OF CURE IN GONORRHEAL INFECTION OF THE MALE

DESCRIPTION OF IMPROVED METHODS *

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An attempt has been made to establish a better and more definite standard of cure in gonorrheal infections of the male by improved methods for the cultivation of the gonococcus, by the study of the value of provocative tests, by correlation of the results of fixation and other serologic tests, and by other observations.

CULTIVATION OF GONOCOCCUS

The difficulty of cultivation of the gonococcus has prevented the general use of the culture test in the efforts to demonstrate whether or not a gonococcus infection has been cured.

Some of the considerations that must be taken into account in the effort to secure positive cultures in latent gonorrheal infection are: (1) the conditions most favorable for the growth of the gonococcus; (2) suitable medium; (3) the collection of the suspected material, and (4) methods of identification of gram-negative diplococci.

As previously reported,[1] the advantage of reduced oxygen tension in growing the gonococcus claimed by Wherry and Oliver[2] has been confirmed, and a simplified plate method devised which is practical for the isolation of the gonococcus. Two inoculated plates, one with the gonorrheal material, and the other with *B. subtilis*, are placed together with the open sides facing each other. Then a closed rubber band 2½ inches wide by 3½ inches in diameter encircles both, enclosing the edges but allowing aerial communication between them. Satisfactory bands may be obtained by cutting wide rubber tubing into pieces of the required width. There is no appreciable difference in growth at temperatures between 35 and 37.6 C., and there is sufficient moisture when the enclosed plates are used; but with aerobic methods it is advisable to keep a vessel of water in the incubator to increase the humidity. The plates should be poured on the day of use and warmed for half an hour in the incubator before inoculation.

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* From the John McCormick Institute for Infectious Diseases.

* This work was carried out under a grant from the U. S. Interdepartmental Social Hygiene Board, Washington, D. C.

[1] Herrold, R. D.: A Simplified Plate Method of Partial Oxygen Tension in the Cultivation of the Gonococcus, J. A. M. A. 74: 1716 (June 19) 1920.

[2] Wherry, W. B., and Oliver, W. W.: J. Infect. Dis. 19: 288 (Sept.) 1916.

The medium of choice is ascites-blood-agar in which dibasic sodium phosphate is substituted for the sodium chlorid in the ordinary nutrient agar. Martin[3] first used phosphate, but it has not been generally accepted, as evidenced by the multiplicity of mediums since advocated. The importance of the phosphate may be demonstrated clearly by comparison of the growth on phosphate agar with that on sodium chlorid agar, equal quantities of ascites fluid and blood being added in each case, and parallel plates made. A loopful of plain broth suspension of pus from an acute gonorrheal urethritis may be streaked over the surface of each plate. On the sodium chlorid plates the colonies will be from 0.5 to 1 mm. in diameter. The colonies will be more numerous on the phosphate plates, and 2 to 4 mm. in diameter. Growth is equally good with a reaction varying between p_H 7 and p_H 7.8. In a series of chronic cases, positive cultures have been obtained on this medium under reduced tension when typical intracellular gram-negative diplococci could not be found in the smears after careful search for ten or fifteen minutes. In several instances, however, parallel aerobic plates have given positive cultures; but, as a rule, there were fewer colonies. This occurred with sufficient frequency to warrant the use of aerobic plates when partial tension methods are not available.

Great care must be used in the collection of all material. The patient is instructed to come for examination with a full bladder, preferably in the morning before urination. The glans is cleansed with antiseptic solution, such as potassium mercuric iodid, 1 : 5,000, and the anterior end of the urethra swabbed with the same solution followed by sterile water. The first urine is voided into a sterile container and immediately centrifuged, the supernatant fluid poured off, and the sediment streaked on previously prepared plates. This is followed by massage of the prostate and stripping the seminal vesicles. Usually from 1 to 5 c.c. of prostatic and seminal fluid may be collected into a tube at the meatus. The tube should be shaken thoroughly, and several loopfuls streaked on three or four plates. If very little secretion is expressed, a few cubic centimeters of urine may be voided into a tube, centrifuged and cultivated as in the case of the first specimen. The plates should be incubated as soon as possible after inoculation, and in cool weather they should be kept warm in transit to the laboratory. Smears of the sediment are stained and examined for gonococci, other bacteria, pus cells and spermatozoa. The presence of the latter indicates that seminal fluid has been expressed. The first examination of the cultures is made after twenty-four hours' incubation, when smears of suspicious colonies are examined, subcultures are made of colonies of gram-negative diplococci on ascites phosphate agar or Loeffler slants, and suspensions in plain broth of the sixteen to twenty-four hour growths are tested for agglutination with a polyvalent antigonococcus serum. If clumping occurs in dilutions of 1 : 100, the controls being unclumped, the organism in question is identified as a gonococcus. The results are read after three hours' incubation at from 54 to 56 C. If the culture looks like that of a gonococcus but does not agglutinate, the fermentation of dextrose and maltose is tested.

PROVOCATIVE REACTIONS IN GONORRHEA

The injection of an irritating substance to produce a local inflammatory reaction of the urethra has long been used as a means of bringing to the surface gonococci within the deeper structures in latent infections.

Silver nitrate, from 1 to 2 per cent., which is the most commonly used substance for this purpose, has been tried in a series of cases studied also by cultural and serologic methods. It was found that when the cultures were negative, no matter whether the fixation tests gave negative or positive results, positive smears were not obtained after multiple provocative injections extending over an average period of observation of four months. A series of patients with positive cultures and positive fixation were observed in the same way. There were two instances in which acute discharge with positive smears resulted from the provocative injection. In eight cases with positive cultures, repeated intra-urethral injections soon after the cultures were obtained did not produce positive smears. One patient with positive culture and negative provocative test four weeks later, without exposure, developed an acute exacerbation. Four other patients with positive cultures had a recurrence of acute urethritis following the passage of a sound. Obviously local reactions are of limited value and inferior to careful cultural methods. Infection latent in the prostate and vesicles suffers little direct disturbance from local urethral irritation.

Subcutaneous injection of gonococcal vaccines in order to call forth a secondary focal reaction has been advocated by Pearson.[4] I made subcutaneous injections of gonococcus vaccine in eighteen instances, prostatic and urinary cultures being made twenty-four hours later. In ten with previous negative cultures, the results were negative; in seven with previous positive cultures there was no special increase in the number of colonies after the injection. In a previously positive case, but with only few colonies, the cultures became negative after the injection, the gonococci probably being on the verge of disappearing at that time. Hence vaccine injections would seem to have no apparent advantage over the methods of culture but to interfere somewhat with the proper interpretation of the serologic tests.

CORRELATION OF SEROLOGIC TESTS

The correlation of the results of the complement fixation and precipitin tests was made in a selected series of cases in the chronic stage of gonorrhea. Gram-negative diplococci could be demonstrated in a small percentage after careful search. In order to interpret the serologic results more accurately, smears, cultures and provocative tests were made and observations controlled for two to ten months after the initial examination. In a large percentage, two or more complete laboratory tests were made. The practical value of the complement fixation test has been increased by the use of an easily prepared and sensitive antigen.

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[3] Martin: J. Path. & Bacteriol. **15**: 76, 1911.

[4] Pearson, G. H.: J. Urol. **2**: 455 (Dec.) 1918.

Profuse twenty-four hour growths of several Torrey strains of gonococci are obtained on phosphate agar, suspensions are made in physiologic sodium chlorid solution, 0.25 c.c. being used for each slant; and after undergoing autolysis in the icebox for from five to seven days, with occasional agitation, the suspensions are centrifuged at high speed. The clear, supernatant fluid constitutes the antigen. To each cubic centimeter is added 0.05 cubic centimeter of 5 per cent. solution of phenol in salt solution.

Schwartz and McNeal[5] used salt solution in the preparation of antigen, but heated the suspension at 56 C. for thirty minutes and then placed it in a shaker apparatus for twenty-four hours.

Titration of the undiluted antigen is made with a known positive serum. The antisheep system has been used as a rule. The smallest amount found to produce complete inhibition of hemolysis is taken as a unit for the test. With the dilution of salt solution described, frequently the titrated unit has been between 0.03 and 0.06 c.c. The hemolytic and anticomplementary properties are also titrated. If not anticomplementary in less than three times the antigenic unit, an antigen is considered satisfactory, and such antigen does not become anticomplementary if kept in the icebox for two or three months; one lot now six months old has not been deteriorated. Positive and negative serum controls and also an antigenic control are carried with each test. The serum of patients with gonorrheal epididymitis of from one to four weeks' duration has been found as a rule to be + + + and + + + + positive; patients with acute and subacute arthritis and prostatitis also furnish positive control serum. The mixture of serum, antigen and complement is incubated for thirty minutes in the water bath at 38 C.; the sheep corpuscles are added and after fifteen minutes' incubation, if no hemolysis results, the antisheep amboceptor is added and the mixture incubated one hour longer and results read.

SUMMARY OF RESULTS

		Complement Fixation				Precipitin Test				Duration of Infection					Pus Cells in Prostate and Seminal Fluid							
																Present		Urine				
Cases	Cultural Results	0	+ or ±	++	+++ or ++++	Positive	Negative	Not Made	Gonococci in Smears	2 to 6 Mos.	6 to 12 Mos	Over 12 Mos.	Average in Mos.	Urethral Lesions; Infiltrations; Folliculitis	None	With Definite Lesions	Without Definite Lesions	Clear	Shreds	Hazy	Average Duration in Months of Observations Since Initial Examination	Pus Persistent in Prostatic and Seminal Fluid at Last Examination
30	0	30	0	0	0	0	28	2	0	4	17	19	16	16	11	13	6	13	12	5	4	9
26	0	0	19	5	2	4	17	5	0	7	8	11	11	11	9	11	6	14	9	3	3½	12
44	+	0	6	16	22	33	8	3	14	33	10	1	4	22	4	35	5	13	19	22	3¾	30

Tests have been made for gonococcal precipitin in the serum of gonococcal patients, the antigen being prepared in a similar manner as for complement fixation, but of greater concentration, approximately eight to ten slants for each cubic centimeter of salt solution. This may be diluted if desired in doubtful reactions. The contact or layer method is used and the results determined after one hour at room temperature. This appears more satisfactory than the mixing of antigen and serum, taking readings at twenty-four hours, as reported by Watabiki.[6] In positive reactions a precipitate forms at the zone of contact. The accompanying table shows that 86 per cent. of the cases giving a three to four plus complement-fixation also give a specific precepitin reaction. The great simplicity of the precipitin test would seem to make it of some value, especially when complement fixation tests cannot be made.

The table summarizes the observations on which this paper is based. The fallacy of taking the pus cell content of prostatic and seminal fluid as an index of cure is clearly shown. Of thirty cases with negative cultures and negative fixation test, in nineteen there were pus cells in the smears, and in approximately half of them pus cells persisted after four months more of treatment. A similar condition is shown in the second series with negative culture and positive fixation tests. The amount of pus cells usually decreased in the smears during treatment. There was no clinical exacerbation of gonorrhea in the fifty-six cases of the two series while under observation. Another important result is that positive fixation persists longer than is usually stated. In the positive fixation and negative culture series the average time since infection was eleven months. The reaction, however, is generally one of low degree, such as is usually indicated by a plus minus, one plus and two plus signs.

The macroscopic urinary findings probably are given too much importance in the standards of cure. Many specimens of urine with shreds or haziness proved sterile as to gonococci, being the result of postgonorrheal infiltrations and other pathologic changes along the urinary tract. On the contrary, several patients with clear urine gave positive prostatic cultures.

CONCLUSIONS

Cultures of prostatic and seminal fluids and first urine sediment, carefully collected, are the most reliable single means of determining whether or not a gonorrhea is cured. For this purpose, phosphate agar with blood and ascites fluid is suitable, and the inoculated plates should be incubated under reduced oxygen tension.

The complement fixation test is a valuable aid, but the results should be taken in conjunction with the cultural results. Low degree positive fixation may persist up to a year after positive smears and cultures can be obtained. However, with positive serologic reaction, cultures should be repeated at intervals and the patient kept under observation until the serologic tests give negative results.

The gonococcus may be identified by agglutination tests with polyvalent antigonococcus serum.

A satisfactory antigen can be easily prepared as described.

The precipitin test appears less sensitive; but because of its greater simplicity, it may be used as a substitute for complement fixation under special circumstances.

The use of provocative tests before taking cultures and smears is of no advantage.

The pus cell content of smears and macroscopic urinary appearances may be misleading, and by themselves constitute no safe index of cure.

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[5] Schwartz and McNeal: Am. J. M. Sc. **141**: 693, 1911.
[6] Watabiki, T.: J. Infect. Dis. **22**: 115 (Feb.) 1918.

INDUCED ATROPHY OF HYPERTROPHIED TONSILS BY ROENTGEN RAY *

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Early in the study of the biologic effects of the roentgen ray it was noted that the lymphoid tissue was easily affected by this agent.[1] After long exposures of animals, both the lymphoid tissue and the circulating lymphocytes were found to be almost completely destroyed. This observation led to the use of the roentgen ray as a therapeutic agent in the treatment of lymphatic leukemia and in reducing enlarged spleens and glands occurring in other diseases. In this laboratory it was shown experimentally that the susceptibility of the lymphoid tissue was so much greater than the susceptibility of other tissues that by the judicious use of this agent the major portion of the lymphoid tissue of the body could be destroyed without appreciable damage to other tissues.[2]

The recent emphasis laid on the tonsil as a seat of focal infections has suggested that these lymphoid organs might be reduced by the roentgen ray and their shrinkage be accompanied by proper drainage of the crypts with resultant clearing up of the infections.

TECHNIC OF TREATMENT

The factors governing the dose of roentgen ray given to the region of each tonsil were as follows: The spark-gap, measured between points, was 8 inches; 5 milliamperes; 10 inches distance from the target to the highest point of skin exposed. The time of exposure varied from three to seven minutes, according to the age of the patient. The ray was filtered through 3 mm. of aluminum. The approximate value of this dose was from 1 to 1¾ skin units. The patient to be treated was placed on a table in such a position that the ray entered under the angle of the jaw and penetrated through the soft tissues to the region of the tonsil. The area exposed on each side was about 3 square inches, the surrounding parts being protected by heavy sheet-lead. For young children a special board was used with retaining straps, and the head secured by means of a gauze bandage.

RESULTS

Material.—This report is based on the result of the foregoing treatment on forty-six patients ranging from 3½ to 45 years of age, all showing more or less hypertrophy and disease of the tonsils and surrounding tissues. No patients were treated during a time when the throat showed evidence of acute infection. The state of the tonsils varied from those with deep crypts, ragged surface, purulent, mucopurulent or cheesy exudates, to a condition of marked hypertrophy with other pathologic states less marked.

Tonsils.—In all but four cases the treatment was followed by marked improvement. In the majority of cases, two weeks after the exposure to the roentgen ray a distinct shrinkage of the tonsil was noted, this process continuing from one to two months. During this period of atrophy the crypts opened and drained, and, in all but a few cases, the exudate disappeared from the throat, and the surface of the tonsils became smooth, pale and of a healthy appearance. With the exception of four cases, no exudate could be squeezed from the deep tonsillar tissue at the end of the period of observation. Later examination of the throat showed the edges of the crypts to be inverted, and in a number of cases white bands resembling scar tisssue were noted on the surface.

Other Local Deposits of Lymphoid Tissue.—Another point of as great interest as the shrinkage of the tonsils was the disappearance of the other lymphoid deposits in the throat commonly seen in the form of small nodules on the pillars of the fauces and in masses posterior to the pillars. These deposits are well known as troublesome factors even after extensive surgical removal of the true tonsillar tissue.

Adenoids.—A proportion of the patients treated had, in addition to the tonsil condition, large masses of adenoids. In order to reduce these a dose of roentgen ray similar to that used on the tonsils was given through the back of the neck. The results were not as satisfactory as those following the treatment of tonsils, although decided shrinkage was noted in a number of cases. The lack of uniform results here was doubtless due to the fact that the amount of roentgen ray actually delivered to the tissue after filtration through the bony structures of the head was very small. It is probable that with a more suitable portal of entry for the rays the adenoids can be influenced to a greater degree.

Bacteriology.—Cultures were made from the crypts of the tonsils and from the nasopharyngeal vault on forty of the forty-six patients before treatment and at intervals afterward. It is of interest to note that the common organisms found in the throat were unaffected by the treatment, while of the thirty-six cases showing the hemolytic streptococcus and the hemolytic staphylococcus to be present, thirty became free from these organisms by the fourth week after treatment.

COMMENT

The results reported here suggest the possibility of utilizing the well-known fact that lymphoid tissue is easily destroyed by the roentgen ray for clearing the throat of an excess of this tissue. In the series reported above, only one patient received more than one treatment.

To judge by our studies on animals, it should be possible to induce almost any degree of atrophy by repeating the roentgen-ray treatments at suitable intervals. It is possible that the hypertrophied condition may return after a lapse of time; but with the mildness of the roentgen-ray treatment recommended, there is no reason why it should not be repeated as often as desired, with the proper interval between exposures. The actual amount of roentgen ray used is smaller than that commonly used in the treatment of ringworm of the scalp, from which no bad results have been recorded.

We attribute the disappearance of the hemolytic organisms of the throat, not to the direct action of the roentgen ray on these organisms, but rather to the proper drainage of the crypts as the tonsil tissue atrophies.

How practicable this treatment will prove can be determined only by the study of a large series of cases followed over a considerable interval of time.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Heineke, H.: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **14**: 21, 1905.

[2] Murphy, J. B.: Heteroplastic Tissue Grafting Effected Through Roentgen-Ray Lymphoid Destruction, J. A. M. A. **62**: 1459 (May 9) 1914. Murphy, J. B., and Ellis; A. W. M.: J. Exper. Med. **20**: 397, 1914. Taylor, H. D.; Witherbee, W. D., and Murphy, J. B.: J. Exper. Med. **29**: 53 (Jan.) 1919.

POLYPOID CARCINOMA OF THE STOMACH

REPORT OF A CASE DIAGNOSED AS PRIMARY PERNICIOUS ANEMIA EIGHTEEN MONTHS BEFORE DEATH *

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If an apology is necessary for this report of a single case of carcinoma of the stomach it is to be found in the unusual clinical picture which existed eighteen months before the patient's death and which, after careful study by competent clinicians, led them to make a diagnosis of primary pernicious anemia. The case is also noteworthy on account of the evidence which it presents in favor of ulceration with hemorrhage in benign gastric tumors and for the secondary development of malignancy in such neoplasms.

CLINICAL RECORD

History.—F. A. D., an American white man, aged 31, single, an optometrist, admitted to the Medical Division of the University Hospital, Nov. 12, 1919, with a chief complaint of pain in the upper abdomen, had been admitted as a soldier to the U. S. Army Base Hospital at Camp Meade, Md., in the service of Dr. Nellis B. Foster, in the latter part of May, 1918, on account of weakness and sleepiness which had developed in the course of two or three weeks. At that time his red blood cells numbered 1,000,000 and his hemoglobin was 40 per cent. A diagnosis of pernicious anemia was made and he was given five blood transfusions of about 300 c.c. each. Aug. 26, 1918, his red blood cells had increased to 2,105,000 and the hemoglobin to 78 per cent. Soon afterward he was discharged from the hospital and from the army, his condition progressively improving. Subsequent blood counts, made by private physicians, were: Sept. 30, 1918, red cells, 4,105,000; white cells, 5,100, and hemoglobin, 78 per cent.; Jan. 9, 1919, red cells, 5,630,000; white cells, 6,500, and hemoglobin, 90 per cent. From the latter date he continued comparatively well until September, 1919, when he noticed that he was losing his appetite. October 20, he consulted his physician, who ordered starvation for sixty hours to be followed by a milk diet. On the second day of this diet he for the first time developed a sharp pain in the left upper abdominal quadrant just under the costal margin, the pain persisting to the time of admission to the University Hospital, except when relieved by opiates, and having no relation to the taking of food. There had been no nausea, vomiting or gaseous eructations. For a few weeks he had noticed occasionally some distention in the epigastrium which would last for only a few minutes, disappearing suddenly. He had had constipation for three weeks, but had never noticed any blood in the stools.

His past history indicated that he had never been strong and that not infrequently he had been obliged to stop work for a few days. He had suffered from an acute gonococcal infection in February, 1919. His social habits were good except that, excluding the period of his service in the army, he had always been rather closely confined indoors. His father had died at 74 years of age of unknown cause, and his mother was living and well at 59. One brother had died at 16 of unknown cause.

Physical Examination.—The patient was mentally alert and very intelligent but somewhat apprehensive, of medium stature, poorly nourished, of sallow complexion, and had slightly prominent eyes. The teeth were apparently in good condition, but a little blood could be expressed from around the alveolar margins of two of them. A few posterior cervical glands were noted on the left side, and just above the inner end of the left clavicle there was a small mass, about the size of a robin's egg, firm, regular in outline, not attached to the skin or deeper structures, and freely movable. The dorsal vertebral spines and the scapulae were prominent. The heart and lungs gave no abnormal signs. A mass could be palpated underneath the right costal margin just to the right of the xiphoid, moving with respiration, and when the patient turned in bed to the left side this mass dropped to the left, apparently riding over the abdominal aorta. It could be held in this position with the finger as the patient resumed the supine position, and then be allowed to slip back slowly. This procedure suggested that the mass was about the size of a lemon, hard, slightly tender, movable, and that it had developed to the right of the median line. It moved with the pulsations of the aorta. When the epigastrium was observed closely, peristaltic waves could be seen traveling from left to right across the stomach area toward this mass; and as they reached the median line, there could be auscultated with the stethoscope a distinct squirt.

Blood examination at that time revealed: red cells, 4,800,000; white cells, 7,400, and hemoglobin, 82 per cent. Of the white cells, 68 per cent. were neutrophils, 25 small lymphocytes, 3 large mononuclears, 2 transitionals, 1 eosinophils and 1 basophils. The morphology of the red cells was normal. Gastric contents removed forty-five minutes after an Ewald meal on an empty stomach measured 90 c.c., and showed no free hydrochloric acid and a total acidity of 10. Another gastric study by the fractional method did not detect free acid at any time, and disclosed a steady increase in the total acidity from 8 at the end of fifteen minutes to 35 at the end of two and a half hours. In neither examination was occult blood found. Rectal examination was negative. Except for a trace of occult blood on one occasion, the feces were negative grossly, microscopically and chemically. The urine showed a trace of albumin, no casts, and some pus cells. The phenolsulphonephthalein test gave an elimination of 60 per cent. in two hours. The Wassermann reaction on the blood serum was negative.

A roentgenologic study of the gastro-intestinal tract was made by Dr. H. K. Pancoast, who reported, in part: "The stomach, six hours after an opaque meal, showed an almost complete residue. It was moderately dilated, vertical and low, with the greater curvature about 3 inches below the umbilicus. There was a very marked hyperperistalsis with deep segmenting waves. The waves reached the pylorus without interference. In the most dependent portion of the greater curvature in the prone posture there was a large, clear area about the size of a silver dollar. This seemed indicative of some mass in the stomach. The outline of the stomach was regular in this locality. The duodenum showed a constant filling defect strongly suggesting duodenal ulcer." It was Dr. Pancoast's opinion that the moderate dilatation was due to obstruction, probably of duodenal origin, and that the gastric lesion was probably a papilloma, although he suggested the possibility of its being carcinoma or sarcoma.

The army records have not been available to us; but while at Camp Meade this patient was under the observation of Dr. O. H. Perry Pepper of this clinic, and under the immediate care of Dr. W. B. Adams of Boston. Dr. Adams has confirmed the history as it was given to us by the patient, and stated further that the latter entered the base hospital in a tolerably fair condition, but rapidly became worse and almost died the night before the first transfusion, that he had a lemon yellow tint, and that a blood smear showed variation in the size and shape of the red cells, some polychromatophilia, and a high color index. Dr. Adams stated also: "No cause was found for a secondary anemia. No blood was found in the stools, urine or stomach contents, and he never had epistaxis or bleeding from the gums. No focus of infection was found except his teeth, and either one or two were pulled." Dr. Pepper remembers having studied the patient at that time, including an examination of blood smears, and having been forced to conclude that the case was one of pernicious anemia because of the absence of a cause for a secondary type of anemia.

Our conclusion, in view of the information presented above, was that the patient had a gastric neoplasm involving the most dependent portion of the greater curvature, and that the palpable epigastric mass was probably of the same nature and doubtless involved the duodenum, giving the constant filling defect described by the roentgenologist. The mass in the neck we interpreted as being glandular metastasis from the gastric lesion.

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* From the Medical Division of the Hospital, and the Pepper Laboratory of Clinical Medicine, University of Pennsylvania.

Operation.—Nov. 22, 1919, Dr. John B. Deaver performed an exploratory laparotomy and found an irremediable malignant condition. Following the operation the patient grew steadily weaker and finally died, Dec. 12, 1919. No necropsy was permitted.

Pathologic Findings.—At the operation, Dr. Deaver was able to expose by means of a gastrotomy a rounded, papillomatous mass about the size of a large walnut (2 by 3 by 4 cm.) attached by a pedicle to the mucous membrane along the greater curvature. The muscle coats did not seem to be involved. The mass which we had palpated he found to be a secondary deposit about the size of a fist attached to the lower edge of the left lobe of the liver. The glands along the greater curvature, and certain mesenteric glands, were enlarged and hardened. There were dense adhesions about the gallbladder and duodenum, giving the duodenal deformity found at the roentgen examination; but there was no apparent involvement of the duodenal wall by the specific process, and no duodenal ulcer was discovered.

The intragastric mass was removed, and was later thus reported on by Dr. Herbert Fox: "The specimen consists of a friable, irregular mass presenting a rather short, irregular pedicle, the latter softly fibrous. The outer part of the mass is velvety, pale yellow and pink, with here and there small spots of red. Under the microscope the stalk area is seen to consist of adult connective tissue up to where it joins the main mass, at which point it becomes younger, more like granulation tissue; and in this a cancer nest is found. At one extremity of the mucous surface a short stretch of nearly normal mucosa is seen, but fairly well mixed with it are irregular, dilated acini filled with hyperchromatic mucus-bearing cells. Acid cells are not seen in the acini. Further along, irregular acini are seen, with reduplicated epithelium, penetrating the basement membrane. Some of these acini are dilated and have papillomatous reduplication within them. Still further along and especially near the surface the epithelium is collected in small groups, surrounded by connective tissue, as in scirrhus. The tumor therefore shows a malignant papillomatous portion, a simplex portion and a scirrhous portion.

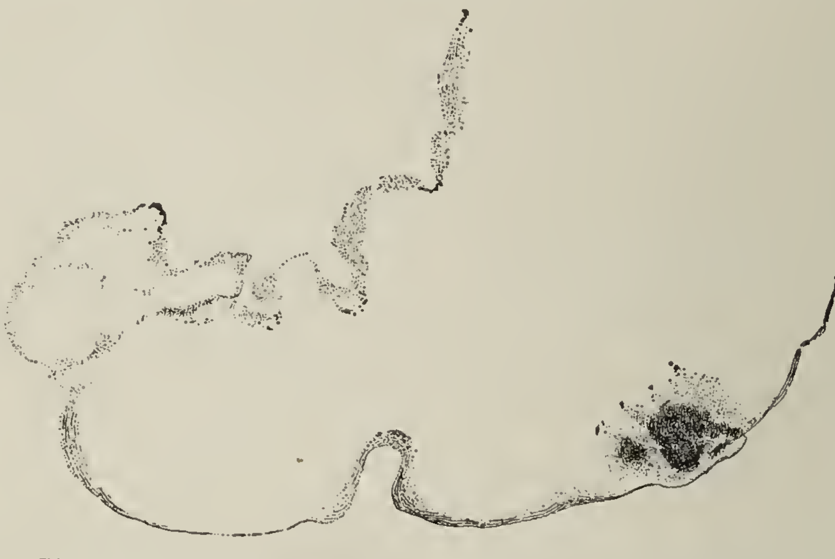

Fig. 1.—Pen drawing from one of the serial roentgenograms showing lesion along the greater curvature of the stomach and filling defect in the duodenum. The original roentgenograms will appear in connection with the article by Prendergras, E. P., and Pancoast, H. K.: Report of a Case of Pedunculated Adenocarcinoma of the Stomach and Possible Errors in Diagnosis, Am. J. Roentgenol., to be published.

"Another section apparently taken across the mass shows a central fibrous tissue stalk from which branches radiate. On some of them may be seen a very distinct picture of papilloma. In the papillary branches there is very marked mitosis. The stalks are apt to have very thin connective tissue supports and very decided capillary supply. Small hemorrhages are seen in and beside them. Ulceration exists over the free surface of the tumor."

COMMENT

The most interesting feature of the case from the point of view of diagnosis is the simulation of primary anemia which it presented eighteen months before death. In this connection three questions present themselves for consideration: 1. Was gastric malignancy the primary pathologic condition and responsible for the severe anemia? 2. Was the anemia entirely independent of the gastric tumor disclosed at operation? 3. Was the malignant growth a terminal development in a pathologic process which in its benign form produced the anemia?

In reference to the first consideration, it must be admitted that an anemia of the degree shown by this patient in May, 1918, sometimes occurs in the late stages of gastric cancer; but one would not expect such a blood state a year and a half before death, especially with a subsequent return to a comparatively normal blood picture. Furthermore, it is generally conceded that gastric carcinoma is of particularly short duration in young persons, averaging in those under 30 years of age about three months. Finally, the general microscopic picture was active and reasonably recent, it being believed by the pathologist that such scirrhous change as was found could occur in a short time, and that there was no evidence in the specimen itself to suggest that the malignancy had been present so long as eighteen months.

Superficially, it might seem that the two hospital admissions were for different diseases; but the history suggests that the patient did not become entirely well at any time after his original anemia, and it is a well recognized diagnostic principle that different features of a continued illness should be explained on a common pathologic basis. The diagnosis of pernicious anemia at Camp Meade, however, was made by well trained men and deserves consideration. In favor of it were the extreme degree of anemia without apparent cause, the high color index, and the variation in size of the red cells. Against this diagnosis are the very conservative opinion expressed at that time by Dr. Pepper, that it was justified only by the absence of a cause for the secondary type; the absence of a specific statement as to large red blood cells and nucleated ones, and the decided improvement in the blood picture and general health with failure of a subsequent development of anemia.

Finally, there remains for consideration the question of a benign gastric lesion in 1918 with subsequent malignant change. Such a lesion might have given rise to a profuse hemorrhage before the patient's admission to the base hospital, or at least before the stools were carefully observed. The suggestion is ventured that bloody stools are ordinarily recognized by patients because of their odor, and one familiar with our army latrines can easily imagine how impossible this would be. Even in an army base hospital it is conceivable that ward men, not so well trained as nurses, might have overlooked the significance of a very offensive stool. It is probable also that during the patient's first few days in the base hospital efforts were directed primarily at overcoming the severe anemia by transfusions, and only secondarily at discovering its cause. When later a search was made, it can easily be imagined that all bleeding had stopped, as a result of the rest and the transfusions, and that the stools were free of blood.

The benign gastric lesions that are likely to give rise to hemorrhage are ulcer and tumor. In our case it is, necessary to explain how either could develop into such a malignant condition as was later discovered. It is obviously unreasonable to assume that any lesion involving various coats of the stomach wall, as would be necessary for an ulcer giving rise to marked hemorrhage, could later develop into a malignant tumor with only the most superficial connection with any but the mucous coat. A benign pedunculated tumor, however, might do so. Furthermore, such tumors do give rise to hemorrhage, the Fenwicks[1] stating that 10 per cent. of pedunculated stomach tumors bleed and that the loss of blood may be serious. Also, it is admitted generally by pathologists that such benign tumors may become malignant, the adenoma more frequently than the fibroma, myoma or lipoma. The latter tumors, furthermore, have their origin more deeply in the wall and, being of mesoblastic structure, more often become sarcomatous. Finally, the pathologic picture as described by Dr. Fox may be explained on the basis of a primary benign papillomatous adenoma.

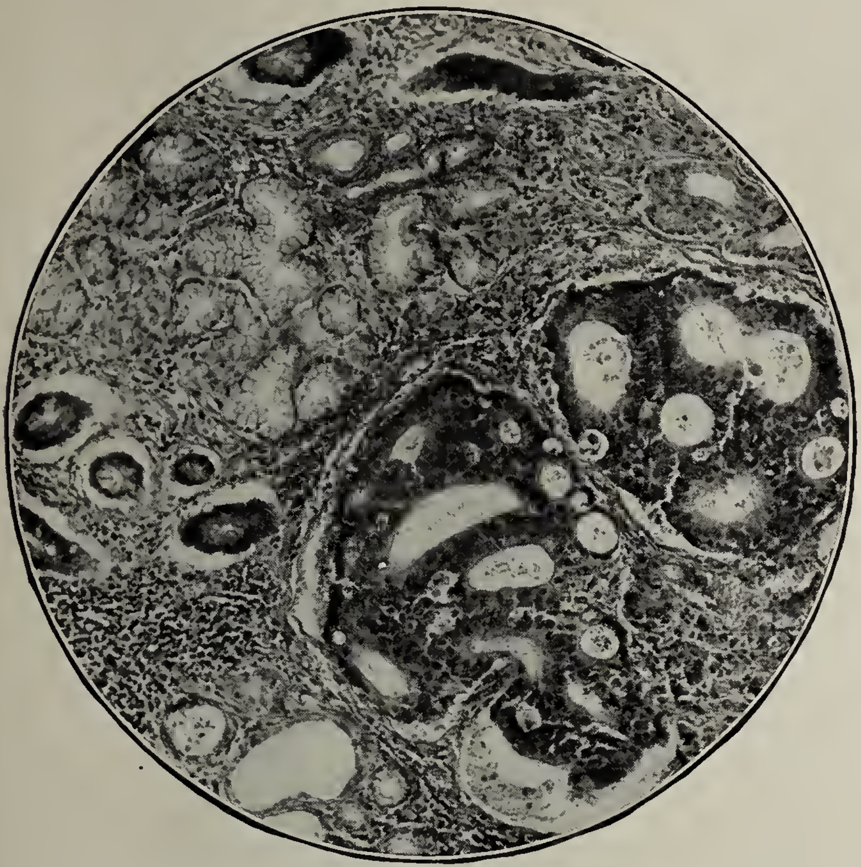

Fig. 2.—Section through soft outer part of tumor showing normal and cancerous acini side by side (courtesy of Dr. Herbert Fox).

SUMMARY

In this case of carcinoma of the stomach, the interesting features are:

1. The occurrence of an anemia, eighteen months before the patient's death, of such a degree as to suggest the primary pernicious type, and probably dependent on hemorrhage from a primary benign lesion.
2. The probability that the malignant change was secondary to a benign adenoma.
3. The polypoid nature of the tumor, without gross evidence of involvement of the deeper structures of the wall, and yet with unquestionable metastasis.

110 South Twentieth Street.

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[1] Fenwick, Samuel, and Fenwick, W. S.: Cancer and Other Tumors of the Stomach, Philadelphia, 1903, p. 308.

Clinical and Laboratory Diagnosis.—A diagnosis is the resultant probability derived from a consideration of all the evidences, whether or not they can be removed from the patient on a plate.—*Lancet,* Dec. 11, 1920.

ROENTGENOGRAPHIC EVIDENCE OF ULCER HEALING *

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I present herewith clear evidence as to the effectiveness of the principle of rest as applied to the treatment of gastric ulcer. The roentgenogram (Fig. 1) of the patient treated disclosed a large lesion of the lesser curvature. No doubt could be entertained as to the pathologic condition present. In addition, the patient was 43 years of age, and gave a history of gastric distress of two years' duration. For several weeks before his admission as a patient the pain in the epigastrium was so intense that his nights were sleepless.

Such a case might well be considered sufficiently representative to test the value of a therapeutic procedure. This procedure, for the purpose of obtaining a maximum degree of gastric rest, consisted in feeding the patient through an intestinal tube over a period of eight weeks. The fluid was introduced by the drop method. At the end of that time the tube was removed and feeding by the mouth begun. From time to time during the treatment, roentgenograms were taken to determine changes in the size of the ulcer. These retrogressive changes, as well as the intervals between the taking of the roentgenograms, are indicated in the accompanying illustrations.

Two facts appear to be clearly demonstrated: (1) the gradual healing of a gastric lesion, and (2) the improvement in the emptying time of the stomach.

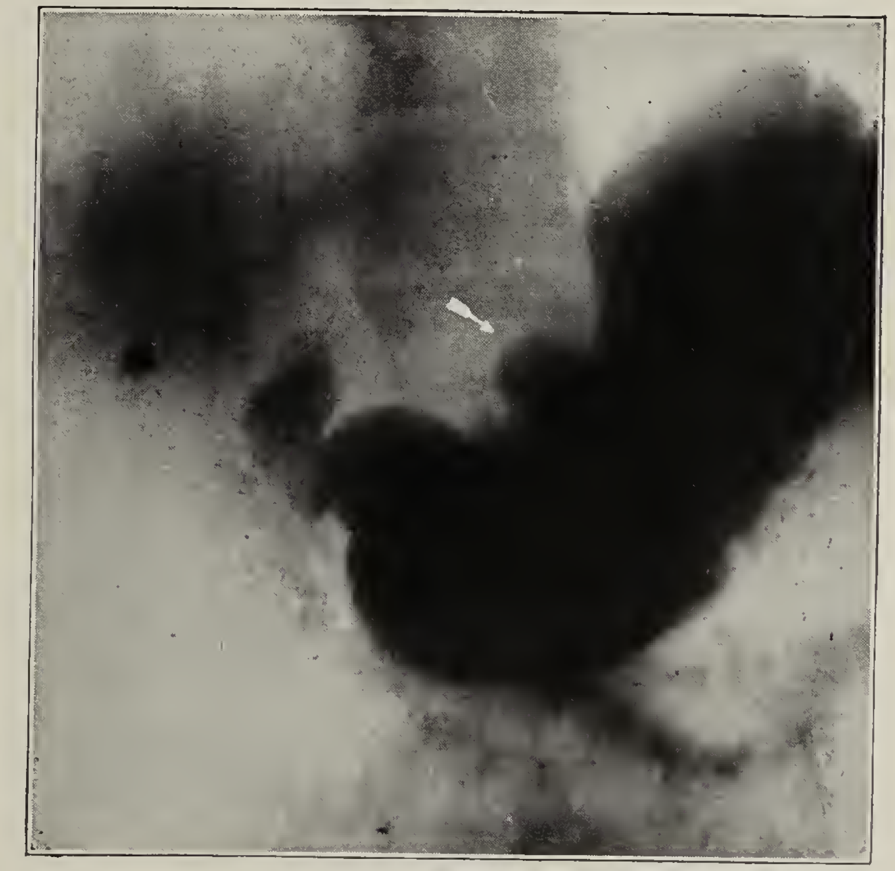

Fig. 1.—Ulcer of lesser curvature.

Before instituting treatment, there was definite evidence of a six-hour residue of the barium meal (Fig. 2). Toward the completion of the patient's stay in the hospital, there was no longer any six-hour retention of barium (Fig. 3).

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DIETETIC PROCEDURE

It often happens that, if one begins by introducing a definite mixture of foods, distress may be produced. It is then difficult to determine which foodstuff is responsible. Furthermore, an increase in the amount of a particular food, or of the total bulk of the entire mixture given at any one feeding, as well as too rapid a rate of introduction of the fluid through the tube or changes in the temperature of the fluid, may produce abdominal disturbance. It is therefore best to add one article of food at a time and to increase the amount carefully. If, on the addition of a new substance or an increase in the quantity, distress occurs, we are in a position to judge of the probable cause. By varying one factor at a time, a combination can be obtained that the particular patient can care for with comfort.

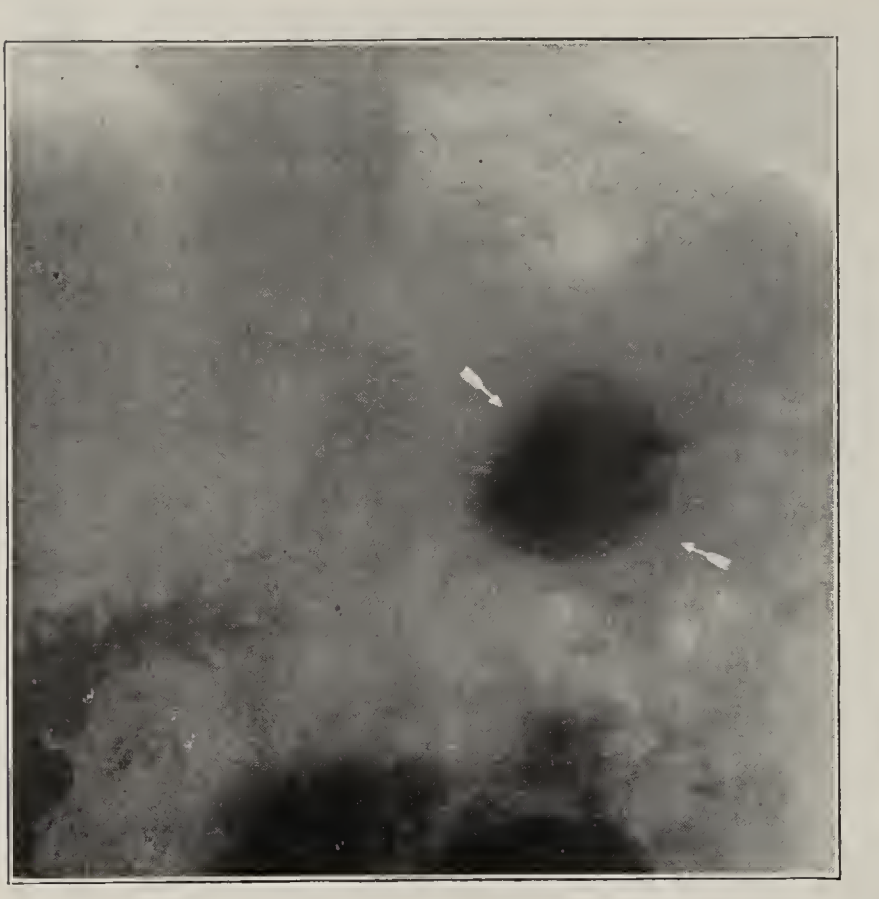

Fig. 2.—Six-hour residue of barium in stomach before treatment was begun.

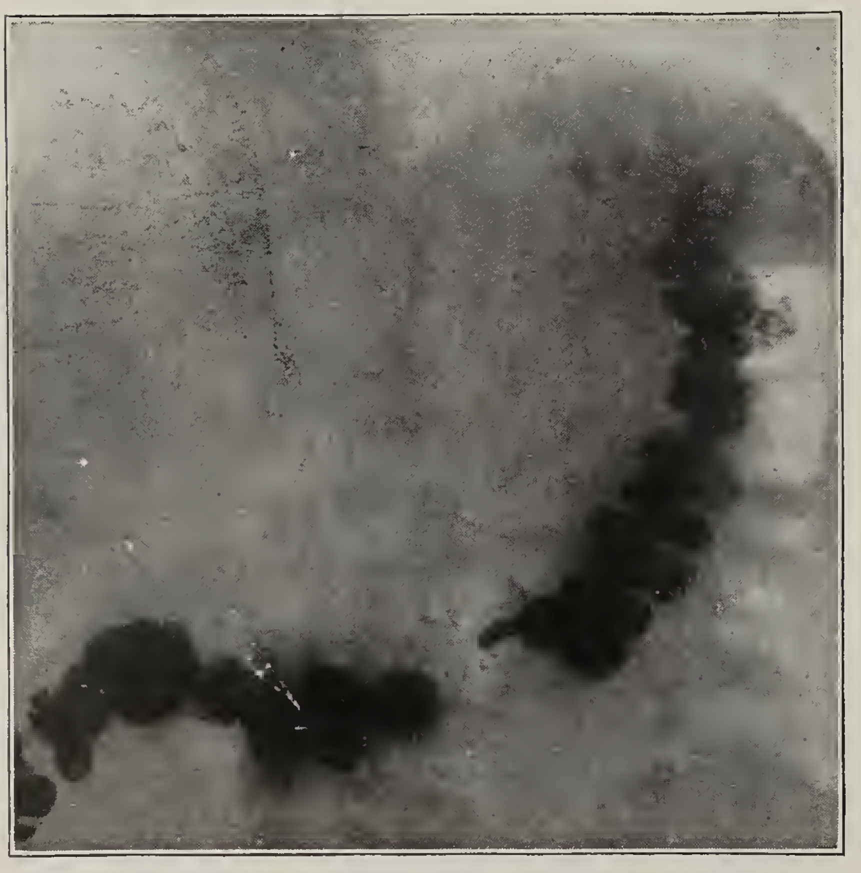

Fig. 3.—Absence of residue of barium in stomach fourteen weeks after beginning of treatment.

I begin the feeding with the introduction through the tube of physiologic sodium chlorid solution. This is of value for three reasons: 1. It permits us to determine whether the apparatus is in good working order. 2. It accustoms the intestine to the direct introduction of fluids. 3. Through the ease and simplicity of the process and the complete absence of distress because of the rapid absorption of the solution, it has an encouraging effect on the patient. Should a composite mixture, on the contrary, be introduced from the onset and abdominal pain result, it might militate against the continuation of the treatment.

The next step in the upbuilding of the feeding formula is the substitution of peptonized milk for the physiologic sodium chlorid solution. By putting the milk through the preliminary process of peptonization, the work of digestion in the intestine is reduced and the possibility of more complete absorption is increased. Careful attention to the rate of flow and to the warmth of the fluid is essential. The peptonized milk is then enriched, through the addition of dextrose. Since complex sugars in the intestine are finally reduced to simple sugars, absorption may be aided through the direct introduction of the simple sugar dextrose.

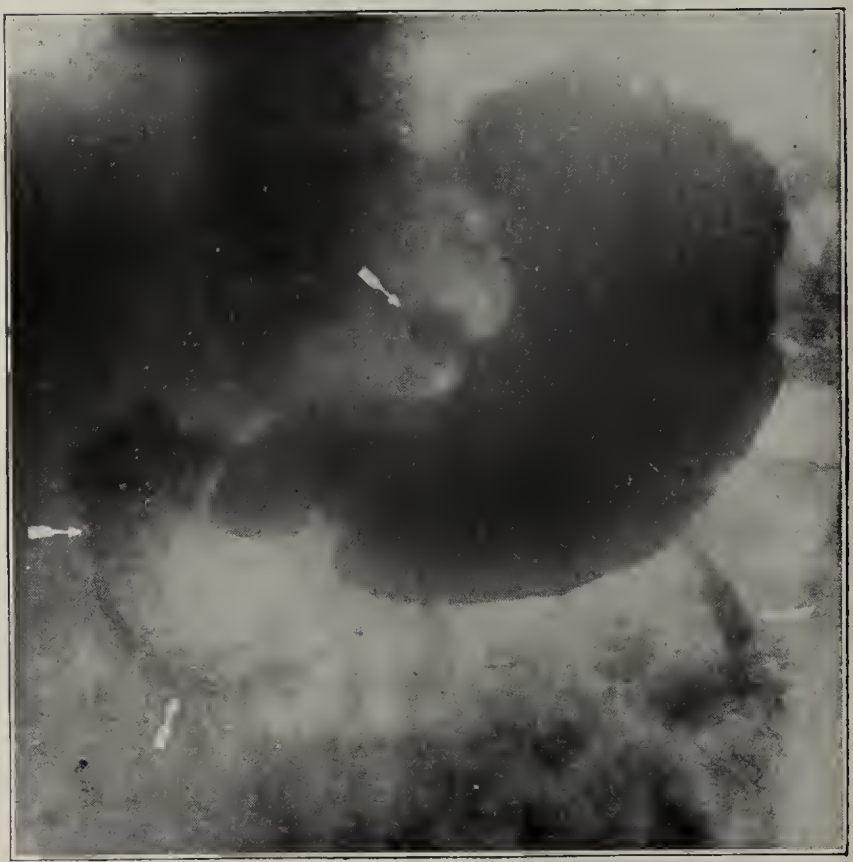

Fig. 4.—Condition two weeks after beginning of treatment.

Thus, by giving peptonized milk and dextrose, instead of plain milk and lactose, the work of intestinal digestion is minimized, and more immediate and complete absorption aided. It has happened that some patients have been unable to take with comfort a mixture containing any other ingredients. It has been necessary in these cases to limit the food to this simple combination. The loss of weight in these cases was marked, and the length of time of treatment had to be curtailed.

In one case not only was the feeding limited to peptonized milk and dextrose, but an increase in the concentration of the dextrose produced distress. This interesting fact was repeatedly verified in the patient. The next additional substance is the white of egg; and if this is well borne, the yolk of egg is added. Not infrequently, the white of egg is well borne, when the addition of the yolk produces discomfort. Beginning with the white of one egg, the amount may be increased until two or even three whole eggs are given with each feeding.

The caloric value of the formula may be increased through the addition of cream to the feeding. Another way of increasing the food value and maintaining the nutrition of the patient is to administer olive oil by way of the tube, shortly after each feeding. Whether olive oil is given, and the total quantity injected, depends on the degree of comfort with which the patient cares for this addition. Usually about 15 to 30 c.c. are administered after each feeding.

Thus, step by step, is evolved a formula adapted to the nutritional need and comfort of the patient. This combination, as a rule, is administered three times a day.

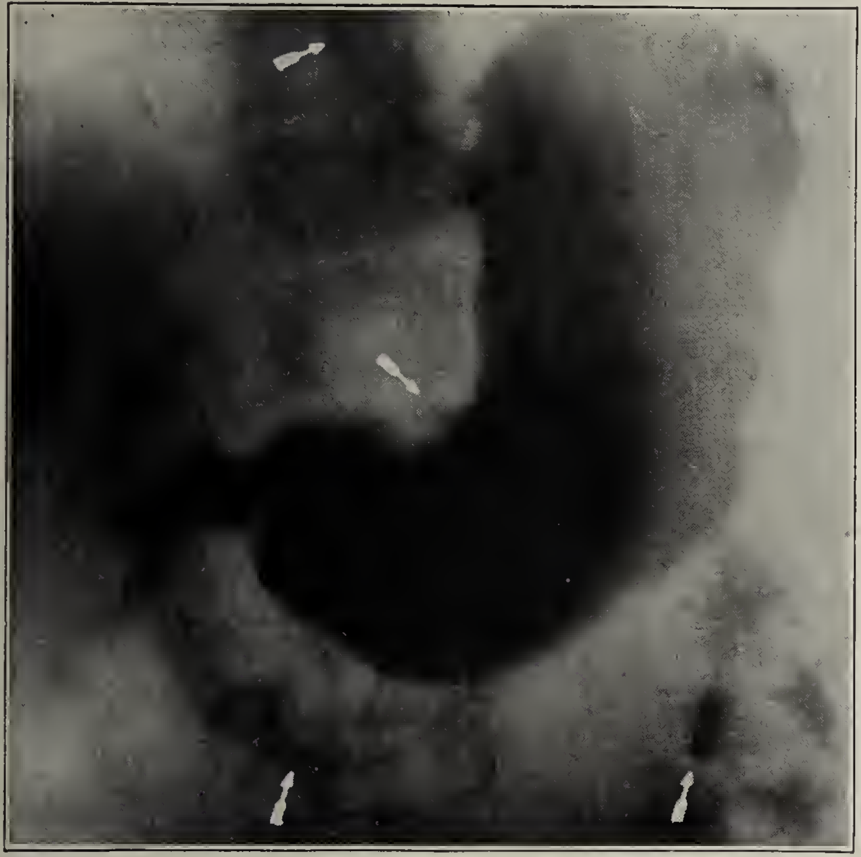

Fig. 5.—Condition four weeks after beginning of treatment.

In the evening the patient receives from 15 to 30 c.c. of orange juice, which is administered by way of the tube. This is valuable because of its vitamin content, and the laxative effect which it sometimes produces. As gastric patients, particularly while remaining in bed, are prone to constipation, this laxative effect sometimes produced by the orange juice is of importance.

After passing through the preliminary procedures for determining the most suitable mixture, the patient in whose case the roentgenographic evidence is recorded received peptonized milk, 300 c.c.; dextrose, 60 gm.; cream, 30 c.c., and the whites of two eggs. This was fed, drop by drop, three times daily. Shortly after each meal he received 20 c.c. of olive oil. At night he received 30 c.c. of orange juice. The patient weighed 134 pounds when treatment was begun. At the end of eight weeks, when the tube was removed, he weighed 127 pounds.

In this particular case I used a type of rubber tubing that swelled rapidly in the intestinal fluid, so that the metal bulb which I sewed on with chromic catgut adhered, although the catgut had become entirely digested. This possibility has since been obviated by the employment of a special grade of rubber tubing and by enlarging the inner lumen of the bulb. In order to overcome the danger, which I consider to be real, that may result from the persistent pressure of the metal bulb on the mucous membrane, I pulled up on the rubber tubing daily in order to change the position of the end piece, and so lessen the possibility of a new ulceration. In a case such as the one under discussion, in which the tube remained within the intestine for

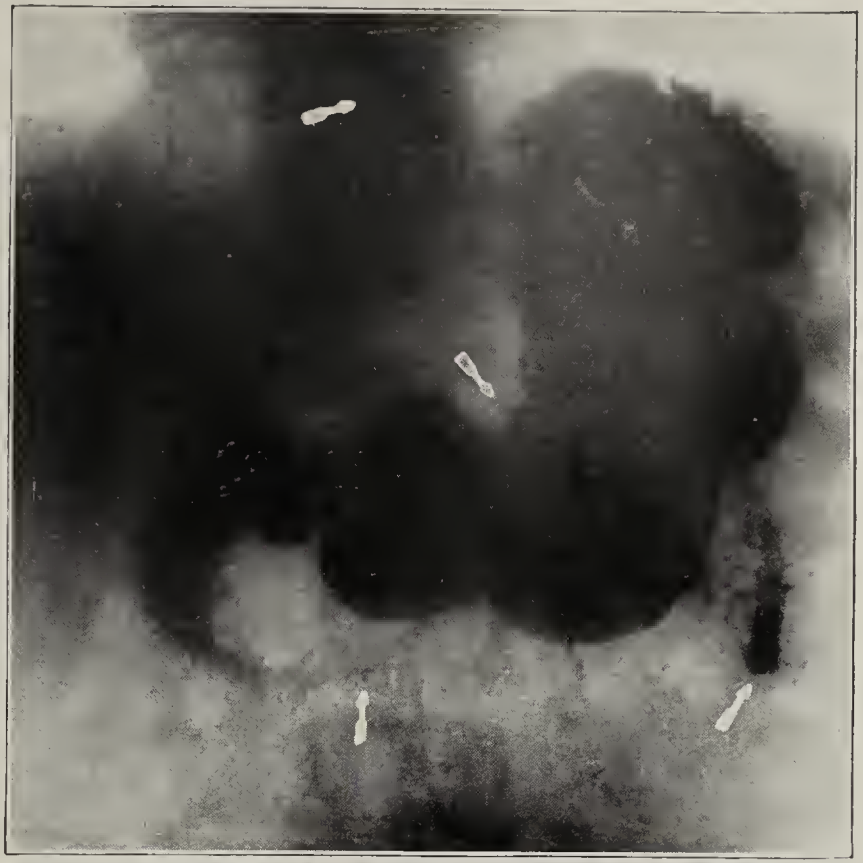

Fig. 6.—Condition six weeks after beginning of treatment.

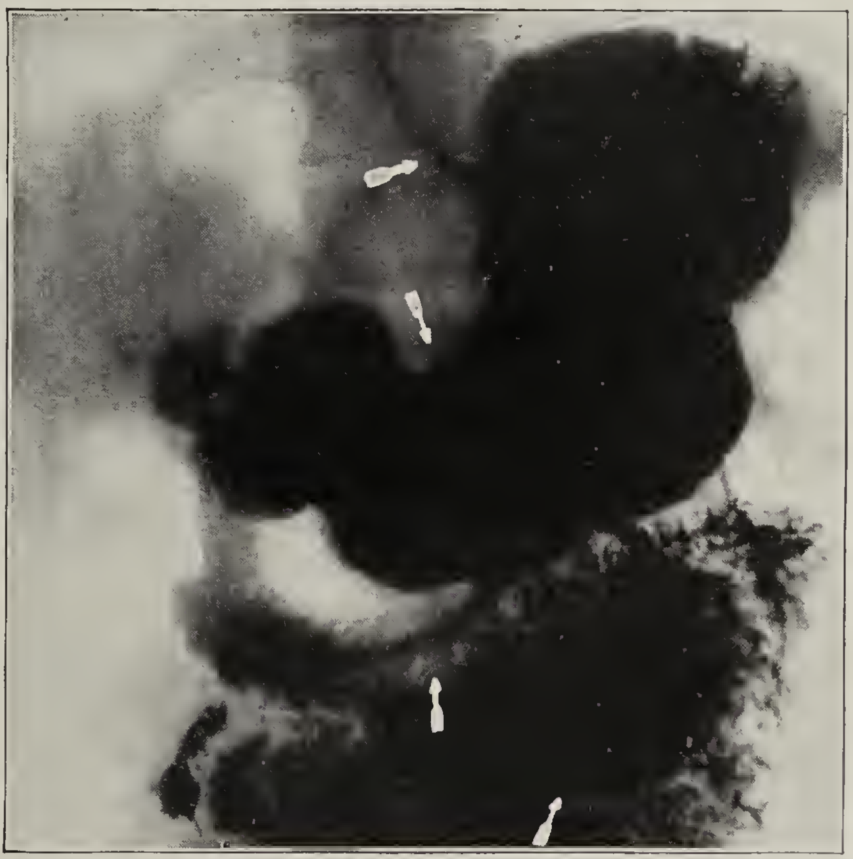

Fig. 7.—Condition eight weeks after beginning of treatment.

eight weeks, this is unquestionably a matter for important consideration.

After the removal of the tube, feeding by the mouth was instituted, which was gradually increased both as to amount and variety. On the day of discharge from the hospital, the patient weighed 145 pounds, and was in excellent condition.

Paralleling the improvement noted in the roentgenograms was the clinical improvement. On admission, the pain in the epigastrium was so severe that he could not sleep during the night. During the first few days after the tube had been inserted, he received bismuth subcarbonate, 30 grains, three times a day. This was then decreased to twice a day, then once a day, and with the cessation of pain on the eighth day, was discontinued entirely.

During the next two weeks, however, he complained of moderate heartburn. Thereupon this also ceased, and from then on he continued in excellent condition, free from all abdominal distress.

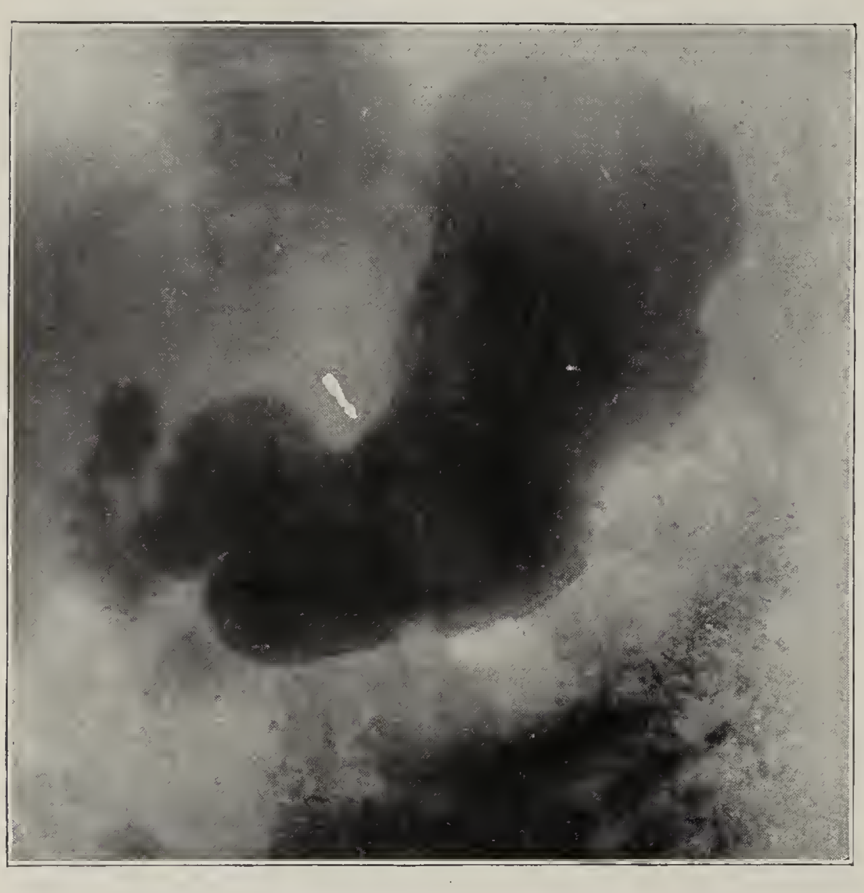

Fig. 8.—Condition fifteen weeks after beginning of treatment and seven weeks after removal of tube.

1 West Eighty-Fifth Street.

Primary Gonorrheal Mastitis.—What is considered the first recorded case of primary gonorrheal mastitis with secondary genital infection is reported by W. H. F. Oxley and J. Dundas (*Brit M. J.* **2**:744 [Nov. 13] 1920). A married woman, seven months pregnant, suffered a contusion of the breast which became swollen and "burst" about six weeks after the injury. Examination disclosed a swelling the size and shape of a tea bun, of India rubber consistency, in the upper and outer quadrant of the breast. Thin pus was exuding from two sinuses separated by a thin bridge of tissue. A smear contained pus cells crowded with typical gram-negative diplococci, which were identified as gonococci. Questioning revealed the fact that the patient was suffering from an acute urethritis and vaginitis accompanied by a copious discharge containing pus cells packed with gonococci. The patient was positive that the genital inflammation followed the mammary involvement by a number of weeks. The husband of the woman denied ever having had gonorrhea, and presented no symptoms.

SECOND IMPROVED METHOD FOR THE DEMONSTRATION OF SPIROCHAETA PALLIDA IN THE TISSUES

WARTHIN AND STARRY'S SILVER-AGAR COVER-GLASS METHOD *

ALDRED SCOTT WARTHIN, M.D., Ph.D.
AND
ALLEN C. STARRY
ANN ARBOR, MICH.

In January, 1920, we described[1] our first improved and more rapid method for the demonstration of *Spirochaeta pallida* in tissue sections, formaldehyd-fixed, embedded in paraffin, and mounted on cover-glasses. The essential features of this method consist in the application of the silver nitrate solution and the reducing substance in small mass action between cover-glasses, so that a minimum amount of silver and reducing substance are admitted through capillary attraction to the section. When this is managed as directed in the method, the spirochetes become more heavily impregnated than the tissue elements, standing out in sufficient contrast to the latter, without the formation of a concealing precipitate. We found this to be the first practical method of applying silver impregnation to spirochetes in single sections, and a decided improvement over the Levaditi method of impregnation in bulk. One of the chief advantages gained was the great saving in time—from ten to fourteen days to twelve hours for the new method. By it also sections from ordinary diagnostic blocks, fixed in formaldehyd, can be used whenever the histologic findings suggest the occurrence of spirochetal infection. We have found the method more certain and less capricious than the old Levaditi method or any of its modifications. Since publishing a description of it we have had corroboration of these points from a number of other laboratory workers.

We are now presenting a method which we consider as great an improvement on the former, as that was on the older methods, in that it possesses these advantages:

1. The time is much shortened; the entire procedure may be carried out in less than one hour after the sections have been mounted on cover-glasses.
2. The results are more certain. We have demonstrated spirochetes in tissues by this method when all others have given negative results.
3. It is more simple, and more easily carried out.

WARTHIN AND STARRY'S SILVER-AGAR METHOD

1. Tissues fixed in neutral formaldehyd.
2. Embed in paraffin.
3. Cut, and mount sections on cover-glasses with albumin fixative.
4. Remove paraffin (xylene, alcohol, water).
5. Rinse cover-glass with section in 2 per cent. silver nitrate; cover wet section with another perfectly clean cover-glass, so that they are held together by capillary attraction; then place them carefully in a bottle of 2 per cent. silver nitrate and place in incubator for from thirty minutes to one

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* This research has been carried out under a grant made by the Interdepartmental Social Hygiene Board, Washington, D. C.

* From the Pathological Laboratory of the University of Michigan Medical School.

[1] Warthin, A. S., and Starry, A. C.: Rapid and Improved Method of Demonstrating Spirochetes in Tissues (Warthin and Starry's Cover-Glass Method), Am. J. Syph. **4**:97 (Jan.) 1920.

hour; then remove from the silver nitrate and separate cover-glasses.

6. Place cover-glass with section in this reducing mixture:

	C.c.
Two per cent. silver nitrate solution	3
Warm glycerin	5
Warm 10 per cent. aqueous gelatin solution	5
Warm 1.5 per cent. agar suspension	5
Five per cent. aqueous hydroquinone solution	2

7. After the section is reduced, remove and rinse in 5 per cent. sodium thiosulphate (hyposulphite) solution.
8. Rinse in distilled water.
9. Absolute alcohol, xylene, balsam.

GENERAL CONSIDERATIONS

Fixation should be complete to give the best results. Thin slices of tissue, from 5 to 7 mm. thick, left in 4 per cent. neutral formaldehyd (10 per cent. formaldehyd solution) from one to three days give the best results. If tissue is put into alcohol before the formaldehyd fixation is complete, the results are less satisfactory. If the formaldehyd fixation is complete it is not necessary to wash the tissue in water before putting it into 96 per cent. alcohol. Some of our best results have been obtained in tissues kept many years in 4 per cent. formaldehyd. The importance of fixing tissues as soon as removed from the body, or as soon as possible after death, must be emphasized again.

From 96 per cent. alcohol the tissue is run through absolute alcohol, two changes of xylene and two of 52 C. paraffin. The sections should be cut about 5 microns thick for the best results, although from 8 to 12 microns give practical sections. As they are cut they are floated on warm distilled water which has recently been boiled to drive off the air. The under or shiny side of the section is placed on the water. When the sections have flattened out on the warm water they are caught up on the prepared cover-glasses, the water blotted off, and then dried over the flame or in the drying oven. The cover-glasses should be No. 1 or thin No. 2, three-quarter inch squares, or larger if the size of the section requires. They must be perfectly clean, free of all dirt and grease. A *minimum* amount of albumin fixative should be spread evenly on the clean cover-glass, so that there will not be enough of it to become heavily stained. The prepared cover-glasses should be placed on a clean cardboard, covered with clean paper and dried in the incubator for twelve hours before using. They should not be dried by passing through the flame. It is advisable, therefore, to keep a supply of such prepared cover-glasses on hand.

After the mounted paraffin sections have been dried on the cover-glasses, the paraffin is removed by heating over the flame and dropping into xylene, followed by absolute alcohol and then distilled water.

The silver impregnation should be carried out in the dark (dark bottles covered with black paper). Wide-mouthed bottles with tightly fitting corks should be used. The mounted cover-glass is taken from the distilled water, rinsed in 2 per cent. silver nitrate solution, and then covered with another clean cover-glass also wet with the silver solution. The silver solution should always be freshly made, and should never be used after it is from 3 to 4 days old. During this time the same solution may be used over and over again, if kept uncontaminated and in the dark bottle. The bottle should contain enough of the silver solution so that when the cover-glasses are placed on edge against the side of the bottle, it will not completely cover them. The cover-glasses are held together by capillary attraction, and if placed against the side of the bottle wet and the silver solution then poured in so as not to cover them completely, they will be held upright also by capillary attraction, and will not slip apart. The bottle is then tightly corked and placed in the incubator for from thirty minutes to one hour. After impregnation, the cover-glasses are removed, separated, and the mounted section put into the reducing mixture section side up.

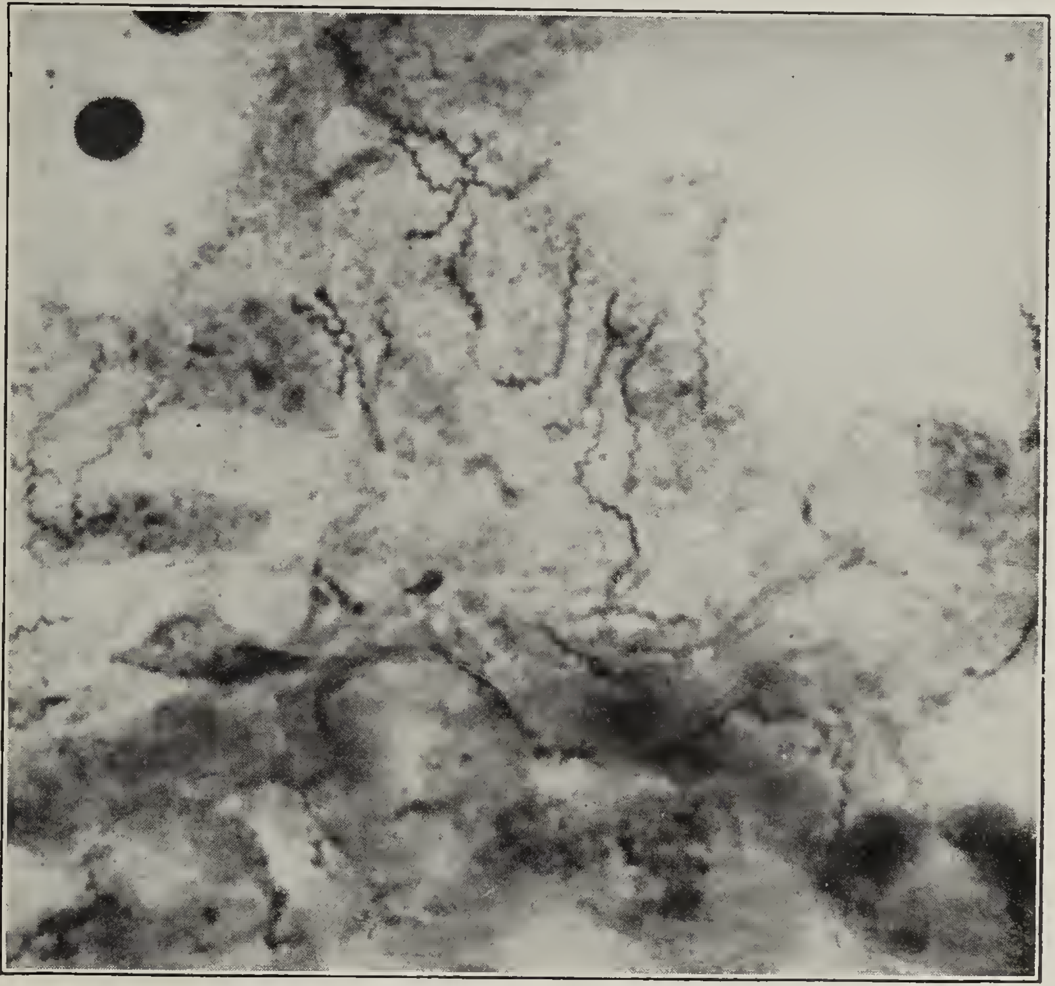

Fig. 1.—Spirochaeta pallida in kidney of a congenital syphilitic. The spirochetes are in small, localized, inflammatory areas between the tubules and around the blood vessels. Tissue fixed in formaldehyd, blocked in paraffin; stain obtained by silver-agar method within one hour after cutting sections. Photographed with a Zeiss 2 mm., oil-immersion, compensating ocular No. 4, with a bellows length of 85 cm.

The reducing mixture consists of 3 c.c. of a 2 per cent. silver nitrate solution, 5 c.c., of warm glycerin, 5 c.c. of a warm 10 per cent. gelatin solution, and 5 c.c. of a 1.5 per cent. warm agar suspension, to which mixture from 0.25 to 2 c.c. of a 5 per cent. hydroquinone solution is added just before using. The warm glycerin and gelatin solutions and the silver nitrate are first thoroughly mixed, then the agar suspension is stirred in with a glass rod, and finally the hydroquinone, just before the sections are placed in the mixture. The agar suspension must be carefully made. One and five-tenths gm. of agar cut up into small bits is added to 100 c.c. of distilled water and carefully and slowly heated to the boiling point, being constantly stirred with a glass rod. When the agar has gone into fine suspension, the solution is poured into a bottle, which is corked lightly and kept on top the paraffin oven. Should the agar become flaky and settle out, it must be brought to the boiling point again with constant stirring. It should be just thin enough to pour, and not too thin and watery. The glycerin and gelatin solutions can also be kept warm on top the paraffin oven.

The amount of hydroquinone added to the reducing mixture varies somewhat with the tissue and the fixation. In general it is best to use as small an amount as possible so that the reduction is not too rapid. A slow reduction usually gives the best results; but if too slow, precipitates will form and the spirochetes will not be well stained. Usually from 0.5 to 1 c.c. gives the best results; but in some cases more may be required. After the hydroquinone has been added, the mixture is stirred vigorously for a short time. It is then poured into a staining dish, and the mounted section removed from the silver solution, the cover-glasses separated, and that holding the section immersed in the reducing mixture for a number of seconds until reduction is complete. The longer the section is in the reducing mixture, the darker it will be. When it becomes a light reddish brown it is removed and washed in a 5 per cent. sodium thiosulphate solution, then rinsed in distilled water, dehydrated in absolute alcohol, cleared in pure xylene, and mounted in balsam. When the sections have been properly stained they will now be light reddish brown. If a deep brown or black, the tissue will be too deeply stained and the spirochetes not sufficiently contrasted. Usually the albumin fixative on the cover-glass about the section is stained somewhat, and this can be rubbed off with a clean cloth, care being taken not to touch the section with the cloth. The upper surface of the cover-glass should be similarly cleaned. The section, of course, must never be allowed to get dry after the paraffin has been removed.

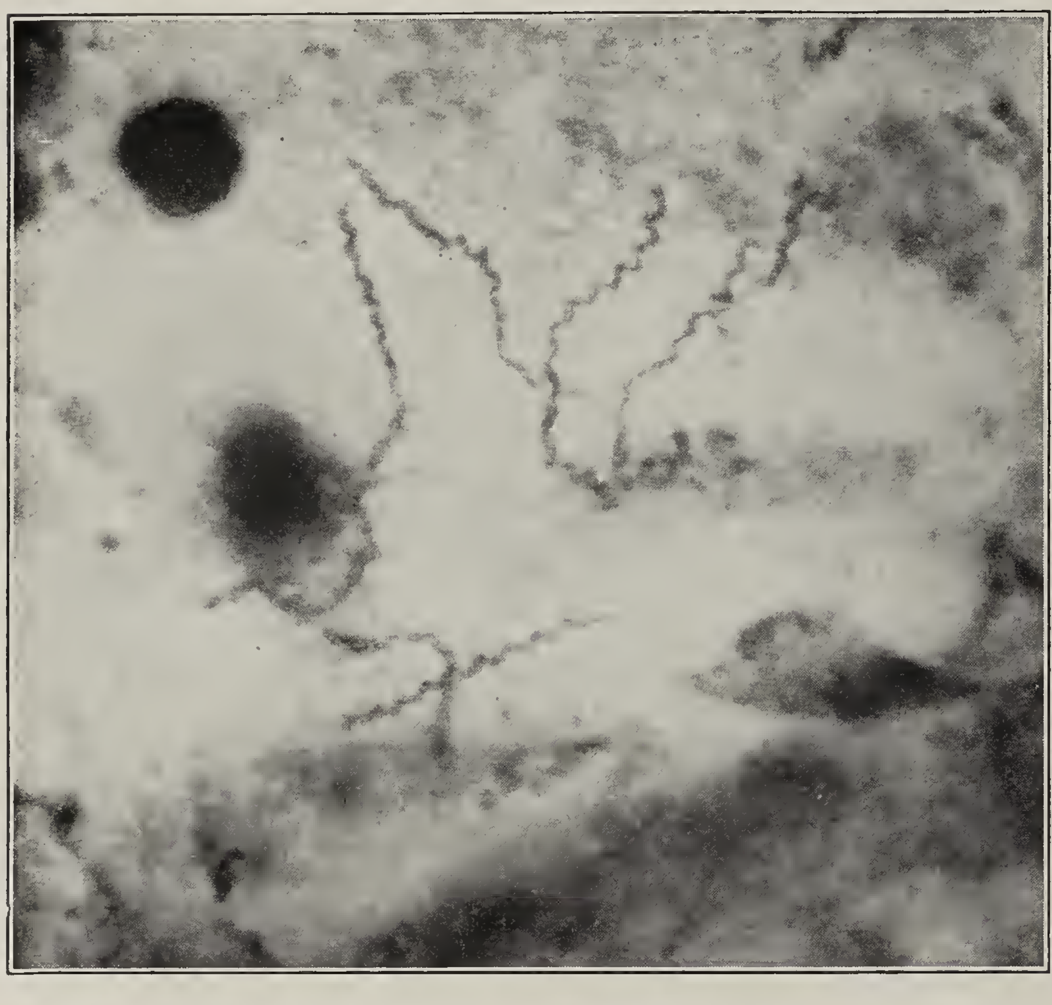

Fig. 2.—Spirochaeta pallida in kidney of a congenital syphilitic. The spirochetes are in small, localized, inflammatory areas between the tubules and around the blood vessels. Tissue fixed in formaldehyd, blocked in paraffin; stain obtained by silver-agar method within one hour after cutting sections. Photographed with a Zeiss 2 mm., oil-immersion, compensating ocular No. 4, with a bellows length of 155 cm.

The use of the second cover-glass during the impregnation in the silver solution seems to be an essential feature of the method. We have never been able to secure good results by leaving the sections uncovered during impregnation. The spirochetes will stain only very faintly or not at all; precipitates more readily occur, and the tissue elements are more deeply stained.

It is important that the alcohol used be pure, and contain no mercuric chlorid, copper or other metal. Alcohol dehydrated over copper sulphate should not be used. The tissues are easily mordanted, and the differentiation of the spirochete made difficult or impossible.

All solutions should be made in distilled water; and all glass-ware must be clean. Acid fumes should be avoided.

Our experience has taught us that not all formaldehyd-fixed tissues react to the silver impregnation method in the same way. Controls show that, with the same solutions and same conditions otherwise, some tissues appear granular, some a bright yellow, and others brown or black, while others will not stain at all. We believe that these differences in staining reactions are in part due to slight difference in fixation, contamination of the formaldehyd, etc., giving rise to differences in the process of reduction. We have found that by changing the reaction of the tissue before staining, it is often possible in such cases to affect the tissue conditions to such an extent that good staining results can be obtained. The best results have been obtained by the use of a 1 per cent. solution of uranium or copper nitrate, or a 0.5 per cent. solution of ferric alum. This is accomplished by placing the sections, from water, after the removal of the paraffin, in one of these solutions for several minutes, and then washing thoroughly in distilled water before putting them into the silver solution. These solutions do not act uniformly in all cases. Uranium nitrate usually gives the best results, as, after its use, the tissue elements do not stain so deeply, leaving the spirochetes better differentiated. Copper nitrate and ferric alum have given especially good results in isolated cases of poor formaldehyd fixation. If tissues are well fixed in formaldehyd, it is not necessary to use any one of these reagents, and they should be tried only when the method proper does not yield good results.

Aside from the use of the second cover-glass to cover the section during the impregnation, the successful operation of the method depends on the reduction process. This can be controlled to a great degree by varying the amount of hydroquinone and also by the temperature. After a little experience in judging the color obtained by reduction there should be no trouble in obtaining sufficiently good stains for diagnostic purposes. With a little more skill obtained by practice, the most beautiful preparations can be easily obtained. Any failures or inconstant results are due to differences in the physical conditions of the reducing mixture or in the fixation of the tissue. As mentioned above, changing the reaction of the tissue by means of uranium or copper nitrate, or by ferric alum, will sometimes remedy the difficulty.

We regard this method as by far the best one yet devised for the demonstration of spirochetes in tissues. The organisms are dark reddish brown to jet black against a very light brown. With experience it can be so manipulated that only the spirochetes and the nuclei of the tissue are stained, so that a beautiful contrast for demonstration purposes or photomicrographic work is obtained.

Further, the rapidity of the method as compared to all other methods for spirochetes in tissue, and its applicability to single sections make it the most practical method for diagnostic work yet devised.

MULTIPLE RENAL AND URETERAL STONES IN AN INFANT OF ELEVEN MONTHS

WITH RESULTS OF URETERONEPHRECTOMY

FRANK HINMAN, A.B., M.D.
SAN FRANCISCO

The formation of urinary stones in infancy is very uncommon. In 1912, Bokay [1] collected from the literature 1,836 instances of urinary calculi in children under 15. The majority were vesical (1,309) or urethral (508). Only nine of the total number of patients had renal stones. What number of the nine cases occurred in infants less than a year old (only forty-five of the total 1,836 patients were under 1 year of age) is not stated, but it is improbable that more than a few, if any, so occurred. Israel, with his wide experience, up to 1911, had operated on only two children under 5 for renal calculi, and Rafin,[2] in an analysis of thirty-nine cases of renal or ureteral stone recognized at operation or necropsy, finds none of the patients under 1 year of age and only five between the ages 1 and 5 years. None of Kelly's [3] ninety cases and only one of Bugbee's [4] 198 cases occurred under 10. But Rayer [5] writes that "renal calculi have been observed at all ages including the fetus and infant," and he cites ten cases, two fetuses of 6 and 8 months, three new-born infants of 1, 2 and 8 days, and five of 3, 4, 6 and 8 months and 1 year. No doubt a careful and laborious search of the literature would reveal many more cases than indicated, but the great rarity of renal calculi in the very young is indisputable. I [6] have seen one other case in a boy of 5.

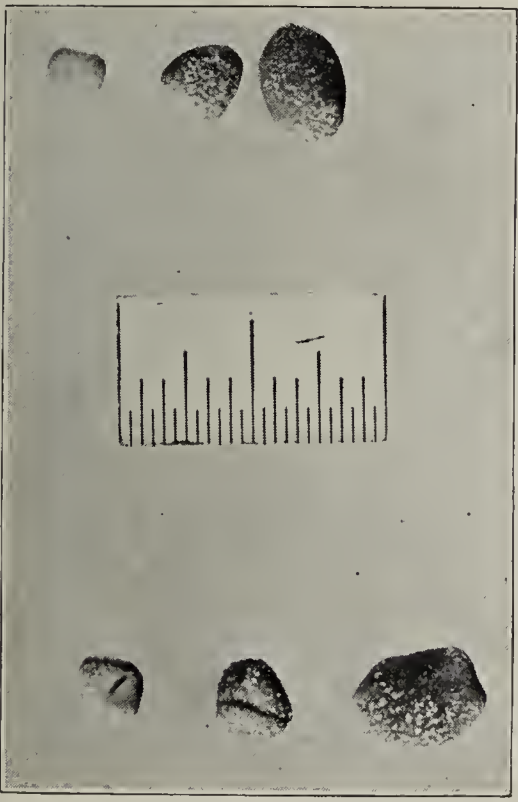

Fig. 1.—The upper three stones were passed spontaneously. The lower three were removed at operation: the small smooth one at the left, from the kidney pelvis; the two other, larger and rougher, from the ureter.

The tender age, 8 months at onset, and the extensive surgery, ureteronephrectomy, give sufficient interest for recording this case.

REPORT OF CASE

A full term, 7½ pound girl was born, May 29, 1918, of healthy Austrian parents. The pregnancy and labor had been normal and the delivery easy. It was breast-fed for three months and then given diluted condensed milk. No water, other than that in the milk, was ever given to the child until after 9 months of age. The weight at 6 months was 25 pounds; at 9 months, 30 pounds, and on the day of admission to the hospital, 13 pounds. The only illness was bronchitis, which had persisted off and on in the form of a troublesome cough since the child was 3 months old.

Suddenly, when 8 months old, there was complete retention of urine for three days with great suffering, which quickly subsided coincidentally with the passage of a large quantity of urine. Six days later a round stone the size of a pea was passed through the urethra without difficulty. On the following day, however, severe convulsions for an hour accompanied the passage of a second similar stone. One month later, three other stones (Fig. 1) were spontaneously voided, the last, 1 cm. in diameter, its passage being preceded by high fever for two or three days and, for nine hours, by urinary retention with evidence of great suffering.

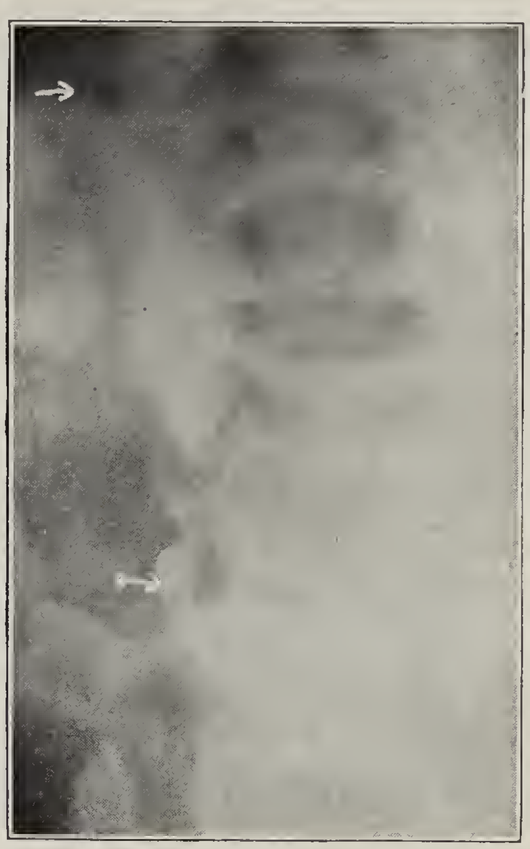

Fig. 2.—Two shadows (as indicated by arrows) in the lower left ureter, and one smaller shadow in the region of the left kidney.

On examination, May 12, 1919, a normally developed but emaciated child gave otherwise negative findings. The temperature showed a daily variation from 36.2 to 38.4 C. (97 to 101 F.). The urine (catheterized) was cloudy, and showed a faint trace of albumin, no sugar and no casts. Microscopically, a few red blood cells, many pus cells and many rod-shaped organisms were seen. The total phenolsulphonephthalein was 35 per cent. for one hour. Plain roentgen-ray examination revealed one shadow in the region of the left kidney and two in the line of the lower portion of the left ureter (Fig. 2). Cystoscopic examination revealed the left ureteral orifice cystic and the size of a pinhead. The right was negative. It was not possible to pass the left catheter farther than 2 to 3 cm., whereas the right was readily passed to the pelvis. The left urine was purulent and loaded with bacilli; the right, negative.

It was thought that the baby had pertussis, on account of the loose, persistent cough. Fluids to the amount of from 1 to 1.5 liters daily were given, and the child was sent home in the expectation of the remaining stones passing spontaneously, or until the whooping cough had cleared up, when operation might be considered.

The child was returned in July, 1919, sturdy looking and weighing 7,100 gm. (15⅝ pounds). The urine was now clear, but showed under the microscope a few pus cells and many bacilli. The total phenolsulphonephthalein output for one hour was 30 per cent. Roentgen-ray studies revealed the three stones in the same relative positions as previously demonstrated. Several unsuccessful attempts were made to dilate the left ureter and remove the stones cystoscopically. The small cystic left ureteral orifice was slit open, but it was not possible to pass instruments or a catheter to the stones.

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[1] Bokay, J. V.: Ueber die infantile Lithiasis in Ungarn, Ztschr. f. Kinderh. **4**: 365, 1912.

[2] Rafin: De la lithiase rénale et urétérale chez l'enfant, Ann. d. mal. d. org. gén-urin. **1**: 481, 1911.

[3] Kelly and Burnham: Diseases of the Kidneys, Ureters and Bladder, 1914.

[4] Bugbee, H. G.: A Clinical Study of Lithiasis, J. A. M. A. **69**: 1492 (Nov. 3) 1917.

[5] Rayer: Traité des maladies des reins, 1841.

[6] Hinman, Frank: Cystoscopic Study of Urologic Conditions in Children, Am. J. Dis. Child. **17**: 305 (May) 1919.

After consultation with Dr. W. P. Lucas, operation was decided as the justifiable course and, July 22, left ureteronephrectomy was performed. The bladder was exposed extraperitoneally through a midline suprapubic incision, and the lower portion of the left ureter readily isolated. It was dilated and thickened, but no stones in the position indicated by the roentgen ray were found. Through a small slit in the ureter a probe located crepitation high up in the ureter near the kidney where the stones had migrated, doubtless as a result of the manipulation incidental to ureteral exposure. The stones were so round and large that seizure in the ureteral forceps was impossible. The incision was slightly enlarged, and extraperitoneal dissection of the ureter to the renal juncture effected. At this point it could be felt and seen that marked constriction was present; and in stripping the ureter to deliver the stones to its lower portion where they might be more easily removed, the ureter tore loose from the kidney at this constricted, inflamed area. Nothing remained as feasible but to perform ureteronephrectomy. The ureter and its two stones were removed, and then through a lumbar incision the kidney was quickly excised. Recovery was uneventful and rapid, and the child has remained perfectly well.

The stones were all similar in structure, semispherical, very light in weight, with smooth or slightly granular surfaces. On section they showed the characteristic concentric arrangement of layers.

The kidney showed diffuse but mild pyelonephritis and considerable hydronephrotic atrophy. In view of the marked inflammatory stricture at the ureteropelvic juncture, its preservation, even had the stones been removed successfully, is very doubtful. The inflammatory strictured area was quite extensive, and progression of the hydronephrotic atrophy almost inevitable in consequence.[7]

The probable factor in the formation of these stones would seem clinically to have been the diet, from which, for so many of the early months of life, water was absent.

516 Sutter Street.

ACUTE MYELOGENOUS LEUKEMIA

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In a recent article on acute myelogenous leukemia, Gorham[1] defines the conditions as "a fatal disease of unkown etiology, characterized clinically by a short course, fever, hemorrhages, ulcerative changes of the mucous membranes and moderate splenic enlargement." He further gives a very complete discussion of the probable pathogenesis of the disease, its pathology, and of the hematologic questions involved, with a bibliography of the subject to 1917. At that time he had collected a total of seventy-three instances, which are grouped as twenty-eight proved, twenty-seven probable and eighteen doubtful cases, on the basis of these requirements for a proved case: (1) an aleukemic or subleukemic stage; (2) an acute downward course with death usually ensuing in from one to four months; (3) the characteristic blood picture of myeloblasts and myelocytes, with the transition forms between the two; (4) the typical gross and histologic findings of the liver, spleen, bone-marrow and lymph glands, and (5) the specific proof of myeloid elements by enzyme reactions.

In an attempt to add an at least "probable" case to those already reported, the following is submitted:

REPORT OF CASE

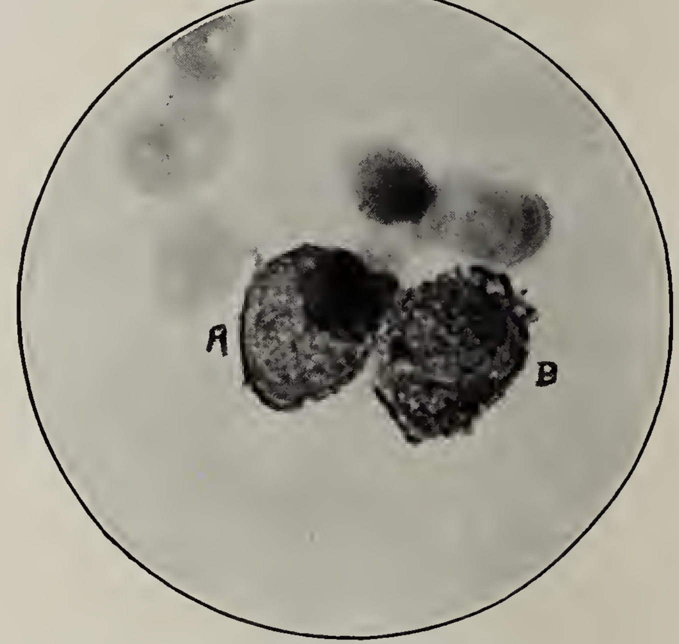
Mrs. H. L., a white, American woman, aged 35, with three children living, had had three abortions, two of which were septic. The previous history was otherwise negative.

March 30, 1920, she had two teeth extracted because of apical abscesses. Two weeks later mouth infection was observed, which showed *B. fusiformis* and spirilla. This condition persisted for about three weeks. The patient then returned to her work as a practical nurse, but complained of feeling as though a "cold in her head" was developing.

May 28, she complained of malaise and general aching. The temperature was 99.8.

May 29, she felt better. The temperature was 98.6.

May 30, on arising she felt well, and ate a normal breakfast; she was able to take her patient for a walk. At the end of about one hour she began to feel sick, and took her temperature, which was above 102. She returned to her own home, and went to bed. The temperature at 1 p. m. was 103.4; at 5 p. m., 104.8. She complained of severe general muscular pain, and a tightness or constriction of the throat; also of "pleurisy" pain in the right side. She had a slight cough, and was every nervous and restless.



Myeloblast (*A*) and premyelocyte (*B*) from case of acute myelogenous leukemia. Wright stain. Note the delicate structure of the nuclear chromatin, especially noticeable in the nongranular myeloblast.

May 31, in the morning the temperature was 100.8; the pulse, 116, the general condition being the same as on the preceding day. The evening temperature was 104.8. She had pain in the head and the right eye. She insisted there was a swelling in the throat which would choke her. The throat was red, but no membrane or patches could be detected. There were râles at the base of the right lung. The cervical glands were shotlike.

June 1, the condition was about the same. The patient had a slight pallor.

June 2, the axillary temperature was 103.6; the pulse, 130; the right eyelids were swollen and ecchymotic. There were sôrdes on the teeth. There was slight mental confusion at intervals.

June 3, the axillary temperature was from 101.4 to 104.4. The right eyelids were swollen shut, and purplish. There was hemorrhage from the nose, mouth and throat, and very profuse hemorrhage from the uterus. The spleen was tender, but not palpable below the costal margin. At 8 p. m. the left eyelids showed beginning ecchymosis, and the cervical glands were palpable as pea-size.

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[7] Geraghty and Frontz (A Study of Primary Hydronephrosis, J. Urol. **2**: 161 [June] 1918) have recently emphasized the significance of inflammatory strictures at the ureteropelvic juncture in adults, and their findings are well illustrated in an infant by this case.

[1] Gorham, L. W.: Acute Myelogenous Leukaemia, Albany M. Ann. **38**: 201, 1917.

Dyspnea, apparently from fluid in the lungs, and continuing loss of blood from all the mucous surfaces, terminated in death at 8 a. m., June 4.

This case was considered and treated as a severe and obscure infection until a blood examination, made the afternoon before the end, gave: erythrocytes, 2,688,000; hemoglobin, 48 per cent. (Sahli); leukocytes, 7,600: mature lymphocytes, 18 per cent.; immature lymphocytes, 6; endotheliocytes, 4; polymorphonuclear neutrophils, 25; neutrophil myelocytes, 5; myeloblasts and premyelocytes, 42.

The predominant cells were from 21 to 22 microns in diameter, and characterized by oval nuclei with delicate chromatin structure, very irregular cell boundaries, and cytoplasm either nongranular or containing a few coarse granules. The oxydase reaction[2] to identify them as of myelogenous origin was not made, but the presence of the coarse granules in many of the cells, the size and the delicate chromatin structure of the nuclei, defined them as distinctly different from the lymphocytes found in the same smear.

Permission for a postmortem examination was not obtained, no record of a previous blood count on the patient has been found, and because of the late identification of the disease only the one blood examination was made.

Clinical Notes, Suggestions, and New Instruments

ASCARIS LUMBRICOIDES CAUGHT IN THE EYE OF A SHOE-BUTTON

C. W. Stiles, M.D., Washington, D. C.
Professor, Hygienic Laboratory, United States Public Health Service

Recently in examining the ascarids in the Division of Zoology, Hygienic Laboratory, I refound a forgotten and rather unusual specimen (No. 10844), namely, a female *Ascaris lumbricoides* which is threaded through the eye of a large shoe-button. The worm is securely fastened about one-third its length from the head. This specimen was sent to me in 1910 by Dr. F. K. Travers Warrick of Richmond, Va., but apparently the case has not yet been reported. Somewhat similar cases have been recorded in the literature:

Stockbridge reports the case of a child in Bath, Maine, who swallowed several dress-hook eyes; later these were voided, and "each eye was completely threaded by a worm [*A. lumbricoides?*], 5 to 7 or more inches in length. Some had caught three; and in others, the worm had succeeded in passing through two of the rings."

The *Boston Medical and Surgical Journal* reports somewhat similar cases from the museum of the Albany Medical College: "There are two or three large lumbrici [*A. lumbricoides*], once or twice piercing the holes of a common black metallic suspender button; another specimen, in which the worm is caught in two places of a plated-wire eye . . . and a third, with a firm thread apparently fastened securely around near the middle of its body. These were voided from the intestinal canal of different children." The author also reports the case of a thimble in the nostril, and from the title of the article the presumption is that this too was a worm trap, as catalogued in the literature from cross-referencing the title, but such is not the case.

Williams records a case of *Lumbricus* (i. e., *A. lumbricoides*) expelled by a child in Boston. The worm was fastened in the eye of an ordinary dress-hook.

Jackson exhibited before the Boston Society of Natural History an *Ascaris lumbricoides* (passed by a child) with about an inch of its body inserted through the eye of a common dress-hook. He observed that this example illustrated the singular tendency of this worm to crawl through perforations in the intestine, into the duct of the gallbladder, or into the appendix ceci. Nothing in the original publication indicates whether or not Jackson's specimen is the same as Williams', but the date, locality, and fact that the patient in both papers was a child, gives rise to the thought that both authors may have recorded one and the same case.

A CASE OF ABDOMINAL PREGNANCY AT FULL TERM

A. R. Rozar, M.D., Macon, Ga.

History.—A. S., a colored woman, aged 35, referred to me for operation at the Macon Hospital, Nov. 11, 1920, for pathologic pregnancy, by Dr. Boddie, a colored physician of Forsyth, Ga., was the first born of a family of ten children, of whom eight were living. She had measles, chickenpox, smallpox and whooping cough in childhood, but had had no serious illnesses since. She denied gonorrhea and syphilis. She had been married fourteen years, but had had no previous pregnancies. Her husband was living and well. Menstruation began at the age of 13, and was of normal periodicity, of three days' duration, moderate in quantity, and not painful except for a slight backache the day before. There was no intermenstrual flow. Leukorrhea, moderate before marriage, had been only slight since. The patient became pregnant in March, 1920. She stated that during the first three months she vomited almost constantly during the day and night, the vomitus being a greenish liquid with a sour odor. The vomiting was made worse by drinking or eating; and especially toward the last of the vomiting period there was a slight griping in the abdomen and a congested feeling in the head, with blurring of vision. At the end of three months vomiting stopped and did not recur throughout the remainder of pregnancy. An intermittent pain came on about the fifth month and increased in severity toward the last; it was cramping, griping, and located just below the umbilicus on the left side. There was only slight backache during pregnancy. The stools were normal.

Examination.—The patient was fairly well nourished and well developed and of average size. The heart and lungs were normal. There appeared to be a normal, full-term pregnancy and a rather distended bladder. Palpation revealed a large oval tumor resembling a full term, pregnant uterus. As soon as any palpation was begun there was a painful contraction, and the swelling corresponding to the full bladder became more round, with a feeling of a subserous fibroid tumor with a sessile base. The movements of the child could be distinctly felt. The fetal heart sound could be indistinctly heard on the left side of the abdomen 2 inches below and 1½ inches to the left of the umbilicus. On digital examination the vagina seemed to be full of a tumor that went up against the pubis. On pushing this tumor up and back the finger could be forced between the tumor and the pubis, and the cervix, very high up, could be indistinctly outlined.

Operation and Result.—The abdomen was opened, November 13. The uterus, about the size of a three months' pregnancy, was in front, with the pregnancy behind. The placenta was attached to the posterior surface of the uterus, the right broad ligament and intestine. The baby could be seen distinctly through the amniotic membranes and every movement observed. It was a simple breech presentation, with the breech in the culdesac and corresponding to a left sacroanterior position. The abdominal contents were packed off with towels, the membrane ruptured with the point of scissors, the child delivered, the cord clamped and cut, and a crying, 6 pound baby delivered to an assistant. The attachment of the placenta to the uterus and broad ligament was easily separated, but the separation from the intestine was more difficult. It all came away fairly easily, however, with the exception of small tabs. The hemorrhage was about that of a normal delivery. Two cigaret drains were inserted into the culdesac and the abdomen closed. There was no discharge from the uterus after operation. The milk appeared about the fifth day. The patient was allowed to sit up out of bed on the fifteenth day, and she and the baby were discharged from the hospital, December 1.

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[2] Beifeld: Acute Myeloid Leukemia, Arch. Diagnosis, July, 1915. Ward, Gordon: The Infective Theory of Acute Leukemia, Brit. J. Child. Dis. **14**: 10, 1917.

COMMENT

Some interesting points in connection with this case are: the absence of unusual symptoms during the course of the pregnancy; the enlargement of the uterus to accommodate the attachment of the placenta, and the ease with which contractions of the uterus were stimulated on palpation. It seems strange that these contractions did not detach the placenta and cause hemorrhage before operation. As a diagnostic point, in a case of advanced pregnancy when the cervix is pushed up very high anteriorly, it is well to consider an ectopic gestation.

Cragin reports six cases at or near full term in which he operated, delivering three living babies with recovery of the six mothers. In his cases he did not insert drains, but in one case it was necessary later to drain Douglas' pouch.

Hutcheson[1] reports a case in which a well formed, 8 pound baby was delivered.

As to the operative mortality in these cases, Beck[2] says:

> After the sixth month the best time proved to be the tenth month. The reason for this appeared to be that in the last month only 30 per cent. of the fatal maternal cases died of hemorrhage, while before this 60 per cent. succumbed in this way. From the standpoint of the child, the best time to operate was found to be just before the last two weeks of pregnancy. The management of the placenta in these cases is the main difficulty. Yet the mortality has gradually been reduced to 11.1 per cent. in cases in which the placenta was removed. Such removal should be effected whenever possible. In cases in which the placenta has been left and the wound drained until it came away the mortality has been 38.7 per cent.

These percentages are not definite as to cases at full term, for they include cases from the sixth to the tenth month, and it is difficult to get accurate statistics when we have so few cases and these are so widely scattered. These figures were taken from a series of 240 cases of ectopic pregnancy in which operation was performed at all periods.

I can find no reference, except the few reported cases, as to the percentage of living babies.

207-208 Grand Building.

MODIFICATION OF STAIN FOR DIPHTHERIA BACILLI

Henry Albert, M.D., Iowa City

During the early part of last year, I described a new stain for diphtheria bacilli.[3] We have used it on a large series of specimens and find that although the granules of the bacillus always stain very well, at times the body of the micro-organism stains rather faintly. This occasionally leads to some difficulty in distinguishing between diphtheria bacilli and cocci which contain metachromatic granules.

The failures on the part of the body substance of the diphtheria bacillus always to take the proper stain is due in part to the age of the bacillus and in part to the strength of the iodin solution used. We have accordingly made several slight modifications which have resulted in the securing of uniformly good results. The modifications consist of the addition of methyl green to Solution 1 and an increase in the iodin content of Solution 2.

The formulas of the solutions as modified are:

SOLUTION 1

Toluidin blue	0.15 gm.
Methyl green	0.20 gm.
Acetic acid (glacial)	1.00 c.c.
Alcohol (95 per cent.)	2.00 c.c.
Water (distilled)	100.00 c.c.

After standing for one day, the solution is filtered and is ready for use.

SOLUTION 2

Iodin	2 gm.
Potassium iodid	3 gm.
Water (distilled)	300 c.c.

The solution is ready for use as soon as the iodin is entirely dissolved.

TECHNIC OF STAINING

Smears are made on slides or cover glasses and fixed by heat in the usual manner; stained with Solution 1 for one minute; washed with water; dried with good absorbent filter paper; stained with Solution 2 for one minute; washed, and dried with filter paper.

MICROSCOPIC PICTURE

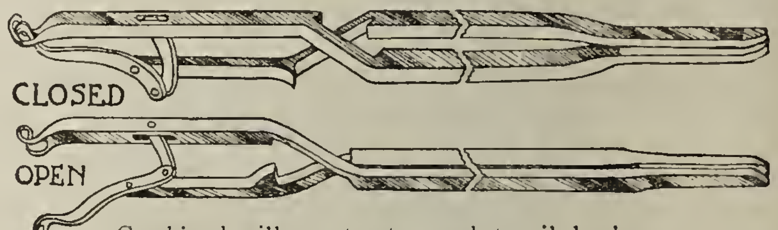
The granules of diphtheria bacilli are stained black; the bars, dark green, and the intermediate portions, a light green. Virtually all other bacteria also take a light green stain. The contrast is marked.

The stain has been very serviceable in detecting diphtheria bacilli.

COMBINED PILLAR RETRACTOR AND TONSIL HOOK

Albin M. Painter, M.D., Kansas City, Mo.

In the construction of this instrument, one arm of a pair of special cross action forceps is made into a pillar retractor, while the other arm is shortened, and has pivoted laterally to its end the tonsil hook, hinged by a movable cross bar, keyed into the center of the pillar retractor. The cross action springs hold the tonsil hook protected within the reverse curve of the pillar retractor. Compression of the handles rotates the hook outward and backward along the main shaft. The instrument is universal. It can be used around the entire circumference of both tonsils where attached to pillars, and admits of every step of the operation being under direct vision. The hook or retractor can each be used separately as well as conjointly.



Combined pillar retractor and tonsil hook.

1208 Wyandotte Street.

ULCERATIVE COLITIS COMPLICATING TUBERCULOUS MENINGITIS

C. S. James, M.D., Centerville, Iowa, and J. W. Shuman, M.D., Sioux City, Iowa

History.—I. J., a man, aged 19, American, miner, whose father and mother were living and well, who had one sister living, and whose family history was negative as to tuberculosis, cancer and syphilis, was said by the parents never to have been quite right, always being dull and stupid, and to have had asthma for the last three years. The patient became ill, Sept. 8, 1911, with an "asthma-like attack" and pain in the left ear; but no pathologic lesions were found. Five days later his physician found him restless and complaining of pain in the left ear. The temperature was 101 F. He was mentally dull. On consultation, September 16, a diagnosis of mastoiditis was made, and the patient was removed to St. Joseph Mercy Hospital, Centerville, Iowa.

Examination.—On admission the patient's temperature was 101.5; pulse, 120; respiration, 18. He was aroused with difficulty. A polyp filled the deep aural cavity on the left side; there was apparent tenderness of the left mastoid; no bulging of the canal was noted. The Brudzinski and Kernig signs and the Babinski reflex were strongly present.

Lymph glands, lungs, heart, digestive tract and associated viscera were apparently normal. The patient was delirious. The pupils were equal and reacted to light; the eye grounds showed choked disk, most marked in the left.

Blood examination, September 17, revealed: hemoglobin, 80 per cent.; leukocytes, 8,000; differential count: small lymphocytes, 10 per cent.; large lymphocytes, 5 per cent.; large mononuclears and transitionals, 5 per cent.; polymorphonuclears, 80 per cent.; eosinophils and mast cells, 0. Urine examination was negative. The Iowa state laboratory reported the Widal test negative, September 20.

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[1] Hutcheson: Progr. Med. **3**: 226 (Sept.) 1920.

[2] Beck, quoted by Sajous, C. E. de M.: Analytical Cyclopedia of Practical Medicine, Ed. 8, Philadelphia, F. A. Davis Company **3**: 608, 1920.

[3] Albert, Henry: A New Stain for Diphtheria Bacilli, J. A. M. A. **74**: 28 (Jan. 3) 1920.

September 21, spinal puncture was made. One ounce of clear fluid under increased pressure was removed; no microorganisms were found.

A diagnosis of tuberculous meningitis secondary to chronic mastoiditis was made.

Clinical Course.—Two days later, there developed bilateral, catarrhal conjunctivitis, and parotitis on the left side. The patient's condition continued to grow worse, and, September 26, he began to have involuntary stools, at first dark brown, but gradually becoming more red until pure blood was noted. The patient died, 1:20 a. m., September 27.

The clinical diagnosis was tuberculous meningitis, complicated with intestinal hemorrhage.

Necropsy.—This was performed, September 27. Permission was given to open only the abdomen. The heart and lungs (removed through the diaphragm) were negative. The abdominal viscera, except the cecum, were negative. The mucosa of the first 10 inches of the ascending colon showed nine ulcerated areas, from 1 to 4 cm. in length and from 0.5 to 1.5 cm. in width. They were situated transversely and extended through the mucous membrane into the muscularis. The edges were not undermined; the base was a dirty bluish red; there was no crusting. Nearly all showed signs of recent hemorrhage. Five lymph glands, the size of a grain of corn, were noted on the mesenteric border of the ascending colon near the ileocecal valve. They contained several gramophil bacilli. The ulcers evidenced nothing microscopically but round cell infiltration.

The diagnosis was: death due to hemorrhage from tuberculous ulcers of the colon.

Special Articles

BIOLOGIC THERAPY *

(Continued from page 179)

XII. RABIES VACCINE

A. M. STIMSON, M.D.
Surgeon, United States Public Health Service
WASHINGTON, D. C.

Rabies vaccine is prepared in a number of different ways from the same basic material, the fixed virus of rabies. It is important to realize that the one fundamental and essential step in the preparation of rabies vaccine has been taken by accomplishing the conversion of the virus of rabies from the condition in which it is found in Nature to the state in which it is known as fixed virus. The subsequent handling apparently is of less importance since, as far as can be judged, equivalent results may be obtained with vaccines prepared by various methods of treating the fixed virus.

Fixed virus may be prepared from the virus as found in Nature (street virus) by serial passage through a large number of relatively nonresistant animals. The rabbit is commonly used. Changes in the properties of the street virus are indicated by a progressively shortening incubation period of the resultant disease, by a tendency to produce the paralytic rather than the violent form of the disease, by a reduction or loss of infectivity when given subcutaneously to relatively resistant animals, and by changes in the appearance of the Negri bodies which are associated with rabies. The virus is spoken of as "fixed" when these changes have ceased to progress, at least with sufficient rapidity to be readily observable. Nominally, this coincides with the period when the incubation period in rabbits, inoculated intracerebrally, has been reduced to seven days; but there is evidence that further changes at a very slow rate of progress do continue beyond this period. In practice, it is the custom for laboratories beginning the production of rabies vaccine to avoid the delay incident to preparing their own fixed virus from street virus, by securing a strain of the former from some other laboratory. In the common parlance of the laboratory, the term "rabies virus" means not only the microorganism causing the disease, but also the tissue in which it is contained as well; and unless otherwise defined, it would be understood to mean the brain or spinal cord of a rabid animal.

TREATMENT FOR ADULT

Day of Treatment	Cord, Dried, Days	Amount of Cord Cm.	Day of Treatment	Cord, Dried, Days	Amount of Cord Cm.
First..........	6	1	Twelfth.......	3	0.5
Second........	5	1	Thirteenth....	3	0.5
Third..........	4	1	Fourteenth....	2	0.5
Fourth........	3	0.5	Fifteenth......	2	0.5
Fifth..........	3	0.5	Sixteenth......	4	0.5
Sixth..........	2	0.5	Seventeenth...	3	0.5
Seventh.......	2	0.5	Eighteenth....	2	0.5
Eighth........	1	0.5	Nineteenth....	3	0.5
Ninth..........	5	0.5	Twentieth.....	2	0.5
Tenth.........	4	0.5	Twenty-first...	1	0.5
Eleventh......	4	0.5			

The further treatment of the fixed virus in order to prepare the vaccine may proceed according to several recognized methods, the intent of which is either to accomplish graduation of the dosage, or to secure a further attenuation of virulence, to preserve against rapid deterioration, or merely to provide the material in a form convenient for use. Of these methods the most commonly employed are: emulsification of the virus and graded dilution in salt solution; reduction of virulence by slow desiccation for definite periods, followed by preservation in glycerin; removal of diffusible substances by dialysis; rapid desiccation in a frozen condition, and treatment by various chemicals, notably by phenol. The advocates of each of these methods can adduce arguments as to the convenience, economy or suitability for some special purpose of the method which they employ; but it is believed that there is no acceptable evidence to show that any one method is preeminently more efficacious in conferring immunity to rabies than others. Some methods have, however, been subjected to more extensive practical application than others.

Whatever the method employed, the final substance to be used for injection consists of a liquid suspension of more or less modified fixed virus; and this is administered in a series of subcutaneous injections, given for a period of time which may vary according to the method used, up to a maximum of three weeks. It has been found possible, and is theoretically advantagious, to modify the schema of injections employed originally by Pasteur in using the virus attenuated by slow desiccation. For example, the plan of injections now employed in the Hygienic Laboratory, U. S. Public Health Service, eliminates the use of long dried and presumably inert material, while retaining roughly Pasteur's idea of administering a succession of courses of injections of increasing virulence. This schema is admittedly arbitrary, and is supported more by the evidence of long usage than by strictly scientific considerations.

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* This is the fourth instalment of a series of articles dealing with serums, vaccines and nonspecific therapy.

Immunization with rabies vaccine is, of course, of the active type, and requires considerable time, and is made possible in its application in practice only by the fact that the incubation period of rabies is relatively extremely long. During this period the immunization must be accomplished. In some instances in which the exposure has been exceptionally severe, the incubation period is destined to be too short to permit the establishment of active immunity, and in these cases the preventive treatment must fail. In other cases, moreover, even though the exposure is not severe beyond the ordinary, the individual seems incapable of responding to the treatment by developing immunity. The counterpart of this condition is seen experimentally in the varying response of rabbits to injections of rabies vaccine, as manifested by the rabicidal property of their serums. It is generally accepted, and there is experimental evidence in support of the belief, that the maximum degree of immunity is not developed until about two weeks after the completion of the treatment.

The exact evaluation of the protection afforded by treatment of persons with rabies vaccine is impossible. In order to accomplish such a valuation, we should have to know, on the one hand, what proportion of persons exposed to infection, and failing to receive protective inoculations, succumbed to rabies; and, on the other hand, the proportion of such deaths among exposed persons who did receive the inoculations. The difficulty lies in securing sufficiently large groups in both the treated and untreated classes in which all the data necessary for statistical comparison are well established. Was the biting animal certainly rabid? Was virus actually introduced into the wound? Were the injuries in the two groups comparable as regards severity and location? These and other questions would require to be answered fully if we were to make an accurate estimate. The trend of the difference between the two groups, treated and untreated, is, however, sufficiently definite. A much greater proportion of untreated exposed persons die from rabies than of the treated, according to the best available figures. There is a mass of experimental data to show that rabies vaccine does accomplish a specific immunizing effect.

The administration of rabies vaccine is not entirely devoid of danger to the recipient. In a very small proportion of those receiving it, a paralytic condition develops which may fairly be attributed to the treatment per se, or to a combination of this with a peculiar susceptibility of the patient. About one fourth of these cases end fatally, a complete recovery usually occurring in the remainder. Exposure to cold or chilling, fatigue, and the use of alcohol apparently predispose to the development of this condition, but cases are seen in which none of these factors have been operative. Other objectionable results of the treatment amount only to minor discomforts and inconveniences.

Rabies vaccine, prepared by various procedures, is now available throughout all portions of the United States to the extent that it may fairly be said that no exposed person need die of rabies for lack of injections. Many state boards of health are prepared to furnish it free of cost to the indigent, and the cost of the commercial preparations is not prohibitive except to the destitute, for whom other provisions could probably be made in almost every instance.

XIII. PERTUSSIS VACCINE

WILBURT C. DAVISON, M.D.

BALTIMORE

The announcement by Bordet and Gengou in 1906 of their hemoglobinophilic bacillus as the etiologic agent of pertussis stimulated the search for a prophylactic and curative vaccine or serum for this disease. Some authorities still maintain, however, that a filtrable virus may be the real cause, and the presence of the Bordet-Gengou bacillus merely a coincidence, and that Koch's postulates have not been satisfactorily fulfilled. On the other hand, the Bordet-Gengou bacillus can be isolated from the sputum in practically all cases during the first two weeks of the disease, and complement fixation for it has been demonstrated in pertussis patients by several investigators. Others, however, are unable to confirm this.

Bordet himself had inconclusive results from the therapeutic use of antiendotoxic serum in whooping-cough, yet many observers have reported favorable results for the curative and prophylactic use of pertussis vaccines. Some of these reports have been written by physicians whose clinical judgment is reliable; but, unfortunately, many more have been deductions from insufficient and uncontrolled material that has been inaccurately analyzed. The more careful studies show that pertussis vaccine has practically no therapeutic value. In some cases it has been noted that the number and severity of the paroxysms have been reduced, but the course and duration of the disease have been essentially unchanged. Nonspecific therapy, such as injections of *Bacillus influenzae* vaccines, the sterile ether extract of sputum of whooping-cough patients, sugar solutions, or even a change of air will bring about quite similar results.

The natural immunity of many children to pertussis makes accurate conclusions in regard to the value of prophylactic vaccine exceedingly difficult. Many of the unvaccinated, when exposed to the disease, fail to acquire it, while a number of those inoculated succumb. Many enthusiastic reports have been published, but in most of these but few unvaccinated controls were observed.

In a series of experiments that had adequate controls, negative results were obtained for vaccines used during the course of the disease, and but doubtful immunization from prophylactic inoculations.

In summing up the prolific and somewhat contradictory literature on this subject, it may be concluded that injections of Bordet-Gengou bacillus vaccines may have a slight though unreliable prophylactic effect, and that therapeutic inoculations are of practically no value. Further experiments are necessary to raise this procedure from the limbo of nonspecific therapy.

DOSAGE

The earlier investigators used comparatively small doses of vaccine; but if beneficial results are to be expected at all, the following dosage may be tried. This procedure has been used in a large number of cases, and no ill effects have been noted.

The vaccines were made according to the usual Wright technic and rendered sterile by heating to from 58 to 60 C. for an hour. They should be used within four months of the date of manufacture.

1. *For Prophylactic Use.*—Three injections, one weekly, for three weeks. For children, 500, 1,000 and 2,000 million bacilli. For adults, 1,000, 2,000 and 3,000 million bacilli.

Although the opinion has been expressed that the vaccine is worthless for therapeutic purposes, if it is desired to try it the following dosage may be employed:

2. *For Curative Purposes.*—To a child over a year old, an initial subcutaneous injection of 500 million bacilli is given; at the end of forty-eight hours another dose containing 1 billion is administered, and after the lapse of another forty-eight hours a third dose of 2 billion.

After an interval of five days the child is examined again. If the paroxysms are much milder but still persist, a dose of 4 billion bacilli is given, followed by 8 billion in three days and 10 billion after another lapse of three days.

Should the paroxysms become more violent after the first three injections, a week should be allowed to elapse before the second series of three injections is given, and instead of 4 billion this series is started with only 2 billion.

XIV. CHOLERA VACCINE *

OSCAR TEAGUE, M.D.

NEW YORK

Cholera vaccine was the first of the bacterial vaccines used on a large scale with the idea of preventing a specific disease in human beings. Ferran, during a severe cholera epidemic in Spain in 1885-1886, administered living cholera spirilla subcutaneously to about 40,000 persons without obtaining convincing evidence of protection. In 1894-1895, Haffkine, using more accurate methods, vaccinated about the same number of persons in India, and his statistics of the incidence of and mortality from cholera among the inoculated and uninoculated indicated a certain degree of protection in the former. He injected subcutaneously first a living, attenuated culture of *Spirillum cholerae,* and, one week later, a living culture of the same organism whose virulence for experimental animals was maintained at a high degree. The experiments of Ferran and Haffkine were of fundamental importance in that they furnished the basis on which was built the prophylactic immunization against bubonic plague and typhoid fever.

Since Haffkine's time a number of different methods of preparing cholera vaccine have been recommended. As different epidemics of cholera vary enormously in both virulence and duration, it is obviously very difficult to compare the protective value of one vaccine with that of another employed during a different epidemic; hence it would seem logical to regard the vaccine most generally used as a standard and to use this in the same epidemic as a measure of any new vaccine whose merits are to be determined. It would seem inadvisable to recommend any cholera vaccine for general use until such parallel tests have been carried out under satisfactory conditions. The standard cholera vaccine at the present time would consist of a culture of *Spirillum cholerae* grown on nutrient agar, suspended in physiologic sodium chlorid solution, and killed by heating one hour at 53 C. The vaccine made at the government laboratory in Bombay contains 8,000 million organisms per cubic centimeter; 0.5 c.c. is administered subcutaneously at the first dose, and 1 c.c. as the second dose. It is being issued in increasing amounts in India year by year, and the few reports that are published are distinctly favorable. The local and general reactions are mild. The contraindications to its use are those that have been described for the typhoid vaccine.

During the World War, several millions of men in the Austrian and German armies were given cholera vaccine (cultures killed by heat), and thousands of them, particularly the Austrians, spent months in districts where cholera was prevalent. It was considered that the relatively small amount of cholera in these armies was due in large measure to the vaccinations; and the appearance of a much higher percentage of cases in certain groups of Austrian soldiers that had not been inoculated lent additional evidence to this view.

It may be considered, then, that the administration or two (or three) suitable doses of cholera vaccine offers a marked degree of protection against cholera during the three months following vaccination, and perhaps some protection for six months or longer. This protection is not absolute: some of the vaccinated contract cholera. It is asserted by a number of observers that cholera in the vaccinated runs a milder course than in the uninoculated, but further evidence seems necessary to establish this. Cholera carriers have been inoculated without untoward effect; but the duration of the carrier state is apparently not shortened thereby.

On account of the acute onset and rapid course of the disease, one would not expect any benefit from the treatment of cholera with cholera vaccine.

XV. VACCINATION AGAINST PLAGUE

OSCAR TEAGUE, M.D.

NEW YORK

Antiplague inoculation was introduced in India by Haffkine in 1897. He used broth cultures, grown for six weeks at room temperature and heated a half hour at 65 C., to which was added 0.5 per cent. phenol (carbolic acid). The requisite dose was given subcutaneously. A single inoculation was usually administered—occasionally, two. The reaction, both local and general, was much severer than one is accustomed to see at present from typhoid inoculations. In 1908, after an enormous number of antiplague inoculations had been performed in districts where plague was prevalent, Haffkine concluded from a study of the available statistics that inoculation reduces the liability to attack to less than one third of what it is in the uninoculated, and that the recovery rate in the inoculated is at least double that in the uninoculated.

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* From the Department of Bacteriology, Columbia University College of Physicians and Surgeons.

Bubonic plague can be readily reproduced in laboratory animals, and prophylactic inoculations in these animals with subsequent infection with virulent plague bacilli have demonstrated that a vaccine made from twenty-four hour old agar cultures, suspended in saline solution and heated an hour at 65 C., calls forth a more effective resistance against plague than does the Haffkine vaccine, and that a still greater degree of resistance is produced by the inoculation of a large dose of living plague bacilli from a culture whose virulence had been greatly reduced by artificial means. The killed agar cultures have been used for the immunization of human beings during plague epidemics, but have not displaced the Haffkine vaccine; the avirulent living culture has not been as yet subjected to this practical test.

The Bombay bacteriologic laboratory prepares all the antiplague vaccine that is used in India, and receives statistics of the incidence of plague in the inoculated and uninoculated. In the report for the year 1911, during which year 1,211,170 doses of the vaccine were distributed, Major Glen Liston, the director of the laboratory, reviews the evidence as to the value of the inoculations, after having eliminated certain obvious sources of error in the statistics.

There is a rather close agreement between these figures and the earlier ones of Haffkine. Thus there appears to be no doubt that antiplague inoculation is an important factor in diminishing the morbidity rate and the death rate during an epidemic of plague.

About 10,000,000 persons have died of plague in India during the last twenty years. Inoculation has encountered great opposition. If the natives had submitted willingly and freely to inoculation, hundreds of thousands would undoubtedly have been saved. However, even if inoculation had been carried out on a vast scale and the death rate had been reduced to a small fraction of what it has been, still plague in the rats would have been unaffected, and the cessation of inoculation would have brought about in two or three years the same high mortality in human beings as before. Prophylactic inoculations diminish the incidence of plague in human beings and lower the percentage of mortality in those that contract plague in spite of inoculation, but they do not serve as a factor in eradicating plague permanently from a district or country.

COMPARATIVE MORBIDITY AND MORTALITY FROM PLAGUE AMONG INOCULATED AND UNINOCULATED

Inoculated					Not Inoculated				
Population	Attacks	Deaths	Incidence, per 1,000	Case Mortality, Per Cent.	Population	Attacks	Deaths	Incidence, per 1,000	Case Mortality, Per Cent.
118,148	941	371	7.96	39.5	321,621	11,041	8,695	34.4	78.6

The foregoing remarks apply only to bubonic plague. Pneumonic plague, though caused by the same organism, is clinically and epidemiologically an entirely different disease. It has not been shown that prophylactic inoculations cause a decrease in either the incidence or the mortality of pneumonic plague.

XVI. THE USE OF VACCINES IN THE PREVENTION AND TREATMENT OF INFLUENZA AND ITS SEQUELS

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It was natural from the beginning of the present pandemic of influenza that, with the apparent assurance that Pfeiffer's bacillus was the veritable cause of the disease, attempts should be made to produce an active protective immunity against this micro-organism. With a growing conviction that no very extraordinary results were being attained, and with the discovery of other bacteria both in the complicated and in the uncomplicated cases, it was likewise reasonable that a mixed vaccine containing the most representative bacteria should be tried. We may now discuss the data that have accrued from these attempts, and try to evaluate them.

A great deal of writing has been done on this subject, but much, perhaps the greater part of it, is of little or no value as evidence from which to draw conclusions. This doubtful mass of literature ranges all the way from opinions through clinical impressions to well arranged statistical material drawn from careful observation. The latter data themselves are again of unequal value; some of them represent results checked by only one or more of the essential controls, whereas others, a very few, fulfil the criteria of rigid experimentation. The discussion may be clarified by outlining what I myself should regard as complete data from which conclusions as to the value of preventive vaccination should be drawn; they are those recommended by the Special Committee of the American Public Health Association.[1] These recommendations prescribe that the groups of vaccinated and unvaccinated individuals should be essentially the same in number; that the relative susceptibilities of the two groups as regards age and sex, exposure to infection and attacks of the disease should be the same; that the degree of exposure after vaccination should be of the same duration and intensity for each group, and finally that the groups should be exposed concurrently during the same period of the epidemic curve. It is realized that very seldom will the data offered fulfil all these prerequisites.

Two main types of vaccine have been employed in the prevention of influenza: first of all, a vaccine composed of influenza bacilli most of them comprising numerous strains, and secondly, a mixed vaccine containing the organisms most frequently found in fatal cases of influenza, that is to say, in addition to the influenza bacillus, pneumococci, streptococci, staphylococci, and at times certain other organisms. We must consider our results first in relation to the types of vaccine employed, and again in respect to the effect of these vaccines, on the one hand in preventing influenza, and on the other hand in preventing its complications.

The vaccine composed of influenza bacilli alone has been found by a few observers apparently to exert beneficial effects in preventing the incidence of the disease, notably by Duval and Harris[2] and by Wallace.[3] Other observers with perhaps even more carefully controlled experiments, such as McCoy, Murray and Teeter,[4] and Wadsworth,[5] attribute not the slightest preventive action to this vaccine.

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[1] Special Committee of American Public Health Association (W. A. Evans, D. R. Armstrong, W. H. Davis, E. W. Kopf and W. C. Woodward): Influenza, J. A. M. A. **71**: 2068 (Dec. 21) 1918.

When we come to consider the use of mixed vaccines, we find at once more valuable and more enthusiastic reports as regards their preventive value. A whole series of observers—Rosenow,[6] Cadham,[7] Eyre and Low,[8] Kraus and Kantor,[9] Cary,[10] and Minaker and Irvine[11]—have apparently demonstrated a distinctly diminished incidence of influenza in the vaccinated as compared with the unvaccinated, and the particular writers to whom I have referred have for the most part carefully controlled their cases by a group of unvaccinated individuals. But it is not so certain in every instance that they have fulfilled the other requirements already outlined. McCoy, on the other hand, finds no beneficial effects from the use of a mixed vaccine in prevention.

Mixed vaccines have been used, not only preceding exposure to influenza, but also during the course of the disease in the hope of preventing its complications. There is a steadily growing body of information, some of it of apparently considerable critical value, that would seem to indicate that a mixed vaccine containing streptococcus and pneumococcus in addition to influenza bacilli will notably decrease the pneumonic complications of influenza. Among the observers that may be mentioned are Kitano,[12] Armitage,[13] Dever, Boles and Case,[14] Bezançon and Legroux,[15] and Cadham.[16]

Cary,[10] and Roberts and Cary,[17] have not only prevented the occurrence of pneumonia by the use of a mixed vaccine, but have actually produced a rapid cure of pneumonia during its course, particularly when the vaccine is administered intravenously. The striking results that they claim for this treatment they properly attribute to a nonspecific protein reaction, such as has been obtained by other observers in typhoid fever and acute rheumatism. The nonspecific nature of the result is rendered more certain by similar beneficial effects produced by Cowie and Beaven,[18] who used a typhoid protein in place of the mixed influenza vaccine with equally good effect.

(Series to be continued next week)

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

PHENETSAL. — Phenetsalum. — Salophen. — Acetylparaminophenyl Salicylate—Acetparaminosalol.—*1:4*-Acetaminophenyl Salicylate. — $C_6H_4.OH.CO.O.C_6H_4(NHCH_3CO)$. The salicylic acid ester of 1:4-acetaminophenol, $C_6H_4(NHCH_3CO)(OH)$.

Actions and Uses.—The actions of phenetsal resemble those of phenyl salicylate (salol). It is not changed in the stomach, but is broken up in the intestine, liberating salicylic acid and acetylparaminophenol, which, unlike phenol, is not toxic. It acts as an antirheumatic, antipyretic, antiseptic and analgesic. It is said to be useful in rheumatism, gout, typhoid fever, and as an intestinal antiseptic, in diarrhea and dysentery. Externally it has been applied in psoriasis and other itching skin diseases.

Dosage.—From 0.3 to 1 Gm. (5 to 15 grains), in powder, wafers or capsules. Externally in 10 per cent. ointment.

Phenetsal forms small, white, crystalline leaflets or powder, odorless and tasteless, melting at from 187 to 188 C. It is almost insoluble in cold water, more soluble in warm water, but freely soluble in watery solutions of the alkalies and in alcohol, ether and benzene, but not in petroleum benzin.

If its alkaline solution is boiled it gradually becomes blue; on continuing the boiling the color is discharged, but is again produced on cooling and exposure to air. On addition of ferric chloride to the alkaline solution the violet color characteristic of salicylic acid is produced, but a simple aqueous solution of phenetsal does not react with ferric chloride and should not be changed by silver nitrate. It forms a colorless solution with concentrated sulphuric acid.

It is incompatible with alkalies, which decompose it.

Salophen-Morgenstern.—A brand of phenetsal complying with the N. N. R. standards.

Manufactured by Morgenstern and Co., New York. No U. S. Patent or Trademark.

Salophen.—A brand of phenetsal complying with the N. N. R. standards.

Manufactured by The Bayer Co., Inc., Rensselaer, N. Y. (Winthrop Chemical Co., N. Y., distributor). No U. S. Patent or Trademark.

Winthrop Tablets of Salophen 5 grains.—Each tablet contains Salophen, 5 grains.

CINCHOPHEN-CALCO (See New and Nonofficial Remedies, 1920, p. 225).

The following dosage form has been accepted:

Cinchophen-Calco Tablets 7½ grains. — Each tablet contains Cinchophen-Calco 7½ grains.

PROCAINE (See New and Nonofficial Remedies, 1920, p. 29).

Procaine-Squibb.—A brand of procaine complying with the N. N. R. standards.

Manufactured by E. R. Squibb and Sons, New York, under U. S. Patent No. 812554 (Feb. 13, 1906, Expires 1923), by license of The Chemical Foundation, Inc.

Hypodermic Tablets Procaine-Squibb, ¾ grain.—Each tablet contains Procaine-Squibb, ¾ grain.

Solutiontablets Procaine-Squibb, 1⅛ grain.—Each tablet contains Procaine-Squibb, 1⅛ grain.

BENZYL BENZOATE-H. W. and D. (See New and Nonofficial Remedies, 1920, p. 49).

The following dosage form has been accepted:

Globules of Benzyl Benzoate-H. W. and D.—Each globule (gelatin capsule) contains Benzyl Benzoate-H. W. and D., 5 minims, diluted with olive oil.

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[2] Duval, C. W., and Harris, W. H.: The Antigenic Property of the Pfeiffer Bacillus as Related to Its Value in the Prophylaxis of Epidemic Influenza, J. Immunol. **4**: 317 (Sept.) 1919.

[3] Wallace, G. L.: Report of Influenza Epidemic and Experience in the Use of Influenza Vaccine "B" at Wrentham State School, Wrentham, Mass., Boston M. & S. J. **180**: 447 (April 17) 1919.

[4] McCoy, G. W.; Murray, V. B., and Teeter, A. L.: The Failure of a Bacterial Vaccine as a Prophylactic Against Influenza, J. A. M. A. **71**: 1997 (Dec. 14) 1918. McCoy, G. W.: Status of Prophylactic Vaccination Against Influenza, ibid. **73**: 401 (Aug. 9) 1919; Results of Observations of Vaccine Prophylaxis in Influenza Epidemic, unpublished.

[5] Wadsworth, A. B.: Results of Preventive Vaccination Against Influenza, Pub. Health J. **10**: 309 (July) 1919; Discussion on Influenza, abstr., J. A. M. A. **73**: 484 (Aug. 16) 1919; A Bacteriologic Investigation of an Outbreak of Influenza in an Institution, ibid. **73**: 1657 (Nov. 29) 1919.

[6] Rosenow, E. C.: Prophylactic Inoculation Against Respiratory Infections, J. A. M. A. **72**: 31 (Jan. 4) 1919.

[7] Cadham, F. T.: The Use of a Vaccine in the Recent Epidemic of Influenza, Lancet **1**: 885 (May 24) 1919.

[8] Eyre, J. W. H., and Low, E. C.: Report upon the Autumn Influenza Epidemic (1918) as It Affected the N. Z. E. F. in the United Kingdom, Lancet **1**: 553 (April 5) 1919.

[9] Kraus, R., and Kantor, L.: Vaccine Treatment of Influenza, Rev. d. Inst. Bacteriol., Buenos Aires **2**: 59, 1919.

[10] Cary, E. G.: Experience with Vaccine in an Influenza Epidemic, Proc. New York Path. Soc. N. S. **18**: 90, 1918.

[11] Minaker, A. J., and Irvine, R. S.: Prophylactic Use of Mixed Vaccine Against Pandemic Influenza and Its Complications, J. A. M. A. **72**: 847 (March 22) 1919.

[12] Kitano, T.: Prophylactic Inoculation and Vaccine Treatment of Influenza, Japan M. World, April 20, 1919.

[13] Armitage, F. L.: Note on "Influenza" and Pneumonia, Brit. M. J. **1**: 272 (March 8) 1919.

[14] Dever, F. J.; Boles, R. S., and Case. E. A.: Influenza at the U. S. Naval Hospital, League Island, Pa., J. A. M. A. **72**: 265 (Jan. 25) 1919.

[15] Bezançon, F., and Legroux, R.: Polyvalent Vaccine Therapy of Influenza, Bull. de l'Acad. de méd. **81**: 44 (Jan. 14) 1919.

[16] Cadham, F. T.: The Use of a Vaccine in the Recent Epidemic of Influenza, Bact. Therapist **9**: 180, 1919.

[17] Roberts, Dudley, and Cary, E. G.: Bacterial Protein Injections in Influenzal Pneumonia, J. A. M. A. **72**: 922 (March 29) 1919.

[18] Cowie, D. M., and Beaven, P. W.: Nonspecific Protein Therapy in Influenzal Pneumonia, J. A. M. A. **72**: 1117 (April 19) 1919.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - ' , Six dollars per annum in advance

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SATURDAY, JANUARY 22, 1921

TUBERCULOSIS IN PRIMITIVE TRIBES, AND ITS BEARING ON THE TUBERCULOSIS OF CIVILIZED COMMUNITIES

The unexampled intermingling of the peoples of nearly all the world during the war, under conditions permitting of more or less close medical observation, gave many opportunities for study of the differences in reaction of different races and nationalities to common influences. Oftentimes such comparisons throw important light on medical problems, just as knowledge concerning human pathology has been obtained from comparative pathology, and as medical missionaries and others working among the less-known populations have furnished many important contributions through their observations on the behavior of disease under new conditions or modified by environment, habit or other factors. An illuminating article on tuberculosis by Cummins[1] of the Royal Army Medical College is in large part inspired by the studies that were made on the incidence and character of tuberculosis as it appeared among the many different races and nationalities engaged in the campaign on the western front. Although these records are as yet far from being completely analyzed, they serve to illustrate in a striking manner the fact that individuals from countries in which tuberculosis is rare exhibit, when exposed to infection, a susceptibility incomparably greater than that of the inhabitants of countries in which the disease has long been widely prevalent. Thus, in a given period, among one and one-half million British troops, there were 2,881 cases and 165 deaths from tuberculosis, while in a group of Cape Boys and Kaffirs in the South African Labor Corps, numbering only 11,000, there were 327 cases and 182 deaths. Both groups had been inspected for tuberculosis before going to France, and hence had developed or first manifested it while there. Likewise the Indian division showed a tuberculosis incidence of 27.4, as compared with 1.1 per thousand among British troops. The Fijian labor unit had to be repatriated on account of the prevalence of tuberculosis. Among the French there was a similar demonstration of the susceptibility of those who previously had not been exposed to tuberculosis. Borrel found that among the Senegalese arriving in France only 4 or 5 per cent. gave a positive cutaneous reaction, indicating that they, like other African natives, are but little infected with tuberculosis in their home environment, and thus constitute a virgin soil for infection. Among these French African troops the mortality from tuberculosis was extremely high, having been 11.14 in 1918.

Of especial importance is the extremely high proportion of mortality to incidence among these Africans, which coincides with the prevalent view that tuberculosis is more virulent and rapid when infecting previously unexposed victims. On such a soil there is an absence of fibrotic reaction, a tendency to rapid generalization, and a speedy course toward a fatal termination. Borrel comments on the fact that the postmortem findings on the tuberculous Senegalese disclosed a type of lesion comparable to that of the infant, the guinea-pig or the monkey in extensive generalization as miliary and nodular caseous tubercles, with little or no tendency to any predominant involvement of the lungs with ulcerative lesions. In America those who have had opportunity to examine the bodies of many negroes are familiar with this picture. While it is probably true that among white and colored persons in tuberculosis hospitals there is no great difference in the character of the lesions, as a recent writer has stated,[2] such observations have no bearing on the point at issue. The patients in tuberculosis hospitals are mostly there because they exhibit clinical evidences of ulcerative pulmonary tuberculosis, and hence present the usual anatomic lesions on which such clinical manifestations depend. The cases of acute generalized tuberculosis, however, seldom present clinical features that lead to admission to hospitals for consumptives, and they come to necropsy among the patients of general hospitals, under all possible clinical diagnoses. Such cases of acute generalization of the disease are especially likely to be found among negroes, particularly those who have migrated from an isolated life on southern plantations to the tuberculosis infested environment of the cities. Negroes who have been exposed to the same opportunities for infection as white persons probably resemble them more closely in the character of their tuberculosis.

All these observations add support to the prevalent view that the character of adult tuberculosis depends largely on childhood tuberculosis, as illustrated especially well by the work of Opie, recently reviewed in these columns.[3] The first infection, at whatever time of life, tends to be a nodular caseating lesion, with involvement of the regional lymph glands. Whether fatal extension will or will not occur seems to depend on a balancing of the factors of size of dose, virulence of the organism, local and general resistance of the host, and perhaps in large measure on the mere chance as to whether or not the first lesions happen to be located in a site favorable to generalization through proximity to blood and lymph vessels. It seems to make little difference in clinical behavior and pathologic character whether the first infection occurs in infancy or later in life. Chronic ulcerative pulmonary tuberculosis, on the other hand, is tuberculosis in a host possessing a certain degree of resistance by virtue of partial immunization through previous infection.

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[1] Cummins, S. L.: Internat. J. Pub. Health **1**: 137 (Sept.) 1920.

[2] Rogers, J. B.: A Comparison of Gross Tuberculous Lesions Among Whites and Negroes, Am. Rev. Tuberc. **4**: 669 (Nov.) 1920.

[3] The Route and Results of Our First Infection with Tuberculosis, editorial, J. A. M. A. **75**: 1718 (Dec. 18) 1920.

As Cummins suggests, the facts brought out in a study of racial distribution of tuberculosis are entirely opposed to the theory that heredity plays an important part in predisposing to tuberculosis. In communities in which tuberculosis is rare, the members should not be susceptible to tuberculosis when coming in contact with tuberculous communities if susceptibility depends on inheritance, yet the opposite is true. Likewise, if an inherited tuberculous diathesis plays a part, the disease should be least severe among people whose ancestors have not had tuberculosis, which is quite the reverse from the facts. The essential importance of geographic, meteorologic and geologic factors is also difficult to discern in a disease which, once introduced, seems capable of flourishing wherever man exists, for the dark skinned people succumb to tuberculosis when it is introduced into their native communities, as well as when they are exposed to it in the less genial climate of France and Belgium. A consideration of tuberculosis as depending on the factors of opportunity for infection, recovery from infection with partial or complete immunization, persistence for long periods of latent but still infectious lesions, and variations in local and general resistance, seems to explain the problems of this disease in a satisfactory manner, and to minimize the importance of heredity and geography, without, of course, eliminating them as completely negligible.

THE PROTEINS AS COLLOIDS

With the development of the newer colloid chemistry has come the attempt to explain many physiologic phenomena in terms of its hypotheses. The proteins and complex polysaccharids, like glycogen and dextrins, and presumably also enzymes and most of the essential constituents of cells, are organic colloids; hence, as more than one writer has contended, the properties of living cells are to be regarded as largely dependent on the properties of colloids. To many the significance of protoplasm is in no small measure bound up with the behavior of colloids, foremost among which are the proteins.

In an illuminating address delivered before the Harvey Society in New York, Jacques Loeb [1] of the Rockefeller Institute for Medical Research has pointed out that in harmony with recent concepts of colloid chemistry there has been a widespread adoption of the idea that the reactions between colloids and other bodies are not determined by the purely chemical forces of primary or secondary valence, but follow the rules of "adsorption." The latter word has become an expression sufficiently indefinite and all embracing to conjure with. There has been considerable apparent justification, it must be admitted, for referring the behavior of substances in suspension to surface forces at the boundary of the liquid and the solid. Such reactions may differ from the ordinary chemical unions such as occur in true solutions, in that the two combining substances do not unite in definite proportions, the amount of substance adsorbed being more or less proportional to the amount of surface involved. Comparable phenomena have been ascribed to so-called colloidal solutions of proteins and protein gels.

What are the distinctive properties of the colloids, those nondiffusible substances which function as "true organizers of the cell's activities"? Mathews [2] has recently ascribed them to the large size of the particles which are dispersed. Owing to this, he asserts, surface tension phenomena between solute and solvent come into play at the boundaries of the particles, and these phenomena, which are lacking in ordinary solutions, give to colloid solutions properties which ordinary solutions lack. The interplay of toxins and antitoxins, as well as other immunologic reactions, are among those which have been explained by the hypothesis of adsorption relations between the reacting substances. By some investigators the combinations observed in serologic "neutralization" of toxin with antitoxin have been compared to the chemical reaction between strong acids and bases; others have failed to find the expected definite proportionalities in such phenomena and have consequently assumed that they depend on colloidal reactions of the adsorption type. The studies of Bordet, for example, have been concerned with the latter.

Although many writers have admitted that probably the majority of adsorption compounds are in reality chemical unions, the behavior of proteins in the presence of various ions has continued to be interpreted in terms of adsorption. Loeb's latest studies make evident, however, that the confusion heretofore existing on this subject is largely dispelled when comparisons are made under definite conditions of hydrogen-ion concentration. Acids, alkalis and neutral salts combine with proteins by the same chemical forces of primary valence by which they combine with crystalloids, and, moreover, the influence of the different ions on the physical properties of proteins can be predicted from the general combining ratios of these ions. Expressed somewhat more familiarly, the forces by which gelatin and egg albumin (and probably proteins in general) combine with acids or alkalis are the purely chemical forces of primary valence. Each protein has a definite iso-electric point; when the hydrogen-ion concentration of the environment is altered the protein may combine in definite proportions either with acid or with the basic ions, depending on the conditions that prevail. This is in harmony with traditional ideas of chemistry. As Loeb summarizes his results: The behavior of the proteins therefore contradicts the idea that the chemistry of colloids differs from the chemistry of crystalloids. To many students this conclusion will bring much mental relief and satisfaction; for it replaces the vague doctrines of the colloids by the more definite conceptions of chemical reaction—even for the fundamental organic basis of protoplasm.

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[1] Loeb, Jacques: The Proteins and Colloid Chemistry, Science **52**: 449 (Nov. 12) 1920. The experiments on which the address was based have appeared in the Journal of General Physiology **1**: 39, 237, 363, 483, 559, 1918-1919; **2**: 87, 1919-1920; **3**: 85, 1920-1921.

[2] Mathews, A. P.: Physiological Chemistry, New York, William Wood & Co., 1920, p. 215.

HOW DO AROMATIC CARMINATIVES AFFECT THE ORGANISM?

Carminatives still enter widely into the everyday life of the nation. Their variety is legion. Ginger, peppermint and anise have not lost their household popularity as anticolics. Public places reek with the odor of spearmint, cloves and cinnamon, thus attesting to the use, if not even the abuse, of a variety of volatile oils. The "Pharmacology of Useful Drugs," published by the American Medical Association,[1] states that the aromatic carminatives increase gastro-intestinal peristalsis and serve to hasten the passage of gas through the stomach and bowel. They induce hyperemia of the gastro-intestinal mucous membranes and probably increase the appetite and digestion. Nevertheless, pharmacologists are by no means agreed on this interpretation of the effect of the carminatives. Their supposed antiseptic action in certain cases is not easy of demonstration with respect to intestinal processes. The peculiar and undoubted psychic effect of flavors and odors on secretion in the alimentary tract is not easily capable of critical analysis and interpretation. The alleged action on the gastro-intestinal musculature is more readily subjected to the test of direct experiment; and in respect to the consequences, the investigators seem to disagree. Thus, in contrast to the opinion of Hatcher and Wilbert just quoted, it has been asserted that the volatile carminative oils produce relaxation of the gastric and intestinal musculature and thereby allow more ready escape or onward progression of gases and alimentary contents.

New evidence contributory to the subject has been presented by Plant[2] from the Department of Pharmacology at the University of Pennsylvania School of Medicine. His studies have the advantage of having been performed under conditions not complicated, as many experiments are, by the use of anesthetics or operative procedures. The carminatives—volatile oils—were applied in doses of therapeutic significance locally to the mucous membranes of surgically isolated intestinal loops of dogs, and the peristaltic movements were then recorded. In this way a number of illustrative compounds were demonstrated to increase the muscular activities of the intestine by an augmentation of tonus and of rhythmic contractions. Occasionally the movements were followed by relaxed conditions. These effects of the volatile oils can be lessened but not abolished by atropin; they fail, however, when the sensory nerve endings of the mucosa are paralyzed by cocain.

A large number of the more familiar carminative volatile oils produce this type of muscular effect. Plant's observations have led him to classify these carminatives into two groups, which merge, more or less, into each other, as might be expected. The more potent representatives include the volatile oils of mustard, cinnamon, peppermint, cloves, nutmeg, spearmint, juniper and lavender, as well as menthol and camphor. In the weaker group the oils of anise, cardamom, fennel, orange and caraway are found. Such studies mark the beginnings of a more intelligent appreciation of the true physiologic behavior of a large group of popular but ill defined substances which enter, in minute quantities at least, widely into everyday life as well as to a less extent, into current therapy, particularly of the popular and traditional household variety.

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[1] Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 431.

[2] Plant, O. H.: The Effect of Carminative Volatile Oils on the Muscular Movements of the Intestine, J. Pharmacol. & Exper. Therap. **16**: 331 (Nov.) 1920.

Current Comment

ESTERS OF CHAULMOOGRA OIL IN LEPROSY

The promise of usefulness in the treatment of leprosy by chaulmoogra oil and its derivatives, to which editorial reference has frequently been made in The Journal, needs to be subjected to the same rigorous review that all new and seemingly valuable therapeutic procedures demand. Any one who has heard the claims of almost any of the widely heralded "specifics" which experimental therapy, whether modern or ancient, has proposed for the mitigation or eradication of definite diseases, and who has followed the subsequent experiences derived from the use of the highly praised drugs, will have experienced many disappointments. The admonition to "stop, look and listen" ought to be changed to "wait and see" in all such instances. That the administration of chaulmoogra oil is likely to be of benefit in leprosy seems now to be admitted without much debate. A conservative statement of government experts frankly asserts that it "is helpful to many cases of leprosy, perhaps the majority."[1] The newer recommendation of the ethyl esters of the fatty acids from the oil first employed by Hollman and Dean[2] deserves a sympathetic hearing. It is too early to give a final verdict; nevertheless, it seems desirable to record the encouraging indications which conservative investigators have reported under conditions in which critical examination and rigorous control are possible. At the Kalihi Leprosy Hospital, conducted by the Territorial Board of Health of the Hawaiian Islands, the standard treatment of the patients, usually more than a hundred in number, consists in the use of the ethyl esters carrying 2 per cent. of iodin in chemical combination. This is given by intramuscular injection, supplemented by the oral administration of the mixed fatty acids of chaulmoogra oil, likewise containing iodin in organic combination. Other hygienic therapy is, of course, not neglected. The medical superintendent, Dr. Wayson, reports that in the period from Dec. 24, 1918, to July 20, 1920, seventy-eight patients have been paroled from segregation and there has not been a single recurrence. Among the hospital patients, more than 10 per cent. have had one or more attacks of leprosy fever with macular eruption, but they soon recover from these acute attacks and are in better condition than before. This is an encouraging story.

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[1] McCoy, G. W., and Hollman, H. T.: Bull. 75, U. S. P. H. S., January, 1916.

[2] Hollman, H. T., and Dean, A. L.: J. Cutan. Dis. **37**: 367 (June) 1919.

WIFE ALLOWED DAMAGES AGAINST HUSBAND FOR INFECTING HER WITH VENEREAL DISEASE

In our medicolegal department this week appears an abstract[1] of a decision of the Supreme Court of North Carolina which recently affirmed a judgment of a lower court, allowing damages of $10,000 to a wife against her husband who had infected her with venereal disease. This decision is of importance from the standpoint of public health as well as from a legal standpoint. Legally, it sets aside the old belief that the husband and wife are one, he being that one, and that she has no recourse against him for any acts performed outside the law. Primitive conditions making the wife a chattel have passed. Today the woman is equally a citizen with her husband. As already established by court decisions, a husband is liable if he assaults or slanders his wife. It is a credit to the enlightenment of the Supreme Court of North Carolina that it should see that the communication of a venereal disease is a greater injury than the breaking of an arm or other physical damage.

HARMFUL MEDICAL ADVERTISEMENTS

Quackery is one of those by-products of human nature and psychology that thrives in all climes and has persisted in some form or other throughout the passing years. Unfortunately, it is not confined to the inerudite or the so-called lower strata of society. Deception makes its gains among all manner of persons. The Journal has repeatedly pointed out the insidious ways in which the use of nostrums is perpetuated and even facilitated by the medical profession. Sometimes this occurs unwittingly; not infrequently, a defensible excuse cannot be offered. Least of all is there justification for those inaccuracies and improprieties of statement with which medical publications, supposedly intended to lead rather than mislead the profession, all too often deceive their readers. The questionable statements of a chance contributor cannot always be verified or controverted. A well conducted journal must remain an open forum for the discussion of debatable questions in science. Fraud thus meets its antagonists under conditions in which error can be condemned and the truth may prevail. But the advertising columns are like a closed book. They are all too often protected by pay. In any event, custom has rendered them free from easy attack. As a particularly blatant illustration of the harm that can come from present day tolerance of low standards in such forms of publicity, a recent advertisement on the front page of a widely read foreign contemporary—the *Berliner klinische Wochenschrift*—may be cited. In bold type it urges the abandonment of cod liver oil in the treatment of rickets and other nutritive disorders of infancy and childhood, and urges the substitution of a natural mineral water (containing arsenic) in the management of the conditions specified. Cod liver oil has won an almost indispensable place for itself in the therapy of rickets. The high esteem in which it has been held in this respect as the result of years of empiric experience is finding its justification in the current researches on nutrition. The advice given in the advertisement cited is not merely a parody on scientific investigation: it is an insult to the intelligence of the medical profession at present.

EPIDEMIC HICCUP

Europe, and now this country, seems to be passing through what appears to be an epidemic of hiccup. This disturbance is usually the subject of humor rather than of medical concern, and it is seldom given the serious attention which it probably merits. Pathologically it seems to be associated with irritation of the phrenic nerve, from gastro-intestinal disturbance, from neuroses, or from remote disturbances of the central nervous system not as yet determined. The irritation may be of peripheral or central origin. In pneumonia or typhoid fever, hiccup, perhaps due primarily to the effects of bacterial toxins, may be a serious complicating factor, even causing death. Unless hiccup persists for an undue length of time, preventing the patient from securing rest or from continuing his ordinary occupation, it attracts little notice. However, in the epidemic through which we now seem to be passing, many cases have occurred in which patients hiccuped as frequently as every three or four seconds for periods of a week or longer. Lhermitte[1] points out that the first appearance of the epidemic of which he knows occurred in Vienna in the winter of 1919-1920, and was reported by Economo. Large numbers of persons were suddenly attacked with uncontrollable and almost incessant hiccup rebellious to all treatment. In most instances the disturbance ceased spontaneously in a few days, although in one case the hiccup persisted for a month, the patient having only a few hours of rest each day. The hiccup seems to have been associated with the outbreak of epidemic encephalitis, and it is Lhermitte's belief that the association of such epidemics with epidemics of lethargic encephalitis indicates a causal connection. He states that five well-known French clinicians, including Netter, are in accord with this belief. Although epidemics of hiccup have been reported for centuries, there is no specific or even effective treatment. Two methods of treatment have been suggested, the first attempting to reduce the hyperexcitability of the medulla, the spinal cord and the phrenic nerve through the use of sedative and narcotic drugs, and the second attempting to exert and inhibitive influence by physical measures on the nerve centers in reflex erethism. The number of these physical measures is legion. They include pressure on the spine (Nothnagel, Réthy), compression of the arms (Piretti), pressure on the ulnar nerve (Pauzot), pressure on the eyeballs (Sicard and Paraf), influencing the diaphragm by forcible flexion of the legs (Jödicke) or by an apparatus (Boyer, Rostan), distention of the esophagus by swallowing a chunk of bread or something similar (Sicard and Paraf), distention of the stomach (Kanngiesser), ice-bag to the stomach region (Eloy), direct compression of the phrenic nerve against the scalenus muscle (Leloir, Grognot), faradization of phrenic nerves (Dumontpallier) and traction on the tongue (P. Lépine). All of these measures have failed in some cases, and their chief recommendation is that sometimes they seem to be effective and that in general they are harmless. The significant fact brought out is that there may be a relationship between epidemics of encephalitis and of hiccup. This point merits more thorough investigation.

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[1] This issue, p. 265.

[1] Lhermitte, J.: Le hoquet épidémique: Forme singultueuse de l'encéphalite épidémique, Presse méd. **28**: 916 (Dec. 18) 1920.

ON SELECTION OF MEDICAL READING

From the weary phrase of Ecclesiastes, "Of making many books there is no end," to Bacon's sage counsel that "reading maketh a full man," authorities have varied as to how much and what the student, the business man, the physician or the ordinary citizen should read. One should naturally hesitate to cast aside Shakespeare for the modern comic opera librettist, Longfellow for the current newspaper rhymester, or Osler for some other textbook on the practice of medicine. Not that the latter have little value but that the former have great value. Here is the gist of the matter as expressed by Bacon:

> Some books are to be Tasted, Others to be Swallowed, and Some Few to be Chewed and Digested; that is, Bookes are to be read only in Parts: Others to be read but not Curiously; and some Few are to be read wholly, and with Diligence and Attention. Some Bookes also may be read by Deputy, and Extracts made of them by Others. But that would be only in the lesse important Arguments, and the Meaner Sort of Bookes: else distilled Bookes are like Common distilled Waters, Flashy Things.

Quiller-Couch argues that it is starkly impossible to keep pace with all of the books that are being written. "About what is impossible," he says, "one does not argue. We must select. Selection implies skilful practice; skilful practice is only another term for Art." The fundamental basis of this art is a knowledge of the factors to be utilized in determining whether or not to buy a certain book. First, Who is the author? What is his character and scientific standing? What are the sources of his scientific and clinical data? Is he well known as an authority on the subject he discusses? Does he enjoy a reputation for painstaking methods? A knowledge of the personality and qualifications of the author is especially necessary properly to evaluate a scientific book. Second, as to the book itself: Is it merely a compilation prepared by an assistant and stamped with the author's name, or is it a reflection of the author's own work, his personality and opinion? Third, Are the data used obtained from recognized hospitals, clinics and research institutions or from the author's private experience? Is the evidence acceptable evidence? Fourth, What of the style? Does the author write carelessly? Are his sentences grammatical? Is the arrangement logical? Is his discussion diffuse or has he concentrated the material to a minimum? Finally, it has been well said that the style of writing is an echo of the man's own soul. A blatant, didactic style is the mark of the egoist; a simple, reserved style, the sign of a conservative thinker; a careless, rambling style, evidence of a slipshod worker. And these comments will apply to manuscripts as well as to books.

Association News

THE BOSTON SESSION

Plans for Increasing Attractiveness of the Scientific Exhibit

The Scientific Exhibit at the annual sessions of the American Medical Association never has fully measured up to the standard desired. This fact was presented to the Board of Trustees of the Association at its meeting last April in New Orleans by Dr. D. Chester Brown, a member of the board. In the discussion by the board it was emphasized that the Scientific Exhibit cannot fulfil its functions and be what it ought to be until it is brought into closer touch with, and becomes a real adjunct of, the sections and section work. The Board of Trustees appointed a committee, consisting of Drs. Brown, Billings and Phillips, to consider the best method of interesting and securing the cooperation of the officers of the various sections and the Fellows of the Scientific Assembly, in an endeavor to improve the Scientific Exhibit and to make it more attractive and of more practical value to the general practitioner as well as to scientific workers.

The committee presented the matter to the Council on Scientific Assembly at its meeting at the Association headquarters, December 9, and on the following day to the conference of the officers of the sections. Both the council and the conference endorsed the general proposition and evidenced their readiness to cooperate toward securing a closer association between the sections and the Scientific Exhibit.

Briefly stated: Many subjects are presented before the sections in the form of papers which, if there were time and opportunity, could be demonstrated by specimens, material, instruments, apparatus, charts and the like, or by lantern slides or moving picture talks. It is now proposed that the author shall be encouraged to supplement his paper with an exhibit, if possible, the material to be placed in the Scientific Exhibit and demonstrated there by the author. If the exhibit is a movable one, it may be taken to the meeting place of the section at the time of the reading of the paper, and then returned to its place in the Exhibit Hall. In connection with the Scientific Exhibit, a dark room usually is available for lantern slide or moving picture talks.

It is strongly emphasized that "still" exhibits are of little value. What is desired is personal demonstration or explanatory talks by the one who is interested in and can teach the subject. Definite time will be assigned for such personal demonstrations or talks—presumably one, possibly more than one, demonstration each day.

It is unnecessary to say that the primary object in mind is to bring to the mass of the profession attending the annual session a knowledge of the newer things in the progress of scientific medicine, and thus not to limit presentation of such subjects to the comparatively small group of physicians attending a particular section. The man who has something new and important will have an opportunity to show it to all the Fellows in attendance at the annual session, and thus to aid them in keeping in touch with the advances made in every branch of medicine.

The exhibits will be arranged in three main divisions: Medicine, Surgery and Pathology. Each exhibit will be designated by letters and numbers, and catalogued. Full publicity will be given; in addition to the announcements in the Official Program, the Daily Bulletin will contain the complete program of the demonstrations of exhibits for each day, thus assuring a good audience to every Fellow who has something to say or to show.

It is requested of those who propose to present an exhibit that they let it be known as soon as possible, stating the character of the exhibit, the amount of space in square feet absolutely necessary, and whether wall or table space is required. It will be taken for granted that exhibitors will ask only for the space they actually need.

Preliminary correspondence concerning the question of whether or not a Fellow should make an exhibit of a subject which he proposes to present before one of the sections should be addressed to the secretary of the section. After such preliminary arrangements, correspondence regarding exhibits should be direct with the Association's central office, but, to save time, to avoid complications and misunderstandings, and to prevent duplication of work, carbon copies of the correspondence should at the same time go to the secretary of the section.

In this broad conception, the sections representing the fundamentals of medicine will be assigned to the Pathological Division, the specialties of medicine to the Medical Division, and the specialties of surgery to the Surgical Division. Institutions and individuals will, as heretofore, be invited to present exhibits, the material of which will be assigned to the proper division.

Finally, the proposed plan means that in addition to the character of the exhibits heretofore made, the sections will cooperate in making the Scientific Exhibit creditable to the American Medical Association and to American medicine.

The Committee on Scientific Exhibit for the current year consists of:

Dr. Cecil K. Drinker, associate professor of applied physiology, Harvard Medical School, Boston, chairman.
Dr. J. W. Jobling, professor of psychology, Columbia University College of Physicians and Surgeons, New York.
Dr. Louis B. Wilson, professor of pathology, University of Medicine, Rochester, Minn.
Dr. William M. L. Coplin, professor of pathology, Jefferson Medical College, Philadelphia.
Dr. Frank Billings, secretary of the Board of Trustees, Chicago.

Requests for space should be addressed to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE, PUBLIC HEALTH AND HOSPITALS

On March 7, 8, 9 and 10, 1921, a joint conference will be held on medical education, licensure, public health and hospitals. This will be participated in by the Council on Medical Education and the Council on Health and Public Instruction of the American Medical Association, the Association of American Medical Colleges, the Federation of State Medical Boards of the United States, and the American Conference on Hospital Service. On Monday, March 7, there will be a symposium on graduate training in the various medical specialties. Besides the introductory remarks from the chairman and a paper dealing with the group system of practice, the following reports will be presented:

Medicine and the Medical Specialties—
- (a) Internal Medicine, George Blumer, M.D., Clinical Professor of Medicine, Yale University School of Medicine, New Haven, Conn.
- (b) Pediatrics, Harry M. McClanahan, M.D., Professor of Pediatrics, University of Nebraska College of Medicine, Omaha.
- (c) Nervous and Mental Diseases, Arthur S. Hamilton, M.D., Professor of Nervous and Mental Diseases, University of Minnesota Medical School, Minneapolis.
- (d) Dermatology and Syphilology, William A. Pusey, M.D., Emeritus Professor of Dermatology, University of Illinois College of Medicine, Chicago.

Surgery and the Surgical Specialties—
- (a) Surgery, Charles H. Frazier, M.D., Professor of Clinical Surgery, University of Pennsylvania School of Medicine, Philadelphia.
- (b) Ophthalmology, Walter B. Lancaster, M.D., Boston.
- (c) Oto-Laryngology, Wendell C. Phillips, M.D., New York.
- (d) Orthopedic Surgery, Robert W. Lovett, M.D., Professor of Orthopedic Surgery, Medical School of Harvard University, Boston.
- (e) Urology, Hugh H. Young, M.D., Clinical Professor of Urology, Johns Hopkins University Medical Department, Baltimore.

Afternoon Session—2 p. m.

Obstetrics and Gynecology, J. Whitridge Williams, M.D., Dean and Professor of Obstetrics, Johns Hopkins University Medical Department, Baltimore.
Public Health and Hygiene, Victor C. Vaughan, M.D., Dean and Professor of Hygiene and Physiological Chemistry, University of Michigan Medical School, Ann Arbor, Mich.

Preclinical Subjects—
- (a) Anatomy, Clarence M. Jackson, M.D., Professor of Anatomy, University of Minnesota Medical School, Minneapolis.
- (b) Physiology, Joseph Erlanger, M.D., Professor of Physiology, Washington University School of Medicine, St. Louis.
- (c) Pharmacology and Therapeutics, Charles W. Edmunds, M.D., Professor of Materia Medica and Therapeutics, University of Michigan Medical School, Ann Arbor, Mich.
- (d) Pathology and Bacteriology, James Ewing, M.D., Professor of Pathology, Cornell University Medical College, New York.

All the reports will be briefly summarized by Dr. Louis B. Wilson, director of the Mayo Foundation for Medical Education and Research.

On Tuesday, March 8, there will be a series of reports on the clinical subjects of the medical curriculum. Besides the introductory remarks by Dr. William Pepper, president of the Association of American Medical Colleges, the following reports will be rendered:

Medicine and Medical Specialties, Charles P. Emerson, M.D., Dean and Professor of Medicine, Indiana University School of Medicine, Indianapolis.
Surgery and Surgical Specialties, Hugh Cabot, M.D., Professor of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

Afternoon Session—2 p. m.

Obstetrics and Gynecology, J. Whitridge Williams, M.D., Dean and Professor of Obstetrics, Johns Hopkins University Medical Department, Baltimore.
The Undergraduate Clinical Curriculum, Frank Billings, M.D., Professor of Medicine, Rush Medical College, Chicago.

On Wednesday, March 9, the morning session will be devoted to medical examinations and licensure. The program will be as follows:

Introductory Remarks, David A. Strickler, M.D., President of the Federation of State Medical Boards, Denver.
Medical Education and Licensure in America as Viewed by European Visitors, Walter L. Bierring, M.D., Secretary of the Federation of State Medical Boards, Des Moines, Iowa.
Model Qualifying Examination as Demonstrated by the National Board of Medical Examiners, Horace D. Arnold, M.D., Member of the National Board of Medical Examiners, Boston.
Education of the Public Regarding Problems of Medical Licensure, George W. Whiteside, Esq., Counsel for the New York State Medical Society, New York.
The Chiropractic Problem, Charles B. Pinkham, M.D., Secretary, Board of Medical Examiners of the State of California, Sacramento, Calif.

On Wednesday afternoon there will be a conference on hospital service, the speakers on the program being as follows:

Frank Billings, M.D., Professor of Medicine, Rush Medical College, Chicago.
S. S. Goldwater, M.D., Superintendent of Mount Sinai Hospital, New York.
Father Charles B. Moulinier, President of the Catholic Hospital Association, Milwaukee.
Miss Lulu Graves, Professor of Dietetics, Cornell University Medical College, New York.
Miss Donelda R. Hamlin, Director, Hospital Library and Service Bureau, Chicago.

There will also be a general discussion on "The American Conference on Hospital Service" by Dr. George E. Vincent or Mr. E. R. Embree of the Rockefeller Foundation, New York; Ray Lyman Wilbur, M.D., president of Leland Stanford University, San Francisco; William J. Mayo, M.D., Rochester, Minn., and other prominent speakers.

On the morning of Thursday, March 10, the following papers will be given on rural health centers:

- Rural Health Centers as an Aid to General Practitioners, Victor C. Vaughan, M.D., Chairman, Council on Health and Public Instruction, American Medical Association.
- What We Have Done in Iowa, F. E. Sampson, M.D., Creston, Iowa.

On Thursday afternoon there will be a discussion of the work for public health by the following:

- From the Standpoint of the Council on Health and Public Instruction of the American Medical Association, W. S. Rankin, M.D., Secretary, North Carolina State Board of Health, Raleigh, N. C.
- From the Standpoint of the State Health Officer, S. J. Crumbine, M.D., Secretary, Kansas State Board of Health, Topeka, Kan.
- From the Standpoint of the State Medical Society, F. C. Warnshuis, M.D., Secretary, Michigan State Medical Society, Battle Creek, Mich.
- From the Standpoint of the State Public Health Association, Celestine J. Sullivan, Secretary, League for the Promotion of Public Health, San Francisco.
- From the Viewpoint of the Voluntary Public Health Association, Charles I. Hatfield, M.D., Secretary, National Tuberculosis Association, New York.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

State Cancer Control Society.—At a meeting held at Little Rock, January 3, the Arkansas State Cancer Control Committee formally voted to organize a state society for the control of cancer and elected Dr. Dewell Gann, Jr., Benton, chairman of the committee. Other physicians on the committee include Dr. William R. Bathurst, editor of the *Journal of the Arkansas Medical Society;* Dr. Charles W. Garrison, state health officer, and Dr. Carl E. Bentley. It is planned to organize a chapter in each county of the state, and to conduct an educational campaign through lectures and through the free distribution of literature. A public lecture will be given at Little Rock in April, and similar meetings will be arranged at Pine Bluff, Hot Springs, Fort Smith, Texarkana, and other cities.

CALIFORNIA

Japanese Fined for Illegal Practice.—It is reported that Kenzo Koga and T. Nakamura of Marysville recently pleaded guilty to the charge of practicing medicine without licenses. Each was fined $500.

Loses Action to Recover License.—The district court of appeals has upheld the right of the state board of medical examiners to revoke the license of Dr. Thomas F. Glass, Los Angeles. The board revoked Dr. Glass' license, it is reported, on account of unprofessional conduct.

Special Lectures at Stanford University.—Dr. Shepherd Ivory Franz, professor of physiology and experimental psychology at George Washington University, Washington, D. C., gave a series of lectures on cerebral functions and reeducation under the auspices of the department of psychology at Leland Stanford University, early in January.

Chiropractor Found Guilty.—W. E. McClelland, chiropractor of Eureka, is reported as having been found guilty of the charge of practicing medicine without a license. In accordance with an agreement between the prosecution and the defense, a second charge against McClelland was dismissed on the promise of the defendant that he would no longer attempt to practice in the county.

DISTRICT OF COLUMBIA

Health Officer Seeks Leper Transfer.—Dr. William C. Fowler, district health officer, has renewed his request to the U. S. Public Health Service for the transfer to the government leprosarium at Carville, La., of two lepers at present quarantined in Washington.

Tribute to Memory of General Gorgas.—Representatives of many nations joined in a tribute to the memory of Gen. William C. Gorgas, at exercises held at the Pan-American Union Building, January 16, under the auspices of the Southern Society of Washington. The speakers included the Secretary of War and the Secretary of the Navy, the ambassadors of France and Peru, the ministers of Cuba and Ecuador, Major-Gen. Peter C. Harris, U. S. Army, and Major-Gen. H. K. Bethell, military attaché of the British Embassy.

FLORIDA

Health Service Hospital Opened.—The U. S. Public Health Service Hospital at Lake City was formally opened for the reception of patients, December 6. Surg. Almon P. Goff, U. S. P. H. S., is medical officer in charge, and Drs. Benjamin Manhoff and John G. Cullins are his immediate assistants. A number of patients have already been received and it is expected that the hospital facilities will be fully utilized within a short time.

ILLINOIS

Radium Association Organized.—The Physicians' Radium Association of Quincy was organized recently by physicians of that city and will be incorporated as a stock company under the laws of Illinois. The object of the organization is to purchase radium, to make a study of its remedial properties, and to apply these in practice.

Healer Fined.—"Professor" J. M. Powell, "Healer and Teacher of Metaphysics," Joliet, was arrested on complaint of the Department of Registration and Education for violation of the medical practice act. Powell, who has been operating a "temple" and who has "treated" hundreds of persons since his arrival at Joliet, was fined $100 and costs. An investigation of his "temple" disclosed a peculiar "altar," on which was found, among many sacred statues, a dish containing onions, apples, toy magnets and a small statue of Buddha. "Professor" Powell called this a "healing battery" and told his patients it was charged, and that he was "controlled" by a "Dr. Donaldson," a physician who has been dead forty years. Powell said that Dr. Donaldson "tells me exactly what to do for sick persons." Powell has promised to cease all practice and to close his "school."

Chicago

Personal.—Dr. Henry F. Helmholz has moved to Rochester, Minn., to assume the position of professor of pediatrics in the Mayo Foundation and head of the section of pediatrics in the Mayo Clinic.

INDIANA

Personal.—Dr. Wier H. Miley has been appointed city sanitarian of Anderson.

Society Receives Mears Bequest.—The Indianapolis Medical Society has received the bequest from the estate of Dr. J. Ewing Mears, amounting to $5,000, the interest from which will be used for the upkeep of the Dobbs Medical Library, now housed in the City Library of Indianapolis.

Hospital Notes.—An organization, representing churches, patriotic societies, social clubs and lodges, has been formed to take over the Home Hospital at Anderson for the purpose of conducting it as a community institution.——The Winamac Hospital at Winamac was completely destroyed by fire, entailing a loss estimated at $15,000.

Medical Society Meeting.—Hereafter the Indianapolis Medical Society will hold its meetings at the new Indiana Dental College Building. The annual election held, January 4, resulted in the choice of the following officers for the ensuing year: president, Dr. Amos L. Wilson; vice presidents, Drs. Homer G. Hamer and Charles D. Humes, and secretary-treasurer, Dr. Leslie H. Maxwell.

IOWA

Faculty Appointment.—Dr. Oscar H. Plant has been appointed professor of materia medica and pharmacology at the University of Iowa, and will become head of the department, to succeed Dr. Charles S. Chase. Dr. Chase will remain with the university as full professor and will teach pharmacology and engage in research and writing.

KANSAS

County Society Reorganized.—Following a banquet at the Riverside Hotel, Burlington, the Coffey County Medical Society was reorganized, and Dr. John C. Fear, Waverly, was elected president, and Dr. Archie B. McConnell, Burlington, secretary. The society had virtually disbanded during the war, owing to the absence of many physicians from the county because of military duty.

MAINE

Personal.—Dr. Leverett B. Bristol, Augusta, state commissioner of health, has been made chairman of the health directorate of the State Chamber of Commerce and Agricultural League.

Activities of State Health Department.—During the last year the state was divided into eight health districts each in charge of a full-time district health officer, with headquarters at Biddeford, Lewiston, Damariscotta, Waterville, Bangor, Machias, Millinocket and Presque Isle. Prior to Jan. 1, 1920, there were only two regular full-time health officers in the state, namely, at York and Portland. Since then six additional full-time officers have been engaged by cities and towns, including, Bath, Auburn, Lewiston, Bangor and the two health unions. A new division of public health nursing and child hygiene has been formed, the salary of the director being paid jointly by the Maine Public Health Association and the American Red Cross.

MARYLAND

Society Meetings.—At a meeting of the Book and Journal Club of the Medical and Chirurgical Faculty of Maryland, held at Osler Hall, January 13, Dr. John Ruhräh gave a talk on "An Old Minute Book of the Faculty, 1849-1891," and Col. James Robb Church, editor of the *Military Surgeon,* spoke on "Some New Additions to the Library," and "Being a Military Observer."

Personal.—Dr. John S. Fulton, secretary of the state board of health, addressed the citizenship school of the Women Voters League of Annapolis, January 10, on the functions of the health board.——Dr. John W. Harrison, Middle River, president of the Baltimore County Medical Association, has been appointed a member of the county commissioners.——Dr. Wilfred Grenfell will deliver a lecture, January 24, in Baltimore, in the interest of his humanitarian work in Labrador and Newfoundland.

Proposes Hopkins Unit for China.—Dr. Edward H. Hume, dean of the Yale Medical College of Changcha, Hunan Province, China, is in Baltimore endeavoring to interest the Johns Hopkins Medical School in a proposition to establish a Hopkins unit at Changcha, where the Yale school is located. While in this country he will endeavor to have other educational institutions establish similar units. The Yale Medical College, which was started in 1906 by a group of Yale men in China, has had remarkable success, especially since 1913, when the school got the promise of a large building. It is the only medical school in China for whose maintenance a whole province cooperates with the school authorities.

MICHIGAN

Tuberculosis Clinic.—A free tuberculosis clinic was conducted in Ottawa County, January 17-20, under the auspices of the state department of health. Clinics were held in Zeeland, Holland, and Grand Haven, and special attention was paid to underweight children. Dr. George H. Ramsey conducted the clinic and was assisted by Dr. Frank L. Rose.

Prohibition and the County Physician.—According to the records of the sheriff of Kent County, there is no need for the services of the county physician since the advent of prohibition, as on the average only four calls a month are now made at the jail for medical services. The county board of auditors has therefore voted to abolish the office of the county physician, and in the future private physicians will be summoned when professional services are needed.

Program of State Health Department.—The state department of health has proposed to the legislature that the following measures be authorized in the present session: 1. The employment of a full-time health officer in every county with a population of 25,000 or more; the health officer to be chosen from a list of physicians approved by the health department. 2. Adequate laws to control lake and stream pollution and sanitary conditions at Michigan pleasure resorts, and regulations governing water purification and sewage disposal. 3. A fund to provide free and unlimited distribution of diphtheria antitoxin and other specific biologic products.

NEBRASKA

Hospital Fire.—Fire during the night of December 20 destroyed the nurses' home at the University of Nebraska Hospital at Omaha, and resulted in the injury of six nurses. Twenty nurses were forced to leap from windows on the second story.

NEW JERSEY

Personal.—Dr. Sarah E. Selover has been appointed a member of the board of health of South River.——Dr. Francis W. Bennett has sailed for Cairo, Egypt, on a two months' tour of the Near East and southern Europe.

Illegal Practitioners Convicted.—It is reported that in December, 1920, Helen Sitkowski and Sophia Juhas, licensed midwives of New Jersey, were convicted of practicing medicine without licenses and were fined $200 each.

NEW YORK

Medical Examination of Jail Inmates.—The state prison commission has adopted a resolution urging the sheriff and board of supervisors of each county in the state to make provision for the medical examination of every person admitted to a county jail and to arrange for the segregation of all prisoners afflicted with venereal disease, tuberculosis or other communicable diseases.

Lancaster Health Committee.—The December *Health News* announces that a health coordination committee has recently been organized in Lancaster for (1) the coordination of health activities in the community, (2) the promotion of public health education, and (3) the support of approved health measures and cooperation with public authorities in meeting emergencies relative to public health.

Society Organized.—The New York State Society of Industrial Medicine was organized at Syracuse in connection with the fifth annual New York State Industrial Congress. Dr. Patrick H. Hourigan, Buffalo, was elected president; Drs. Clyde E. Ford, New York, and Claudius H. Watson, Brooklyn, vice presidents; Dr. William Alfred Sawyer, Rochester, secretary, and Dr. Charles G. McMullen, Schenectady, treasurer.

Quarantine Under Federal Control.—Deeds of conveyance transferring from state to federal control the Quarantine Station at the port of New York have been sent to Washington. The property involved includes an 18 acre reservation and buildings at Rose Bank, Staten Island, and buildings on Hoffman and Swinburne islands, and several boarding and fumigating tugs and launches, for which the federal government is allotting $1,395,275.

New York City

Anthrax from Gloves.—A case of anthrax believed to have been caused by infection from a pair of undressed kid gloves is under treatment at St. Mary's Hospital.

Cornell Endowment Fund.—The endowment committee of the board of trustees of Cornell University has announced that its semicentennial fund amounts to $8,952,770. Of this sum $500,000 is for the medical college in New York City and $1,500,000 for a new chemistry laboratory.

Fund to Bar European Diseases.—The Board of Estimate and Apportionment of New York City has granted the request of Dr. Royal S. Copeland, commissioner of health, for $40,000 in special revenue bonds for use in the control of typhus fever, bubonic plague and other communicable diseases prevalent in Europe.

Medical Advice to Ships by Wireless.—At the school of medical instruction recently established through an arrangement between the Seamen's Church Institute of New York and the Navy Department, mariners are instructed, if called on to treat a serious case of illness or accident at sea, to seek advice by wireless telegraph from the physician in charge at the Seamen's Institute until the ship reaches harbor or until assistance is obtained from another vessel. The emergency call for medical help is "KDKE" which will be entered in the international code, and will be as intelligible as the "SOS" for vessels in distress.

NORTH CAROLINA

Narcotic Clinic. — The Durham-Orange Board of Health has decided to establish a narcotic clinic as a department of the health office and has named Dr. John M. Manning as director. Headquarters of the clinic will be at the health department office.

State Health Education Campaign. — Since March, 1920, the North Carolina Board of Health has had in use a special car to carry moving picture exhibits on tuberculosis, oral hygiene, and agricultural subjects in connection with its campaign for health instruction among the negroes of the state. Dr. D. T. Ransom is director and operator of the car which has traveled about 4,000 miles in giving more than

150 exhibitions in twenty-five counties to approximately 35,000 people. The entire cost of equipment and operation for six months was less than $3,700.

OHIO

Fined for Health Act Violation.—It is reported that Dr. John C. Snyder, Bowling Green, entered a plea of guilty to a charge of failing to report a contagious disease to the city health department, and was fined $25 and costs.

New Hospital at Cleveland.—The executive board of the Lutheran Hospital Association, Cleveland, has decided to proceed with the construction of the proposed new hospital building for which a fund of $140,000 was subscribed in a campaign last summer. The new building will be erected on the site of the present hospital on Franklin Avenue and will, when completed, provide eighty beds for immediate use.

PENNSYLVANIA

Orthopedic Society Formed.—At a meeting held, December 3, the Pittsburgh Orthopedic Club was inaugurated and the following officers elected: president, Dr. Stewart L. McCurdy; vice president, Dr. David Silver, and secretary, Dr. Eben W. Fiske.

Appointment on Rockefeller Foundation Board.—Dr. Oscar Klotz, professor of pathology in the University of Pittsburgh Medical School, has been appointed a representative of the International Health Board of the Rockefeller Foundation for work in medical research and education in São Paulo, Brazil. It is expected that Dr. Klotz will spend a number of years in Brazil during which time he will serve as director of a pathologic institute. He will be assisted by several Brazilian physicians who have received their training in the United States.

Dr. William S. Foster Honored.—The Allegheny County Medical Society gave a testimonial dinner to Dr. William S. Foster at the Hotel Schenley, Pittsburgh, January 11, at which a silver loving cup was presented to him. The cup bore the inscription "Presented to William Sill Foster, M.D., by the Allegheny County Medical Society, January Eleventh, Nineteen Hundred and Twenty-One, In grateful recognition of his long and faithful service as an officer and member, 1867-1921," and on the obverse, "William Sill Foster, Physician, Humanitarian, Scholar, Cultured Gentleman, Suaviter in modo, fortiter in re." In acknowledging the honor accorded him, Dr. Foster emphasized his evaluation of the associations formed by attendance at meetings of the county, state and national branches of the organization of the medical profession, and urged practitioners to develop "the finer social and professional ethics that surely lead to the esteem of mankind."

Philadelphia

Mercy Hospital Seeks Fund.—The Mercy Hospital auxiliary committee is conducting a campaign for $5,000 for the purpose of installing and maintaining a roentgen-ray department.

Personal.—Dr. Knight Dunlap, professor of experimental psychology at Johns Hopkins University, participated in a symposium on "Occultism Particularly with Reference to Spiritualism, Freudianism and Other Phases of Mysticism" before the Philadelphia County Medical Society, January 12.

SOUTH CAROLINA

New County Physician.—Dr. James E. Cudd has been appointed physician of Spartanburg County to succeed Dr. Oliver Leonard.

Convicted of Narcotic Law Violation.—It is reported that Dr. Francis D. Kendall, Columbia, was recently convicted in the United States district court of Charleston on a charge of violating the Harrison Narcotic Law, and was sentenced to serve six months in jail and to pay a fine of $1,000.

TENNESSEE

Fined for Harrison Law Violation.—It is reported that Dr. A. G. Kyle, Knoxville, recently pleaded guilty in the federal court to a charge of violating the Harrison Narcotic Law and was fined $500 and costs.

Personal.—Dr. Frank B. Hamilton has been reelected Madison County health officer for a term of two years.——Dr. Lloyd S. Nease, Newport, has been appointed medical director of the Memphis General Hospital.——Dr. Harry W. Qualls, Union City, has been appointed a member of the state board of medical examiners.

TEXAS

Personal. — Dr. Manton M. Carrick, Dallas, has been appointed state health officer.

Maternity Homes Under Control. — An ordinance was recently passed by the Dallas city commission providing for the appointment of a maternity board, to consist of the director of public health, director of public welface and a reputable physician, which shall have power to inspect and regulate all maternity homes. Hereafter these institutions must be licensed and the board is empowered to revoke the license for violations of regulations. It is also stipulated that maternity homes shall not make a practice of offering children for adoption and that a complete record be kept of each case.

CANADA

Personal.—Dr. Ardrey W. Downs, formerly assistant professor of physiology at McGill University, has been appointed to the chair of physiology in the University of Alberta.——Dr. J. Maynard, Toronto, has been appointed an assistant in anatomy in the University of Toronto.—Dr. Ada Speers of China is in Canada on furlough taking a postgraduate course.

Hospital News. — Fire gutted the new infirmary of the Ontario Hospital for the Insane at Whitby during the night of January 13. The damage to the building, which was not fully completed, is estimated at $60,000.——At present there are in the military hospitals in and near Toronto 1,200 soldiers, but there are about 125 beds vacant in the Brant institution near Hamilton. Altogether the Department of Civil-Reestablishment is now treating 9,000 soldiers in Canada. It has been decided that discharged soldiers who are unemployed will be treated free by the department, which will necessitate an increase in the medical staffs as the number of unemployed soldiers is approximately 12,000.——The board of health of Brantford, Ont., has urged on the municipal authorities the necessity of building an isolation hospital, for which $30,000 has already been voted.

GENERAL

Fraternity Meeting.—At the seventeenth annual convention of the Phi Delta Epsilon Medical Fraternity, held at the Waldorf-Astoria Hotel, New York, December 27 and 28, Dr. David W. Kramer, Philadelphia, was elected grand consul, and Dr. Morris E. Greenberger, New York, grand scribe.

Pamphlets on Child Hygiene.—The *Evening Herald* of Los Angeles has prepared in pamphlet form for free circulation the articles on Child Hygiene, prepared by the U. S. Public Health Service, and originally printed by 100 leading newspapers of the country for the purpose of imparting dependable information regarding child welfare.

Southwest Society Elects.—At the sixth annual meeting of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, under the presidency of Dr. William Warner Watkins, Phoenix, Ariz., the following officers were elected for the ensuing year: president, Dr. James Vance, El Paso, Texas; vice presidents, Drs. Meldrum K. Wylder, Albuquerque, N. M., John E. Bacon, Miami, Ariz., and secretary-treasurer, Dr. John R. Van Atta, Albuquerque, N. M.

Philippine News.—The Cancer Committee of the Philippine Islands Medical Association has decided to begin an active campaign against this disease, and to form a society, open to laymen as well as physicians, in order to take charge of the campaign.——The Medical Pharmaceutical Association of the Philippines recently adopted a resolution requesting that all the lepers now at the Culión Leper Colony receive the benefit of the modern treatment of leprosy.——Another monument has been erected at Pasig to the national Philippine hero, Dr. J. P. Rizal.

Bequests and Donations.—The following bequests and donations have recently been announced:

The Presbyterian Hospital, $50,000; Memorial Hospital, Morristown, N. J., $25,000; Women's and Maternity hospitals, New York, each $10,000, by the will of William V. S. Thorne.

Harvard Medical School, $50,000, by the will of Mrs. Lucy H. Bowdoin, Salem, Mass.

Brockton Hospital, $200,000, by the will of George E. Keith, Brockton, Mass.

Massachusetts General Hospital, $20,000, and Harvard University, $20,000, to be added to the Thomas Jefferson Coolidge Fund, by the will of Thomas Jefferson Coolidge, Boston.

Chiropractic Bill for the District of Columbia.—A chiropractic bill, S. 4780, introduced in the United States Senate, January 5, provides for a separate board of chiropractic examiners for the District of Columbia. Needless to say, the bill is silent in regard to the standards of preliminary education. The chiropractic course is stated as "two years of not less than six calendar months each," but it is provided that "physicians of other schools of healing who have taken shorter courses" shall also be eligible. "After the passage" of the act, however, it is stipulated that "all applicants shall have attended a resident school for three years of not less than six months each."

Leonard Prize for Radiology Research.—The American Roentgen Ray Society will award $1,000 to the author of the best piece of original research in the field of the roentgen ray, radium or radio-activity. The competition is open to any one living in the United States or its possessions, in Canada, Mexico, Central or South America, Cuba or other islands of the Western Hemisphere. The results of the research must be submitted in literary form in the English language not later than July 1, 1921, and must never have been published. Each paper must be signed by motto, and should be accompanied by a sealed envelop bearing the motto and containing a slip with the author's name. The prize paper must be presented before the American Roentgen Ray Society at its next annual meeting, September, 1921. The prize commemorates the name of Dr. Charles Lester Leonard, a pioneer worker in the field of the roentgen ray. Communications may be addressed to members of the committee: Dr. A. W. Crane, 420 South Rose Street, Kalamazoo, Mich.; Dr. P. M. Hickey, 32 Adams Avenue, West, Detroit, and Dr. Henry K. Pancoast, University Hospital, Philadelphia.

Congressional Legislation.—The House Committee on Education has voted to report favorably the so-called Smith-Towner Bill, which "would create a department of education and authorize the expenditure of money to encourage the states in the promotion and support of education." This is one group of four so-called bureaucratic bills, which includes the Sheppard-Towner Bill, commonly known as the maternity bill. The latter measure, already passed by the Senate and now pending before a House committee, provides for the employment by the federal government and the states of maternity nurses and for the establishment at public expense of maternity centers in each county. The principal object of the Smith-Towner Bill is to provide "for physical education and instruction in the principles of health and sanitation and for providing school nurses, school dental clinics and otherwise providing physical and mental welfare." If the bill becomes a law in its present form, a nursing center and school dental clinics will be provided in every county of the states cooperating with the federal government. Hearings are also being held by the House Committee on Education on the Foss-Capper Bill, which proposes to create a department of physical education.

LATIN AMERICA

Dr. Neiva in Japan.—The Journal mentioned last June that Dr. A. Neiva, chief of the public health service of the state of S. Paulo, Brazil, had been commissioned by the authorities to study public health methods in this country and in Japan, and the prophylaxis of leprosy. The *Brazil Medico* states that he was tendered a banquet on his recent arrival in Japan, Professor Kitasato presiding, with cabinet ministers present among others, and Dr. Neiva was invited to deliver lectures at various points. His trip now ended, he returns to Brazil by the *Takoma Maru* which plies directly between Japan and Brazil. Dr. Neiva was hailed in Japan as the successor of Oswaldo Cruz, the South American scientist best known in the old world.

Third Venezuelan Congress of Medicine.—The organization committee of the Third Venezuelan Medical Congress has appointed a vice president for each state to report on regional medical geography, the causes of mortality and preventive measures. The First Venezuelan Medical Congress was held in Caracas in June, 1911; the second at Maracaibo in January, 1917, and the third will meet at Ciudad Bolivar. The organizing committee is constituted as follows: president, Dr. J. T. Ochoa; vice president, Dr. J. M. García Parra; treasurer, Dr. Santiago Izaguirre, and secretary, Dr. Félix R. Páez. There is also an auxiliary commission appointed by the Academy of Medicine, consisting of Drs. F. A. Rísquez, L. Razetti, A. Ayala, and González Rincones.

First Mexican Child Congress.—At the Congreso Mexicano del Niño, which was held early in January in Mexico City, resolutions were adopted advocating a campaign of propaganda, the adoption of child welfare laws, free distribution of tooth brushes, and establishment of children's hospitals and asylums. The officers appointed were Ing. F. F. Palavicini, president; Dr. F. Castillo Nájera, secretary; Drs. M. Ochoterena, R. Carrillo, J. Cosío, R. Macouzet, A. Pruneda, and Lic. L. Jasso, members. The second congress will be held Jan. 2, 1923. Among the principal addresses were those by Dr. A. Brioso Vasconcelos on eugenics, Dr. E. O. Aragón on infant psychology, Dr. A. Torres Estrada on the education of the blind, and Dr. A. Pruneda on Mexican food habits.

FOREIGN

Endowment for Middlesex Hospital School.—The Middlesex Hospital Medical School has received an anonymous gift of £20,000 for the endowment of the university chair of physiology. The chair is held by Prof. Swale Vincent, well known for his work on the endocrine glands and internal secretions. Of the six professorial chairs in the medical school, two are now endowed.

Honors for Roentgen.—The twenty-fifth anniversary of the publication of the discovery of the roentgen ray by Professor Roentgen has been noticed with various tributes to Roentgen in Germany. He retired last spring from the chair of experimental physics at the University of Munich, but his discovery of the rays that bear his name was made at Würzburg, in 1895. Roentgen is not a physician although roentgenography has come to play such a large part in medicine. He will be 76 next March.

The Nobel Prizes.—A Munich exchange quotes the Swedish dailies to the effect that there have been 101 awards made during the twenty years of the Nobel Prize endowment, and 12,000,000 crowns have thus been distributed. The prizes have averaged 140,000 crowns (about $35,000). Four women have been recipients of prizes, and 38 of the prize-winners have died. Germany has received 23 of the prizes; France 20, England 9, Switzerland 8, America and Sweden 6, Denmark and Holland, 5, Italy and Belgium 4, Austria 3, Norway, Russia and Spain, each 2, and Scotland and India, each 1.

Official Control of Wassermann Test.—Our German exchanges state that the "Verstaatlichung"—the quotation marks are theirs—of the Wassermann reaction went into effect, Jan. 1, 1921. According to the new regulation, physicians who specialize in examination of blood by the Wassermann technic will have to obtain a special permit to do so. They will be required to do the work under certain special conditions and use for the test only extracts which have been officially standardized. The official standardization is done at the Institut für experimentelle Therapie at Frankfurt a. M., of which Prof. W. Kolle is in charge. These restrictions apply only to physicians who do a laboratory business with specimens sent in from outside. They do not apply to the test in private practice or in public institutions.

Centennial of the Académie de Médecine of Paris.—Our Paris exchanges for the last week in December are crowded with accounts of the elaborate festivities of the centenary of the Académie de médecine. The entire issue of the *Presse médicale* for December 25 is devoted to an illustrated description, with the addresses delivered by Laveran, the present president of the académie, and others. The official delegates from other countries included sixteen from England, five from the United States; eleven from Belgium, including Bordet, Brachet and Willems; Arteaga from Bolivia; O. de Oliveira from Brazil; Córdova, Donoso, Orrego and Sierra from Chile; Esguerra and Machado from Colombia; Cueva and Villamar from Ecuador; Nourgo and Robles from Guatemala; Arce and Chutro from Argentina; two delegates also from Peru; Silva from Salvador; Carlos, Fonseca, Tijera, Rincones, Rísquez and Velásquez from Venezuela; Ito and Tsuchiga from Japan; O. Pei-Huan from China; Robert from Siam, and Cassens from Haiti. Twenty-nine countries were represented in all. A medal to commemorate the occasion was struck. The president of the Republic of France was present with two of his ministers and all the préfets of the département. The celebration concluded with a banquet and a reception at the Palais d'Orsay. Toasts were offered at the banquet by Cassens for Haiti; Recasens for Spain; van der Berg for Holland; Cueva for Ecuador; Kalliontzis for Greece, and Lucatello for Italy. Wright of England was seated at the right hand of the president of the académie.

Deaths in Other Countries

Dr. M. Holl, professor of anatomy at the University of Graz, aged 69.——**Dr. E. Solger,** Berlin, aged 86.——**Dr. Camors,** director of the contagious hospital at Alger.——**Dr. A. Puricelli** of Milan.——**Dr. Juan Pablo García** of Havana.——**Dr. Magnus** of Copenhagen, aged 97.

Government Services

Medical Officers at Army General Staff College

Beginning with the next annual session, four medical officers of the Army will be detailed to attend the General Staff College and the School of the Line regularly, if the recommendations of Surgeon-General Ireland are approved. Attendance at these schools by medical officers will materially broaden their military education, as the proposed course is designed to extend over four years, embracing one year at the School of the Line, one year at the General Staff School, one year's service with troops in the field, and the final year at the General Staff College.

Hospitals for Disabled Veterans

It is estimated by the Public Health Service that 10,000 additional beds are immediately needed for the hospitalization of disabled soldiers, according to a letter transmitted by Surgeon-General Cumming to a committee of the Senate. The greatest urgency exists in the case of tuberculous and neuropsychiatric patients. On Jan. 1, 1921, there were in the hospitals operated by the Public Health Service 12,511 patients, and in other hospitals under contract 9,781 patients. At present the increase of patients in these hospitals is approximately 1,000 per month, and it is expected that before the peak is reached in 1927 or 1929, from 30,000 to 35,000 beds will be required.

Army Medical Reserve Corps

A letter has been addressed to each officer now enrolled in the various sections of the Medical Reserve Corps in order to obtain information for the organization of a new reserve corps, more especially with a view to the classification of present members. The attention of the medical officers was also directed to the laws and regulations governing appointments, as these have undergone changes during the last year. At present there are 300 applications on file, and many former officers who have hesitated to come into the reserve corps are now sending in their applications, presumably because of a better understanding of the status of the corps. Within the next month, it is expected, there will be issued the regulations and rules governing the appointment, assignment, promotion and training of officers of the reserve corps, prepared by the Committee of General Staff Officers and Reserve and Militia Officers in compliance with the Army Reorganization Act of June 4, 1920.

Schools of Instruction of Army Medical Corps

Important plans are under way by Surgeon-General Ireland for the centralization of all schools of instruction of the Army Medical Corps. Two special service schools will be maintained with various subdivisions, one, the Field Medical Service School at Carlisle Barracks, Pa., and the other the Army Medical School at Washington, D. C. The instruction at the Carlisle school will have for its object the ready adaptation of the civilian practitioner to the life, work and customs of the army, and will offer progressive courses covering all subjects, from recruiting to the organization, functions and administration of medical units. The Army Medical School at Washington will offer to commissioned graduates from the Carlisle school and to selected officers of the National Guard and Organized Reserve, what might be characterized as postgraduate courses in certain professional subjects in their application to military medicine, including bacteriology, parasitology and preventive medicine, sanitary chemistry, nutritional chemistry, clinical and operative surgery, clinical medicine, ophthalmology and roentgenology. All clinical work will be conducted at the Walter Reed General Hospital. There will also be established a school for nurses, a school of pharmacy, and a school for enlisted specialists. A medical research laboratory and school for flight surgeons will be maintained at Mitchel Field, Long Island, N. Y., with the object of training special medical officers for duty at flying fields. These officers will be encouraged to take flying instruction and to qualify as air pilots, for the purpose of acquiring a practical comprehension of the psychology of flying and studying the sensations produced during flight, with a view to correlating these with the symptoms of physical and mental exhaustion resulting from flights at high altitudes or over a long period of time.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 27, 1920.

Juvenile Employment

The whole position of juvenile employment in this country is about to be changed by the new education act. Children under the age of 12 years shall not be employed at all; children under 14 shall not be employed in street trading; children over 14 shall not be employed on Sundays, on schooldays before the close of school hours, or on any day before 6 a. m. or after 8 p. m. Sir George Newman, chief medical officer to the board of education, in his report, just issued, recommends that the school medical officer should report periodically on the employment of all children of school age and its effect on their health; he should examine employed children at once, and later, from time to time, reexamine, certifying if the employment is prejudicial to the health or physical development of the child; he should cooperate with the factory surgeon of the district in selecting children for factory work, and he should furnish the welfare supervisor of factories and workshops where the child is employed with the latest school medical reports on the child's physique. The report recommends cooperation between the industrial bodies, the local education authority, the sanitary authority, the certifying factory surgeon and the employer. The latter has the duty of accepting, postponing or rejecting in regard to the lad's employment.

Medical Women on the Prophylaxis of Venereal Disease

The prophylaxis of venereal disease continues to be a subject of controversy. In the latest pronouncement on the subject, the Medical Women's Federation refers to the fact that immediate self-disinfection has been advocated as a method of preventing the spread of venereal disease and brought to the notice of the public. Some consider that it is capable of virtually eliminating venereal disease. A society has been formed, one of whose objects is the widespread dissemination of careful and minute instruction on self-disinfection after sex intercourse. The Medical Women's Federation has carefully considered the question in all its bearings, and apart from the serious moral responsibility involved, is of opinion that on purely physical grounds there are serious objections to this method and to teaching its use to the public: (*a*) It would be most undesirable to teach young boys and girls to tamper with their sex organs, yet, if it were efficient, the method would have to be taught carefully, minutely, to young persons, even before puberty. (*b*) It would not be desirable to teach every married woman to regard her husband as possibly suffering from venereal disease and to take precautions accordingly, nor would it be possible for every bride to carry out the instructions given; yet disease among married women forms a large percentage of the whole. (*c*) The Medical Women's Federation believes that these methods are impossible for the majority of women to practice as recommended. Though a woman may be told to lubricate the vulva, in very few instances would the vagina and cervix be effectively treated. But infection with both gonorrhea and syphilis may take place at the cervix. The young are the most sought after and the most readily infected, and hence they are the most dangerous as regards the further spread of infection; and they are the people who would find it most difficult to carry out the method. (*d*) The means advocated, if properly carried out, are contraceptive. The federation is not prepared to endorse the introduction of contraceptives broadcast to the public or to recommend contraceptives for self-disinfection, when the action of such substances may not even be known to the user. "These methods are by no means certain to prevent infection, especially as it would be impossible to insure that they were really efficiently carried out. We therefore regard it as unfair to convey the impression of safety where it does not exist. Promiscuous intercourse cannot be made safe, and anything that tends to assume its safety may tend to increase it, and may thereby increase the incidence of the disease."

PARIS

(From Our Regular Correspondent)

Dec. 17, 1920.

Report on Scientific Mission to the United States

In the last two numbers of the *Presse médicale* Drs. G. Roussy and E.-E. Desmarest, agrégé professors of the Faculty of Medicine of Paris, have published a report on medical education in the United States. At the invitation of the National Board of Medical Examiners to send representatives to the regular annual examinations to be held in Philadelphia, the Faculty of Medicine appointed Drs. Roussy and Desmarest. The mission included, among others, two English delegates, Sir Humphry Rolleston, representing the Royal College of Physicians of London, and Dr. H. J. Waring, representing the Royal College of Surgeons of England; also a Scotch delegate, Dr. Norman Walker, representing the Triple Examining Board of Scotland. Referring to the rôle played by the American Medical Association in pedagogic and professional matters, Roussy and Desmarest say that it would doubtless sound strange to French physicians to hear a medical association spoken of in an article dealing with questions on medical education. They explain that the status of the American Medical Association can in no wise be compared with that of French scientific societies, which are not in a position to play so important a rôle. As regards the question of medical reciprocity between America and France, Roussy and Desmarest remark that it is desirable to encourage, as far as possible, the efforts being made at present by the United States to bring about greater uniformity between the medical education of France and that of the United States. They think that, in view of the changes that have been made of late in medical instruction in the United States, it will now be possible to introduce a system whereby the students and professors of the two countries may spend part of their time in the sister republic. The general impression that Roussy and Desmarest give in regard to medical education in the United States is that many changes and much improvement have been brought about during the last ten years. Medical instruction in America seems to be of a more elementary but of a more practical type than in France, in the best professional schools. All that now seems necessary is to develop further the plans that have been already set on foot, in order that complete uniformity may be brought about. The great mistake of the United States in the past has been the great multiplicity of medical schools with widely divergent courses of instruction. They state that the American Medical Association and the National Board of Medical Examiners have for many years been carrying on an extensive campaign against this state of affairs, and while much has been accomplished, a vigorous policy is still pursued.

Dedication of the Carnegie Library at the University of Paris

The Carnegie Endowment Fund has presented to the University of Paris a library of 2,000 volumes, which was recently dedicated at a function held at the Sorbonne. Hon. Hugh C. Wallace, ambassador of the United States, read the deed of donation and made the presentation speech. M. Honnorat, minister of public instruction, thanked the representatives of the Carnegie fund, in the name of the government. Senator d'Estournelles, chairman of the European bureau of the Carnegie fund, spoke in high praise of Andrew Carnegie's great work for humanity. M. Cestre, who is giving a course on American civilization in the philosophical faculty, and who is, at the same time, the adviser for American students, delivered a short address, in which he expressed his great satisfaction over the friendly mutual relations existing between the United States and France.

Death of Prof. Victor Carlier

The death of Dr. Victor Carlier, professor of the Faculty of Medicine at Lille, has been announced. Carlier was born in 1856. He took his medical course in Paris, where he had as teachers Tillaux and Guyon, the latter giving the final direction to his studies. He was appointed agrégé and later ordinarius on the Faculty of Medicine at Lille. Carlier may be said to have founded a veritable school of medicine and became one of the best known authorities in diseases of the urinary organs. During the war, Carlier, who had stuck to his post even after the German invasion, was deprived of his service by the Germans and at the end of the second year was deported as a hostage to the camp of Holgminden, where he suffered ill treatment at the hands of the German authorities for a period of eight months.

BELGIUM

(From Our Regular Correspondent)

Dec. 19, 1920.

The Mortality from Syphilis at Brussels

M. Bayet has presented to the Royal Academy the results of his calculations to establish approximately the mortality from syphilis at Brussels. He has found the official statistics useless in determining the mortality. Information must be gained in a roundabout way, and often information that is withheld must be considered more valuable than that which is given. The method he used consisted in picking out from the register of deaths for a given year the causes of death in which syphilis enters into account; for example, ataxia, paralytic dementia, certain types of meningitis, cerebral hemorrhage, mollities cerebri, organic diseases of the heart, angina pectoris, affections of the arteries, Bright's disease and cirrhosis of the liver. He endeavored to discover the average number of cases that were of syphilitic origin. In this manner he succeeded in establishing that in the city of Brussels in 1913 there were 284 fatal cases of syphilis, or 11 per cent. of the total mortality. For the purpose of comparison he gives the percentage of mortality in other infectious diseases: tuberculosis, 16 per cent.; typhoid, 1.2; measles, 1.2; pertussis, 0.7; diphtheria, 0.3, and scarlet fever, 0.3 per cent. The paramount importance of tuberculosis and syphilis as compared with other infectious diseases thus becomes evident, and the statement is justified that, next to tuberculosis, syphilis is the infectious disease that claims the most victims.

Diagnosis of the African Sleeping Sickness

At the Société belge de médecine tropicale, M. Broden discussed recently the various methods employed in the diagnosis of trypanosomiasis. He made comparisons between the results secured by the puncture of engorged lymph glands, examination of blood either direct or after centrifugation, and the examination of the spinal fluid. Three hundred and sixty-six negro patients, who had received no treatment as yet, were examined by these various procedures. The examination of lymph obtained by the puncture of lymph glands is the most rapid method to disclose the presence of trypanosomes. It gave a positive result in 87.7 per cent. of the cases; the examination of the blood in only 80.7 per cent.

Nevertheless the centrifugation of the blood constitutes a valuable method of examination and was indispensable in 7.7 per cent. of the cases. To reach a definite diagnosis the examination of the spinal fluid was necessary in 4.5 per cent. of the cases.

In the matter of treatment, Broden and Rodhain set forth the results of their experimentation in "L'arsenophénylglycine et son succédané dans les trypanoses humaines, et animales." This arsenical, which is No. 418 in the Ehrlich series, has given excellent results in experimentally induced infections in laboratory animals. It was inferior to certain other products in the treatment of the sleeping sickness. The writers describe the method of using it, the immediate action on the trypanosomes and on the human organism; also the remote or curative effect. They cite cases of grave intoxication and even death from its use. While they oppose the use of this arsenical in the treatment of patients in the advanced stages, they state that it exerts a good influence in producing a prolonged peripheral sterilization. They have used this substance combined with tartar emetic or with dyes, such as tryparosan and trypaflavin. The results were not manifestly better than with other combinations of drugs, notably atoxyl and tartar emetic. On animals infected with various trypanosomes, arsenophenylglycine had no effect. The trials with the substitute No. 559 were still less favorable. The writers reached the conclusion that these two products were not entitled to recognition as therapeutic arsenicals.

The Campaign Against Cancer

The campaign against cancer has occupied the minds of surgeons since ancient times, and it is becoming more and more evident that it is only through education of the public that the campaign can be crowned with success. The Société belge de gynécologie et d'obstétrique has issued to physicians and midwives this appeal:

> The mortality from cancer in this country (Belgium) is very great—greater than it need be when we consider the curative means that we possess at the present time. Seventy per cent. of all cancers are in women. If women would consult their physician in time they would, in our day and age, all be saved and would recover their health; but, owing to the unfortunate fact that this disease does not cause pain until a grave stage has been reached, women treat whatever symptoms they may have as of no importance and pay no attention to them until pain sets in. It is then very difficult to cure them. Every woman, married or unmarried, who discovers anything anomalous in her state of health should go to her physician for examination — no matter whether she feels sick or not. We wish to emphasize more particularly the anomalies that are likely to arise at the critical period in middle life. These require a minute examination by a physician, but we would call attention to the fact that cancer may occur at any age. The public should be put in possession of the knowledge that we possess sure means of curing cancer if treatment is begun in time. It is much to be desired that the general public understand this advice, and it is incumbent on physicians and midwives to disseminate these views far and wide.

Marriages

ROBERT MILLER GALLANT, Charlotte, N. C., to Miss Evelyn Lynch of Rutherfordton, N. C., December 15.

WILLIAM HIBBITTS to Miss Katherine William McCartney, both of Texarkana, Ark., December 29.

ALLAN MCLELLAN to Miss Elizabeth Helen Chambers, both of Casper, Wyo., September 14.

JOHN A. GATTERER to Miss Mary Louise Richey, both of New Albany, Ind., January 12.

CLYDE A. UNDINE to Miss Effie Donna Heighstedt, both of Minneapolis, December 30.

JOSEPH EIDELSBERG, New York, to Miss Bessie Strauss of Brooklyn, December 26.

THOMAS K. GALVIN to Miss Sarah W. Saxelby, both of Baltimore, January 3.

HERBERT L. LANGER to Miss Helen Stein, both of New York, December 29.

Deaths

Waller Holladay Dade, Manila, P. I.; Bellevue Hospital Medical College, 1889; aged 54; United States director-general of the bureau of prisons in the Far East; who served in the Spanish-American War as major and surgeon, Kentucky Infantry; died in Norfolk, Va., December 26, from heart disease.

William Allen Porter ⊕ Chicago; Kansas Medical College, Topeka, 1899; Rush Medical College, 1901; aged 50; clinical professor of otology and rhinology in Loyola University School of Medicine, Chicago; captain, M. C., U. S. Army, and discharged, Feb. 6, 1919; died, January 8, from cerebral hemorrhage.

Edward W. English, Slayden, Texas; Memphis Hospital Medical College, 1890; aged 53; a member of the State Medical Association of Texas; local surgeon for the San Antonio and Aransas Pass Railway; died, December 10, from an overdose of morphin, self-administered, it is believed, with suicidal intent.

John Erasmus Harper ⊕ Chicago; University of the City of New York, 1878; aged 69; emeritus professor of diseases of the eye in the College of Physicians and Surgeons, Chicago; at one time editor of the *Western Medical Reporter;* died, January 8, from myocarditis.

Ellsworth S. Ellis ⊕ Manistee, Mich.; College of Physicians and Surgeons in the City of New York, 1876; aged 72; at one time president of the Manistee County Medical Society; city health officer for five years; died, January 2, from heart disease.

George M. Campbell, Halifax, N. S.; Bellevue Hospital Medical College, 1890; aged 59; professor of pathology and lecturer on diseases of children in the Halifax Medical College; president of the Halifax Board of Health; died, December 12.

Willis Parker Craig, Walpole, N. H.; Dartmouth Medical School, Hanover, N. H., 1906; aged 40; captain, M. C., U. S. Army, and discharged, June 28, 1919; was accidentally shot and killed while hunting, December 28.

Thomas Notley McLaughlin ⊕ Washington, D. C.; George Washington University, Washington, D. C., 1882; aged 60; at one time president of the Medical Society of the District of Columbia; died, December 31.

Robert Joseph McGettingan ⊕ Waipahu, Hawaii; Cooper Medical College, San Francisco, 1891; aged 61; physician for the territorial board of health for twenty-four years; died, July 14, from heart disease.

John Wallace Cook, Pendleton, Ind.; University of Louisville, Ky., 1879; aged 68; a member of the Indiana State Medical Association; died in Indianapolis, January 1, from cerebral hemorrhage.

Harvey P. Jack ⊕ Hornell, N. Y.; College of Physicians and Surgeons, Baltimore, 1891; aged 55; at one time president of the New York State Railway Surgeons' Association; died, December 31.

Thomas C. Murphy, Biloxi, Miss.; Rush Medical College, 1868; aged 78; a member of the Thirty-First Illinois Infantry during the Civil War; died, December 31, from cerebral hemorrhage.

Joseph Ellis Messenger, New York; Bellevue Hospital Medical College, 1879; aged 68; medical director and assistant visiting physician to the Knickerbocker Hospital; died, January 5.

Malcolm Sumner Woodbury ⊕ Clifton Springs, N. Y.; Jefferson Medical College, 1906; aged 39; superintendent of the Clifton Springs Sanitarium; died, January 6, from pulmonary embolism.

Robert G. Miles ⊕ Newcastle, Pa.; Jefferson Medical College, 1895; aged 58; was found dead, December 10, from the effects of chloroform, taken with suicidal intent, it is believed.

William J. McCaw ⊕ Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1881; aged 65; for many years president of the state board of pharmacy; died, January 2.

Duncan Moore Leonard, Broome Center, N. Y.; Castleton (Vt.) Medical College, 1857; aged 83; a practitioner of Broome Center for sixty-three years; died, December 26.

George C. D. O'Neil, Saulte Ste. Marie, Mich.; University of Michigan, Ann Arbor, 1876; aged 82; died, October 24.

⊕ Indicates "Fellow" of the American Medical Association.

John Calvin Little, Killarney, Man.; Western University, London, Ont., 1902; aged 47; died, November 29, from the effects of a fall from the fire escape of a Winnipeg hotel.

Ferdinand Brother, Beatrice, Neb.; Missouri Medical College, St. Louis, 1862; Jefferson Medical College, 1866; aged 87; a veteran of the Civil War; died, December 7.

Richard S. Schweitzer, Adamstown, Pa.; College of Physicians and Surgeons, Baltimore, 1881; aged 68; died at the Reading (Pa.) Hospital, December 26.

Robert D. Shearer, Walsh, Ont.; Detroit College of Medicine and Surgery, 1893; aged 53; was fatally crushed, September 22, by a falling limb of a tree.

James Henry Grant, Lynn, Mass.; Bellevue Hospital Medical College, 1883; aged 70; a member of the Massachusetts Medical Society; died, December 28.

Samuel Ayer Kimball, Boston; Harvard University Medical School, 1882; Boston University School of Medicine, 1883; aged 63; died, December 27.

Ardel C. Rogers, Cascade, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 77; a veteran of the Civil War; died, December 28.

Willis W. Oglesby, Cottage Grove, Ore.; Willamette University, Salem, Ore., 1877; aged 83; health officer of Cottage Grove; died, December 26.

Frank De Vilbiss ⊕ Clyde, Kan.; Missouri Medical College, St. Louis, 1883; aged 61; former state senator; died, December 20, from pneumonia.

Robert B. R. C. Wallace, Lydia, S. C.; University of the City of New York, 1881; aged 68; died, November 27, from arteriosclerosis.

Seymour A. Woodworth ⊕ Park Ridge, Ill.; Hahnemann Medical College and Hospital, Chicago, 1895; aged 51; died, January 9.

Levi Lewis, Charlevoix, Mich. (license, Michigan, years of practice, 1900); aged 81; died, December 29, from bronchopneumonia.

William Allen Bartlett ⊕ New York; College of Physicians and Surgeons in the City of New York, 1881; aged 83; died, January 5.

George Knipe ⊕ New York; College of Physicians and Surgeons in the City of New York, 1885; aged 64; died, January 5.

James Price Kennedy, Wingham, Ont.; Western University, London, Ont., 1891; aged 55; died, October 26, from myocarditis.

William T. McMillan, New Egypt, N. J.; College of Physicians and Surgeons, Baltimore, 1888; aged 52; died, December 17.

Otto F. Richter, White Sulphur Springs, W. Va.; Medical College of Virginia, Richmond, 1884; aged 57; died, November 10.

Bennet V. Caffee, Winter Haven, Fla.; Rush Medical College, 1899; aged 45; died, January 3, from cerebral hemorrhage.

Frederick Louis Fuchs ⊕ New York; Eclectic Medical College of the City of New York, 1881; aged 78; died, December 3.

Richard Kingsman, Washington, D. C.; Howard University, Washington, D. C., 1886; aged 65; died, December 31.

Oliver O. Wozencraft, Holly Springs, Ark.; Missouri Medical College, St. Louis, 1876; aged 71; died, January 2.

Sheldon Arthur Moran, Toronto, Ont.; University of Toronto, Ont., 1905; aged 42; died, December 21.

Harrison Free Cooper ⊕ Baltimore; University of Maryland, Baltimore, 1902; aged 41; died, January 3.

Frederick R. Baldwin, Minneapolis; Bellevue Hospital Medical College, 1886; died, November 12.

James T. Phillips, Glenmora, La.; University of Alabama, Mobile, 1886; aged 60; died, December 25.

James J. Newcomb, Westwood, N. J.; Yale University, New Haven, 1875; aged 70; died, January 1.

John B. Hall, Toronto; Homeopathic Medical College of Missouri, 1860; aged 83; died recently.

Frank Putnam Boyd, San Jose, Calif.; Rush Medical College, 1901; aged 41; died, December 7.

George W. Brandon, Milford, Neb.; Rush Medical College, 1871; aged 73; died, October 31.

Hiram P. Neyman, Saltillo, Ind. (license, Indiana); aged 75; died about December 28.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

SPIROCIDE NOT ADMITTED TO N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

"Spirocide" (The Spirocide Corporation of New York) is advertised as a new and successful treatment of syphilis by fumigation and inhalation. According to the information presented to the Council, Spirocide is a mechanical mixture of metallic mercury 25 per cent., copper sulphate 25 per cent., cypress cones 20 per cent., henna 20 per cent., nut gall 5 per cent., and dried pomegranate 5 per cent. It is supplied in the form of greenish-gray tablets weighing about 10 gm. each, and containing, therefore, about 2.5 gm. (about 38 grains) of mercury. It is sold in packages of six tablets.

The following directions for its use are contained in a pamphlet recently distributed:

> "Spirocide is administered by means of fumigation and inhalation. The patient is disrobed to the waist and placed in a light chair, preferably with arms. A pastil or tablet of Spirocide is placed on a small plate, or open receptacle, after being ignited by holding in a gas or alcohol flame for a minute or so until it begins to smoulder. The plate with the burning Spirocide is then placed on the floor between the patient's feet or just under the chair. A small shelf or platform between the lower rounds of the chair is an excellent location for the plate containing the burning mass. When all is in position a sheet should be thrown over the patient and arranged to enclose the whole. The patient should breathe naturally and inhale the vapor, which will rise and fill the canopy surrounding him. The treatment will require 15 to 30 minutes, or until the Spirocide is burned up. The patient may complain at first of a slight choking sensation, and there may be some tendency to cough. This can be removed by raising the sheet long enough to let in a little clear air. The eyes should be closed or lightly bandaged to avoid smarting."

Experiments conducted in the A. M. A. Chemical Laboratory show that Spirocide, when ignited, burns slowly with consequent volatilization of mercury. The several organic constituents serve as fuel and the copper sulphate possibly acts as a regulator of the combustion. During the burning process the cypress cones, henna, etc., are consumed but most, if not all, the copper remains behind, the mercury only being vaporized. It is asserted in the advertising pamphlet that Spirocide is indicated in all stages of syphilis, primary, secondary and tertiary, and in all its complications or sequelae. In these varying conditions one tablet daily or every other day is recommended until six treatments have been taken, though it is stated that "occasionally, depending on the severity or the duration of the disease, it may be wise to give nine treatments, the last three at intervals of two, three or more days."

Some of the results which it is claimed are obtained with Spirocide are:

> "At the completion of this course of treatment with Spirocide, all signs or evidences of syphilis are removed, and in ten days to three months all Wassermann tests prove negative. Any further treatments than the original course of fumigations are rarely needed. Wassermann's will be found uniformly negative after a period which, according to the patient, may vary from ten days to three months. These results have been obtained in cases in which Salvarsan and kindred preparations have been employed without the slightest benefit."

In a letter to the Council the "scientific observer" of the Spirocide Corporation declared:

> "We do not claim that the vaporization method is new. We do claim, however, that this combination of mercury produces more rapid volatilization, certain absorption and undoubted effect than any form of mercury administered by any method known to science without the usual danger. That this is so we are willing to prove by comparison with other methods both by ourselves and many observers scattered over the United States. . . ."

To determine the validity of the claims made for Spirocide, the Corporation was asked to present the evidence which it offered. In reply, the corporation's "scientific observer," Dr. J. Lewengood, submitted 83 case reports from a number of different observers, including those from military hospitals and a state institution, and also a reprint of an article published by him in the *New York Medical Journal,* Feb. 21, 1920, wherein were reported eight cases which received "Spirocide Treatment." In no case were controls with other methods of mercury administration carried out.

This material the Council sent to two recognized syphilographers for an opinion. One of the consultants reported that of the 83 cases, 20 dealt with patients who had also received arsphenamin medication and, therefore, these 20 cases could not be considered as evidence concerning the value of Spirocide. As to the remaining cases, he found on the whole that the history and data furnished were far from sufficient to warrant the claims made. In many of the cases emphasis was laid on the Wassermann test, as though this test were the only thing to be considered in a case of syphilis. He pointed out that in one case the reaction changed from negative to strongly positive after six treatments and that in several cases the phenomena reported cannot be explained by anything else than a desire to get a negative blood test. For example, one case had Spirocide treatment and a Wassermann, 1 plus, 55 days after; the author then reports that 19 days later the reaction had become negative and, therefore, the change must be due to Spirocide. In several of the cases reported it is even questionable if the patients were syphilitic. The consultant concluded that the evidence submitted by the Spirocide Corporation failed to prove the claims made for Spirocide. He pointed out on the other hand that patients readily become salivated from the use of Spirocide, often after 8 to 10 treatments.

The second consultant replied that in his opinion the claim that Spirocide produces more "undoubted effect than any form of mercury administered by any method known to science without the usual danger," was not substantiated. He believed that it was not as effective as some other methods, that the dosage is not as exact and that, therefore, it is not as free from danger when the drug is pushed.

The Council's two consultants were also asked whether or not, in their opinion, the administration of mercury by inhalation is a method which the Council should endorse to the extent of recognizing a preparation based on this principle. This same inquiry was also sent to the members of the editorial board of the *Archives of Dermatology and Syphilology.* Five replies were received. One advised a thorough study of the different methods of administering mercury by inhalation. The other four were opposed to such recognition on the ground that as the dosage is not exact the effects, therefore, are not certain.

In consideration of the opinions expressed by its consultants, the Council declared Spirocide inadmissible to New and Nonofficial Remedies because (1) the claims made for it are unproved and unwarranted, (2) the routine use of an inexact method for the administration of mercury is detrimental to sound therapy and (3) the name is not descriptive of its composition, thus failing to remind the physician who uses these pastils that he is administering metallic mercury.

HELMITOL OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

Helmitol is hexamethylenamin methylencitrate. It was introduced with the claim that it was superior to hexamethylenamin—which acts in acid fluids only—in that it is equally efficient whether the urine is alkaline or acid.

In 1918 the Bayer Company, which then marketed the product in the United States, was notified that the Council questioned the claims made for Helmitol and desired evidence to substantiate them. In 1919 the same notification was sent the Winthrop Chemical Company, which in the meantime had secured control of the product. Pending the submission of evidence, the Council continued the acceptance of Helmitol for New and Nonofficial Remedies with the statement that the actions and uses of hexamethylenamin anhydromethylencitrate were those of hexamethylenamin.

W. A. Puckner, Secretary.

The following report on Helmitol was made by the referee in charge of hexamethylenamin compounds and preparations, adopted by the Council and sent the Winthrop Chemical Company:

"Helmitol is a compound of anhydromethylencitric acid and hexamethylenamin. It was introduced with the claim that it would be antiseptic even in alkaline urine. The Council did not entirely trust the evidence, but continued to list Helmitol in N. N. R., merely as a salt of hexamethylenamin, until satisfactory data should become available. These have now been furnished by Hanzlik (*Journal of Urology* **4**:145) who has shown that:

"1. The alkalinity required to split off formaldehyd from anhydromethylencitric acid is greater than exists in the urine, even in advanced ammoniacal fermentation.

"2. Even if any formaldehyd were liberated in ammoniacal fermentation, it would at once become inactive by combining with ammonia.

"3. Urine after the administration of anhydromethylencitric acid actually putrefies readily.

"4. Less than 5 per cent. of the anhydromethylencitric radicle reaches the urine, the remainder being destroyed in the body.

"The only reason for the existence of Helmitol was this claim of antiseptic action in alkaline and putrefying urines. Since this has been disproved, there remains no reason for retaining Helmitol in N. N. R.; on the contrary, its retention would only tend to continue the fallacy on which it was based.

"It is, therefore, recommended that Helmitol be no longer listed with New and Nonofficial Remedies, and that this report be published, after the usual submission to the manufacturers."

In accordance with the recommendations of the report, the Council has directed the omission of Helmitol from New and Nonofficial Remedies and has authorized the publication of this report.

Correspondence

LABORATORY PROBLEMS OF BLOOD TRANSFUSION

To the Editor:—Please publish the following correction to my paper with the above title, which appeared in The Journal, Jan. 8, 1921, p. 88:

The second sentence at the top of the second column of page 90 should read: "Nevertheless, Groups I and II predominate, and collectively constitute about four fifths of the race."

In Table 4 in the same column, the per cent. figures opposite Groups II and III should be transposed.

These changes are necessary in order to place my report in conformity with the recommendations of the Committee on Isohemagglutination appearing in the same number of The Journal, page 130. Theoretically, the change from Moss to Jansky classification would permit of transposition of Groups II and III as well as Groups I and IV; but as those who have worked with the Jansky system have reported a greater number of individuals in Group II than in Group III, and the same is true of those who have worked with the Moss classification, it is obvious that these groups remain with the same in both classifications, and only Groups I and IV are transposed.

H. T. Karsner, M.D., Cleveland.

PROHIBITION, "BRIEFLY AND MILDLY" REVIEWED

Gentlemen:—Upon the receipt of your request I am reconsidering; my check for 1921 please find.

Permit me to briefly and mildly state my reason; it is your part in imposing upon us the tragedy of prohibition. Already it spells national disintegration. It is a black pall of tyranny masquerading as reform. An aggregation of sleek hypocrits took advantage of the war to force upon the American people the adoption of this bastard child of mohammedism. We now find ourselves the junior of that renowned triumvirate, Turkey, Russia and the United States. Surely an exalted companionship. We shall now find our private homes subject to search by long-nosed prohibitionists. Lexington and Bunker Hill have been forgotten. The violation of the sacred privacy of the home by King George Redcoats, was the chief cause of the Revolutionary War. Already the results of its operations give the direct lie to its advocates. They heralded from the housetops that it would remove 90 per cent. of crime. It has increased crime everywhere. Its advocates lied and they knew they lied. It will, if continued ten years, create a nation of dopes. Coca Cola will be the chief offender. Murder, suicide, perjury, private drunkenness will double their highest maximum record in ten years. I am an advocate of temperance. Temperance and self-denial must be inculcated into the people. You can't legislate these principles into the people. The solution is a moral one. You prohibitionists brand the maker of alcohol for beverage purposes a criminal. God made, drank and dispensed alcohol. Was God a criminal? I match against Hobson, Anderson, Wheeler, et al. Almighty God. They or God, which? There is no purpose in arguing this question with a doctor who thinks or thinks he thinks that alcohol has no place in medicine. Such a one is either a liar, a knave or a fool; I think all three. Now, Mr. Editor, if you are four-square you will publish this letter exactly as written here, or accepting the indictment plead nolo contendere.

Charles J. Cummings, M.D., Williamsport, Pa.

[Comment.—Being nothing if not "four-square," we "publish this letter exactly as written here."—Ed.]

RESEARCHES IN HELMINTHOLOGY AND PARASITOLOGY

To the Editor.—In 1904, the Smithsonian Institution published the "Researches in Helminthology and Parasitology," by Joseph Leidy, 1844-1891, among its miscellaneous contributions. This work has been out of print for a number of years. The issue was gratis. As there were a number of complimentary copies distributed to those who may have no use for them, and as the work is in great demand from research laboratories in comparative pathology, I should be glad to receive copies from owners who may feel disposed to contribute to the work of those engaged in similar lines of investigation.

Joseph Leidy, Jr., M.D.,
1319 Locust Street, Philadelphia.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

SIMILARITY BETWEEN VITAMINS AND HORMONES

To the Editor:—From what I have read in the editorial columns of The Journal and elsewhere, I have been greatly impressed with the striking similarity which appears to exist between the characteristics of vitamins and hormones. The question has come to me as to whether or not the vitamins are the "internal secretions" of vegetal life; are the two substances one and the same thing in effect: vitamins the hormones of vegetal life, and hormones the vitamins of the animal world?

R. J. Midgley, M.D., Buckley, Ill.

Answer.—The resemblances between those heretofore unidentified essential components of the diet or properties of foods at present designated by the term "vitamins," and hormones, have been recognized by various investigators. Thus, Lusk reminds us, in his "Science of Nutrition" (Philadelphia, W. B. Saunders Company, 1917, p. 378) that "Lafayette Mendel first suggested the use of the word 'hormone' in connection with the vitamins. Gowland Hopkins adopts the term 'exogenous hormones.' The expression 'food hormones' would also be exactly descriptive of the nature of these substances." In this country, Voegtlin and Myers (*Am. J. Physiol.* **49**:124, 1919; *J. Pharmacol. & Exper. Therap.* **13**:301 [July] 1919) have argued for the close similarity if not actual identity of the best known hormone, pancreatic secretin, and the antineuritic vitamin obtainable from yeast. According to them, secretin preparations relieve to some extent the neuritic symptoms induced in animals by deficient diets; and antineuritic vitamin preparations stimulate the flow of bile and pancreatic juice after injection into dogs. A yeast vitamin preparation which had lost its curative properties for avian polyneuritis was devoid of any stimulating effect on pancreatic secretion and bile flow. In Europe, other investigators have also maintained that vitamin B preparations made from vegetables promote the flow of various digestive secretions, thus resembling what one would expect of a succagogic hormone like gastrin or secretin. Still other investigators, however, prefer to think of the vitamins as analogous to enzymes in their mode of action, although an exact comparison fails in view of the comparative heat stability of some of the vitamins. One may equally well think of the vitamins as representing an indispensable integral part of active living cells, in which event they would have a significance comparable with that of any structural unit, such as lipoids and inorganic salts. Let us frankly admit that we know too little about either vitamins or hormones at present to make any hypothesis defensible or even worth while. In the words of a distinguished publicist, in the case of vitamins we must "first get the facts."

TANLAC

To the Editor.—Has there ever been anything published by the Council on Pharmacy and Chemistry on "Tanlac?" If so, will you kindly state the issue in which it appeared. Please omit my name.

———, N. Y.

Answer.—The Council on Pharmacy and Chemistry does not, generally speaking, take up for consideration nostrums that are sold direct to the public. It has plenty to do in giving the profession the facts regarding those nostrums that are sold, nominally at least, for physicians' prescription purposes. "Tanlac" was investigated by the Propaganda department, aided by work done in the A. M. A. Chemical Laboratory. The results were published in The Journal, June 5, 1915. Another article appeared on the same nostrum in The Journal, Feb. 26, 1916, and a more extended one in The Journal of June 2, 1917. All of this matter has been reprinted in the pamphlet "Miscellaneous Nostrums (Edition 4, price 20 cents) in which also appears an article on "Tanlac" written by Mr. Samuel Hopkins Adams for the New York *Tribune.* The Association's chemists reported, in effect, that Tanlac is a wine containing 17 per cent. of alcohol to which has been added some bitters, a small amount of laxative and some glycerin.

TREATMENT OF PSORIASIS WITH NONSPECIFIC PROTEIN AND BY AUTOSERUM METHOD

To the Editor:—1. Please describe in greater detail the treatment of psoriasis by protein shock according to the method of Dr. Cassio de Rezende, abstracted in The Journal, Oct. 16, 1920, p. 1099. 2. What is the procedure in the treatment of psoriasis by the autoserum method?

E. F. K., New York.

Answer.—1. De Rezende used horse serum to induce protein shock, because other methods of treatment had failed. It is known that psoriasis sometimes disappears after an intercurrent acute febrile disease, and also that horse serum injected into human beings sometimes induces a powerful general reaction with rise of temperature and with reactions in the skin. He hoped, by inducing a reaction in the skin, to modify conditions so that the psoriasis would be thrown off. He injected 10 c.c. of normal horse serum into the man's abdominal wall, but no effect was apparent. Two days later he repeated the injection with 20 c.c. A chill followed, with fever up to 38.8 C. (101.8 F.) and pains in the trunk and head, with much malaise and thirst. These symptoms kept up for six days, the temperature on one day reaching 103 F., but then the fever declined and the crusts peeled off, the lesions disappearing remarkably fast, like those of syphilis under vigorous arsphenamin treatment. In eight or ten days after the second injection the skin had cleared up, and no lesions are to be seen in the reproduction of the photograph taken at the end of the month.

E. F. K. is also referred to an article by Scully entitled "Intravenous Foreign Protein in the Treatment of Psoriasis," which appeared in The Journal, Nov. 17, 1917, p. 1684.

2. In the autoserum method, 50 c.c. of blood is withdrawn from the cubital vein, the blood is centrifuged, and when the serum is thoroughly separated, it is drawn off with a syringe and injected without delay. The amount of serum obtained varies between 15 and 25 c.c. The time required for the procedure is usually a half hour or less. The following references may be consulted:

Gottheil, W. S., and Satenstein, D. L.: The Autoserum Treatment in Dermatology, The Journal, Oct. 3, 1914, p. 1190.

Fox, Howard: Autogenous Serum in the Treatment of Psoriasis, The Journal, Dec. 19, 1914, p. 2190.

Willcock, J. S.: Autoserum Therapy in the Treatment of Psoriasis and Other Skin Diseases, The Journal, July 3, 1915, p. 14.

LACTATION

To the Editor:—I am making a search of the literature of lactation in the woman, covering a period ten years back, and have been disappointed at the meager results found so far. May I ask your help in running down something definite along this line? Several editorials of The Journal have been helpful and suggestive; but I want references to the actual work that has inspired them, and it occurs to me that you may be able to help me.

Frank Howard Richardson, M.D., Brooklyn.

Answer.—The Quarterly Cumulative Index for the last five years lists the following articles bearing on lactation in women:

Seifert, M. J.: Abnormal Lactation: Study of Literature, The Journal, June 12, 1920, p. 1634.

Seifert, M. J.: Eccyesis, with Prolonged Lactation: Case Report with Comprehensive Review of the Literature, *Internat. Clin.* **2**: 89, 1920.

Kirsten, F.: Effect on Lactation of Auto-Injection of Milk in Puerperas, *Zentralbl. f. Gynäk.* **44**: 292 (March) 1920.

Rollandini, M.: Influenza and Lactation, *Pediatria* **28**: 135 (Feb.) 1920.

Moore, C. U.: Reestablishment and Development of Breast Milk, *Arch. Pediat.* **36**: 609 (Dec.) 1919.

Borrino, A.: Functioning of Mammary Gland, *Pediatria* **27**: 84 (Feb.) 1919; **26**: 71 (Feb.) 1918.

Murray, E. W.: Production and Conservation of Mother's Milk, *J. M. Soc. New Jersey* **16**: 361 (Oct.) 1919.

Ainley, F. C.: Care of Functioning Breast, *California State J. M.* **16**: 361 (Jan.) 1918.

McNeil, L. G.: Effect of Ingestion of Desiccated Placenta During First Eleven Days of Lactation, *Am. J. Obst.* **77**: 377 (March) 1918.

Brown, A.: Ability of Mothers to Nurse Their Infants, *Canad. M. Assn. J.* **7**: 241 (March) 1917.

Kettner, A. H.: Advice and Treatment of Nursing Women, *Med. Klin.* **12**: 1147 (Oct. 29) 1916.

Mitchell, A. G.: The Duration of the Nursing Period in Women of the United States, The Journal, May 27, 1916, p. 1690.

Waller, H.: Deficient Lactation and Oral Sepsis, *Lancet* **2**: 785 (Nov. 4) 1916.

Emberg, H.: Means to Promote Lactation, *Hygiea* **78**: 1636 (Nov. 15) 1916.

Myers, J. A.: Fetal Development of Mammary Gland in Female Albino Rats, *Am. J. Anat.* **22**: 195 (Sept.) 1917.

Myers, J. A.: Studies on the Mammary Gland: Effects of Inanition on Developing Mammary Glands in Male and Female Albino Rats from Birth to 10 Weeks of Age, *Am. J. Dis. Child.* **17**: 311 (May) 1919; Development of Mammary Gland from Its Earliest Appearance until Period of Pregnancy, ibid. **18**: 4 (July) 1919; Histology of Mammary Gland in Male and Female Albino Rats from Birth to 10 Weeks of Age, *Am. J. Anat.* **25**: 395 (July) 1919.

TREATMENT OF ARTHRITIS DEFORMANS

To the Editor:—I have a patient who is developing arthritis deformans. Everything has been tried to alleviate her condition, but so far we have met nothing but discouragement. I have been advised to try two other measures: electrotherapy and sending the patient to Arizona (Phoenix).

Will you kindly give me your opinion as to either method of procedure, and is Arizona the proper place for arthritic patients?

S. S. L., Connecticut.

Answer.—The present knowledge of the cause of arthritis deformans includes primarily the presence of localized foci of infection with resulting bacteremia, and an associated faulty metabolism characterized by a lowered carbohydrate tolerance. The indicated treatment involves eradication of existing foci of infection, and a diet plentiful in amount, but with a moderate content of carbohydrates. If the disease is in the febrile stage, absolute rest is indicated. At the proper time there should be rational application of physiotherapy—massotherapy, hydrotherapy, electrotherapy and mechanotherapy, and calisthenic and other graduated active exercise. No specific influence may be expected from climatotherapy. Indeed, a desirable climate (Arizona or any other) without the facilities for treatment mentioned would be contraindicated. Hospital management is advisable. There are no specific remedies: either drugs, vaccines or serums.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

Connecticut: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Maine: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

Massachusetts: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

New York: New York City, Albany, Syracuse and Buffalo, Jan. 24-27. Asst., Professional Examinations, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Cheyenne, Feb. 7-9. Sec., Dr. J. D. Shingle, Cheyenne.

POSTGRADUATE EDUCATION IN GLASGOW

Plans for a better reorganization of graduate medical teaching in Glasgow were made early in 1914, and in March of that year a general commission was appointed to have the matter in charge. The breaking out of the World War required that its work be held in abeyance. In February, 1919, however, following a meeting of the commission with the medical faculty of the University of Edinburgh, the work was again taken up. As a result of the commission's work, postgraduate teaching in Glasgow is to be placed in charge of a central organization made up of ten representatives of the various teaching institutions, and eight representatives from among the teachers taking part in postgraduate instruction. It is proposed to provide practitioners' courses of from four to six weeks' duration; weekly demonstrations for practitioners in Glasgow and the neighborhood, and advanced and comprehensive courses of not less than six months' duration, as well as to provide for preparation in the specialties and research work.

Alaska September Examination

Dr. Harry C. De Vighne, secretary, Alaska Board of Medical Examiners, reports the written examination held at Juneau, Sept. 7, 1920. The examination covered 10 subjects and included 110 questions. An average of 75 per cent. was required to pass. One candidate was examined and passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Illinois	(1917)	91

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of New Zealand	(1916), (1917)*	Washington

* Graduation not verified.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Oct. 12-14, 1920. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 20 candidates examined, 19 passed and 1 failed. One candidate was licensed by reciprocity. The following colleges were represented;

College PASSED	Year Grad.	Per Cent.
Howard University	(1920)	77.6, 79.8
Georgetown University	(1917)	87.3, (1918) 79, 81.3, (1920) 76.8, 79.6, 80.8, 86.1, 90.7
George Washington University	(1920)	75.5, 81.1, 83.7, 84
University of Maryland	(1918)	77.6
University of Minnesota Medical School	(1920)*	80.8
University of Pennsylvania School of Medicine	(1919)	77.7
University of Virginia	(1919)	89.5
McGill University	(1919)	86.8

FAILED		
Meharry Medical College	(1920)	74.2

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Medical College of Virginia	(1914)	Virginia

* Diploma withheld pending completion of hospital internship.

Arizona October Examination

Dr. Ancil Martin, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 5-6, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 13 candidates examined, 8, including 1 osteopath, passed, and 5, including 1 osteopath, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Physicians and Surgeons, Los Angeles	(1916)	75.2
Northwestern University	(1919)	77.1
Tulane University	(1920)	75.8
Johns Hopkins University	(1908)	90.9
Tufts College Medical School	(1898)	94.3
John A. Creighton Medical College	(1907)	75.6
Queen's University Faculty of Medicine, Kingston	(1909)	82.9
FAILED		
College of Physicians and Surgeons, Chicago	(1910)	68.3
Hahnemann Medical College	(1915)	60.6
St. Louis College of Physicians and Surgeons	(1920)	52.1
Memphis Hospital Medical College	(1898)	48.7

Colorado October Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Oct. 5, 1920. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 24 candidates who took the physicians and surgeons examination, 4 passed, and 20, including 3 osteopaths, failed. Twenty-two candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Kansas City University of Physicians and Surgeons	(1920)	81.3
St. Louis College of Physicians and Surgeons	(1920)	76.1, 79.5
Vanderbilt University Medical Department	(1916)	75.4
FAILED		
Kansas City College of Medicine and Surgery	(1920)	46.6
St. Louis College of Physicians and Surgeons (1917) 50.6, (1918) 47.6, (1919) 66.3, (1920) 41.9, 48.5, 54.3, 57, 59.1, 61.3, 63.7, 68.3, 69, 72.9, 73.6		
University of West Tennessee	(1918)	53
Baylor University College of Medicine	(1920)	71.3

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Homeo. Medical College	(1892)	Nebraska
Chicago College of Medicine and Surgery	(1913)	Wyoming
Rush Medical College	(1911)	Illinois
University of Illinois	(1915)	Minnesota
Keokuk Medical College	(1898)	Nebraska
Louisville Medical College	(1894) Texas, (1904)	Oklahoma
Tulane University of Louisiana	(1912)	Kansas
College of Physicians and Surgeons, Baltimore	(1891)	Tennessee
Harvard University	(1919)	Mass.
Beaumont Hospital Medical College	(1888)	Missouri
St. Louis Homeo. Medical Coll. of Missouri	(1898)	Missouri
Washington Univ. Med. School	(1917), (1919), (1920)	Missouri
John A. Creighton Med. Coll.	(1900) North Dak., (1910)	Nebraska
Columbia University	(1900)	New Jersey
New York Homeo. Medical College and Hospital	(1889)	Iowa
University of Pennsylvania School of Medicine	(1914)	Penna.
University of Nashville	(1909)	Tennessee
University of Tennessee Medical Department	(1892)	Missouri

Iowa September Examination

Dr. G. H. Sumner, secretary, Iowa State Board of Medical Examiners, reports the written examination held at Des Moines, Sept. 15-17, 1920. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Six candidates were examined, all of whom passed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Northwestern University	(1920)	89.3
University of Louisville Medical Department	(1912)	77.6
Cornell University Medical College	(1919)	87.3
New York Homeo. Med. College and Flower Hospital	(1915)	90.2
Jefferson Medical College	(1920)	90.9
Trinity Medical College	(1903)	87.3

Book Notices

Die Deutsche Chirurgie im Weltkrieg 1914 bis 1918. Herausgegeben von August Borchard, Geh. Medizinalrat, Professor in Berlin-Lichterfelde, und Victor Schmieden, o. ö. Professor der Chirurgie, Univ.-Klinik, Frankfurt a. M. Cloth. Two volumes. Second edition of "Lehrbuch der Kriegs-Chirurgie." Leipzig: Johann Ambrosius Barth, 1920.

This is a composite work, of which the first edition appeared early in 1917. The appearance of this, the second edition, the editors state in the preface, was unavoidably delayed, and in the meantime the war had come to a sudden and unexpected end. However, they did not think the work superfluous for the reason that for many years yet surgeons will be busy with the results of war injuries.

War surgery is defined as accident surgery, and the principal difference between it and peace surgery lies in the fact that in war surgery the wounded do not remain in the care of one person, but physician and hospital are constantly changing, the patient passing through all stages from the battlefield to his home. The adjustment of the principles and practice of surgery to war conditions is the chief task of the surgeon.

No chapter on war surgery is of greater significance as indicating medical progress than that concerning the treatment of infected wounds. The following quotation, therefore, is of interest: "It seems like a tragic comedy (Treppenwitz) of medical science that surgery, which before the war, from the heights of its aseptic tower viewed with contempt the obsolete antiseptics, should return contritely to the old disinfectants, such as chlorin and carbolic acid, the first time that the task was again presented of treating badly infected wounds in large numbers." The Carrel-Dakin method was tried as soon as it became known, but its use was considered impossible where there were many wounds, and ordinarily the technic was too time-consuming and too laborious. It is claimed that "a disadvantage [of the Carrel-Dakin treatment] is the excessive use of bandage material and the penetrating odor of chlorin which pervades Dakin-treated patients even in otherwise well-aired rooms."

The infiltration of the tissues surrounding a wound with a dilute solution of vuzin, a quinin derivative, as a prophylactic measure against infection is lauded, but, after all, it is stated that the value of the method is not yet established.

Concerning nerve suture, the results in cases observed for ten months or more show nearly 60 per cent. failures. The percentage of successes was much greater in nerves of the upper extremity than in those of the lower extremity. The frightful mortality rate of gunshot wounds of the abdomen was between 92 and 93 per cent., exclusive of those who died on the field. Most of the German surgeons claim never to have seen a case of spontaneous recovery when the intestine was injured, and believe, therefore, that every recovery following an operation is a life saved. That very few were saved is evidenced by the high mortality rate.

There are two volumes to the work, the first dealing with general and the second with special subjects. As a report of the surgery of the great war, as viewed by "the other side," the work is both interesting and instructive.

Functional Nerve Disease. An Epitome of War Experience for the Practitioner. Edited by H. Crichton Miller, M.A., M.D. Cloth. Price, $4.50. Pp. 208. New York: Oxford University Press, 1920.

The preface states that "the object of this volume is to present to the medical practitioner a simple and concise picture of the functional neuroses of war-time in such a manner that he may be able to apprehend the outstanding lessons taught by the experience of the Great War in this department of medicine," and this object is fairly well attained. The book is made up of twelve chapters by eleven authors, each chapter a discrete essay. Three relate to the physical factor (physical etiology, differential diagnosis, physical treatment); four to the hysterical factor (mechanism of hysteria, treatment by suggestion and persuasion, repression and suppression, regression); two to the anxiety factor (the mother complex, psychanalysis), and three to the management of the neurotic (institutional, individual, summary). The exposition of each subject is excellent, but the general practitioner will have some difficulty in adjusting values and in selecting from the mass of advice the treatment for a given case. The summary, however, by William McDougall, is an exceedingly good digest of the whole matter. Indeed, if one will read this chapter (Chapter XII) first, he will find the others more readily digestible. For a small book, this work contains a deal of information and abundant ideas. No one can read it without having his vision of the psychoneuroses widened, his grasp of an elusive subject made firmer, and his usefulness as a practitioner increased.

Diagnostik und Therapie der Kinderkrankheiten. Mit speziellen Arzneiverordnungen für das Kindesalter. Ein Taschenbuch für den Praktischen Arzt. Von Prof. Dr. F. Lust, Oberarzt der Universitäts Kinderklinik in Heidelberg. Second edition. Price, 70 marks. Paper. Pp. 471. Berlin: Urban & Schwarzenberg, 1920.

This is a book for practicing physicians, as its size implies. It is therefore greatly condensed. The first part of the book consists of a short treatise on the normal development of the child, and contains all the essential features. This is followed by a cursory consideration of breast and artificial nourishment, and this in turn by several chapters on the diagnosis and treatment of the various diseases classed according to systems of the body. The salient features of each and its principal diagnostic points are brought out. The therapeusis is seldom more than a suggestion of what can be done. The second part consists of an alphabetical list of drugs with their dosage and the principal uses to which they are put; a short chapter on poisons, and an extensive list of German institutions for the care of children. There is no similar book in English. Taken by and large, it contains much useful information. This is especially true of the diagnostic points and list of drugs.

Altitude and Health. By F. F. Roget, Professor in the University of Geneva. Cloth. Price, $5. Pp. 186. New York: E. P. Dutton & Company, 1919.

Three lectures delivered in London in 1914 for the Chadwick Trust furnish the text for this book. The first lecture discusses climate, Alpine and northern; the second takes up the air at altitudes, and the third is devoted to a discussion of sunlight and sun heat. The author is not a physician, but his words are none the less enlightening for the medical man. He is an advocate of the healthful effect of cold, altitude and sunlight, and he adduces much evidence in support of his contentions, even going so far as to declare that in war a northern people will always prove victorious when in combat with a southern people. He asserts that all great deeds have been done by people from the North—and even health is best in the North. Much space is devoted to the discussion of the sunlight treatment of tuberculosis. On the whole, the book is well written and readable; the statements of fact are generally correct, and the author's views are those held by most medical men as to the wholesome effect of cold and sunlight. The book can be commended to both physician and layman.

Taschenbuch der Magen- und Darmkrankheiten. Von Dr. Walter Wolf, dirig. Arzt der inneren Abteilung am Konigin-Elisabeth-Hospital, Berlin-Oberschöneweide. Second edition. Paper. Price, 20 marks. Pp. 199, with 18 illustrations. Berlin: Urban & Schwarzenberg, 1920.

The majority of taschenbücher and handbücher that have come from the German press during recent years have been rather large volumes. The present book, however, can be readily carried in one's coat pocket. The first hundred pages are devoted to a consideration of methods of diagnosis, such as history taking, physical examination and laboratory work. For a clear and concise description of the laboratory methods and the important points of interest obtained by roentgen examination of the stomach and intestine, nothing better could be desired. That portion dealing with clinical disturbances of the stomach and bowel must necessarily be cramped, as the whole subject is covered in approximately eighty pages. It is unfortunate that greater detail could not have been given to some of the subjects. On the whole, this little book serves its purpose as an introduction to the subject and as a simple manual for the student about to begin the study of gastro-intestinal diseases.

Medicolegal

Puncture by Surgeon of Artery Out of Place

(Aetna Life Ins. Co. v. Brand (U. S.), 265 Fed. R. 6)

The United States Circuit Court of Appeals, Second Circuit, in affirming a judgment in favor of plaintiff Brand, on a policy of accident insurance issued by the defendant company, says that the plaintiff had a hernia and voluntarily submitted to an operation by a surgeon whose skill was not impugned. While the surgeon was suturing the incision usually made in such cases, his needle pricked the deep epigastric artery, which in such an operation as was this is not exposed to view. The surgeon used his needle in the usual way, and put it exactly where he intended to put it; but the epigastric artery was not where such arteries are in the usual or normal man; therefore his artery was touched. The puncture was closed, the operation for hernia concluded, and afterward testified to as having been successful. Some time after the operation, however, one of Brand's legs became gangrenous, and was amputated. By testimony acceptable to the jury, the reason for the gangrene was that the surgeon's needle caused a blood clot in the epigastric artery; that clot passed on and into the artery supplying the leg, and nature failed to dissolve or absorb it, wherefore the leg below the arrested clot received no nourishment and gangrene ensued. The plaintiff's insurance was "against loss resulting directly and independently of any and all other causes from bodily injuries effected solely through external, violent and accidental means," with the further provision that the policy did not "extend to or cover any accidental bodily injury caused or contributed to, directly or indirectly, by sickness or disease." The jury was instructed, in substance, that if the gangrene of the plaintiff's leg and the consequent necessary loss of the latter, was caused by the pricking of the artery and ensuing blood clot, the leg was lost by external, violent and accidental means; and it was further said that there was no evidence that Brand's hernia was "caused or produced by any sickness, or accompanied by any sickness."

It was urged that the last statement gave the jury the impression that hernia is not a disease. But the court does not think that there was any injurious error. Assuming that hernia is, or may be, a disease, Brand's hernia was not a cause which produced or contributed to the pricking of his artery, but a condition which exposed him to that possibility. There was no evidence from which any jury could have found as a fact that his hernia caused the pricking of his artery. Such a verdict would have been as farfetched as to find that, had the ceiling fallen while he lay strapped to the operating table, the hernia that brought him to the table caused or contributed to the injury produced by the falling plaster.

The court has no doubt that the bodily injury was effected solely by violent and external means. That the degree of violence is immaterial is fundamental, and even an expected and usual force may be violent enough to injure.

The point in this case was whether, on the evidence as established by the verdict, Brand's leg was lost by accidental means, and since the jury established the causal connection between the pricked artery and the lost leg, the question became this: Was the surgeon's puncture accidental? Every suggestion, and the court thinks every conceivable, objection to answering this question in the affirmative, was summed up in the perfectly true statement that the surgeon put his needle just where it ought to have gone, and injury resulted solely because the artery was where it ought not to have been. It makes no difference that the impact or force preceding the injury is designed by the person insured. And all the cases agree that, in construing this clause so long found in accident insurance policies, it is the cause and not the consequence that must be regarded in fixing liability; and the court is unable to perceive why one causal element may not be found in the peculiarities, unknown to the sufferer, of his own body. The policy, it must be remembered, too, contained no exception against men with corporal peculiarities, and the crucial question was not changed by Brand's singular configuration; the inquiry still was: What is meant by the word "accidental," and would its definition cover this incident? "If in the act which precedes the injury something unforeseen, unexpected, unusual occurs, which produces the injury, then the injury has resulted through accidental means." The thing that was unexpected and unusual in this instance was the perhaps congenital misplacement of an artery, and this element of the act of sewing up the cut was, within the definition, as truly accidental as would have been the case had the surgeon's needle broken.

Wife Allowed Damages for Husband Infecting Her with Venereal Disease

(Crowell v. Crowell, N. C.)

The Supreme Court of North Carolina recently affirmed in this case a judgment in favor of a wife who asked for actual and punitive damages because, as she alleged in her complaint, her husband contracted a venereal disease and "took advantage of his marital relation with said plaintiff and infected her with said vile and loathsome disease." On the issues submitted, after a demurrer which the defendant filed to the complaint had been overruled, the jury found that he "wrongfully and recklessly infected the plaintiff with a loathsome disease as alleged in the complaint," and assessed the plaintiff's damages at $10,000. The defendant excepted, among other things, to the overruling of his demurrer to the complaint, and to the jury being charged that:

> "If you find as facts from the evidence, and by its greater weight, that the defendant knew that he was infected with a foul and loathsome venereal disease; and thereafter, although having such knowledge, he wrongfully had sexual intercourse with the plaintiff, and thereby infected her with said disease, that he did so wilfully and recklessly—that is, in reckless and wanton disregard of the plaintiff's rights, being indifferent to her welfare, and not caring whether he infected her or not—then you should answer the first issue, 'yes.' She would be entitled to a just and reasonable compensation for whatever injuries she may have sustained as a necessary and proximate result of the defendant's wrong. She would be entitled to a just and reasonable compensation for any physical or mental suffering which followed as a necessary and proximate result of the defendant's wrong. If you come to the issue of damages, you might, if in your discretion you saw fit, allow the plaintiff punitive damages."

The supreme court finds no error in the rulings of the trial judge. It says that, practically, the only point presented by the appeal was whether or not a cause of action was alleged in the complaint. There can be no question, in this day, that if the defendant had violently assaulted his wife and caused serious bodily injury to her person, and humiliation to her, she could maintain an action for damages against him. Aside from the question of assault, it is a well settled proposition of law that a person is liable if he negligently exposes another to a contagious or infectious disease. *A fortiori,* the defendant would be liable in the present case whether guilty of an assault or not, and independent of the fraud or concealment.

In *Schultz* v. *Christopher,* 65 Wash. 496, and in *Bandfield* v. *Bandfield,* 117 Mich. 80, the courts recognized that the infection of the wife with venereal disease by the husband was a tort, but held that, under their statutes, which differ from those in North Carolina, the wife could not sue her husband for a tort upon her person. But this court must hold that the North Carolina statute of 1913, Ch. 15 and Rev. 408, gave the wife a right to recover damages for injuries to her person, or for other torts sustained by her, against her husband as fully as against any one else. The true ground for the exemption, at common law, of the husband from liability to the wife for his torts, was because by marriage she became his chattel. All the conditions and customs of life have changed. Many laws become obsolete, even when not changed by statute and the constitution, as this has been; and no principle of justice can maintain the proposition in law, or in morals, that a debauchee, as the defendant admitted himself to be, can marry a virtuous girl, and, continuing his round of dissipation, keep up his intercourse with lewd women, contracting, as he admitted, venereal disease, communicate it to his wife, as the jury found, subjecting her to humiliation, and ruining her physically for life, and seeking to run off with all his property, abandoning her to utter indigence; yet be exempted from all liability by the assertion that he and his wife are one, and that he being that one, he owes no duty to her of making reparation to her for the gross wrong that he has done her.

Damages Allowed Physician for Injury to Knee

(Terry Dairy Co. v. Parker (Ark.), 223 S. W. R. 6)

The Supreme Court of Arkansas, in affirming a judgment for $10,000 damages in favor of plaintiff Parker, a physician and surgeon, for injury by an automobile truck that struck him, says that the knee joint was torn apart and twisted as he went down, which resulted in the big muscle's being torn entirely loose from the knee cap. There was an opening left from which the synovial fluid oozed out and ran down his limb. This injury was permanent. He had to use crutches when he moved about in his office. At the time of his injury he was enjoying a practice which netted him from $3,000 to $4,000 a year. Since his injury he had been able to earn only a mere pittance. He had an expectancy of 13 years. The jury were justified under the evidence in returning a verdict in the sum of $10,000. The verdict was not excessive.

Society Proceedings

WESTERN SURGICAL ASSOCIATION

Thirtieth Annual Meeting, held at Los Angeles, Dec. 3-4, 1920

The President, DR. ARTHUR T. MANN, Minneapolis, in the Chair

Control of Chronic Pain

DR. FREDERICK G. DYAS, Chicago: Injections of alcohol of varying strength have proved satisfactory in a large number of cases of facial neuralgia, and have produced analgesia for periods of from six to eighteen months. Thus, the efforts to short-circuit the painful area in facial neuralgia constitute the first accurate, scientific and safe method of combating chronic pain. The short-circuiting of the painful area is accomplished by nerve blocking in the form of neurectomy or of intraneural injection. In relatively small, superficial, malignant lesions the same end may be accomplished by the healing of the ulcer by radium. This is especially true of lesions about the orifices of the body. Nerve block relieves the pain during the period of healing. Chronic pain due to some condition other than malignancy is, perhaps, best treated by salt solution, procain, apothesin or quinin and urea, because these produce only temporary loss of pain conduction. In painful states due to malignancy in which loss of motor function is of little moment, alcohol injections of the nerves or neurectomy is indicated. In cases of recurrent mammary carcinoma with great swelling and edema of the upper extremity, permanent block of the brachial plexus is indicated either by alcohol injection or by nerve resection.

DISCUSSION

DR. JAMES F. PERCY, San Diego, Calif.: The extreme of physical suffering occurs with destruction of the pelvic bones by carcinoma in women. The only help for them is the epidural injection of some local anesthetic, usually procain, into the cauda equina.

Epidermoid Cysts

DR. H. H. SHERK, Pasadena, Calif.: Epidermoids are evidently of fairly frequent occurrence, but are almost invariably unrecognized. They are almost always mistaken for sebaceous cysts. They may be either traumatic or embryonic in origin. The pearly, horny and laminated contents make their recognition easy.

Harelip and Cleft Palate

DR. HARRY P. RITCHIE, St. Paul: Harelip and cleft palate are not two separate and distinct entities, but simply a degree of defect in the same embryologic process of fusion. The paramount anatomic situation affecting the surgical repair from all angles is the condition of the alveolar arch. The various defects should be considered in groups. Each individual case should be placed in one of four groups. Plasticity of the bones of the face holds for three months and in some cases longer, and this makes early lip repair imperative. The most reasonable basis of closure is to follow nature's path and form.

DISCUSSION

Dr. W. T. Coughlin, St. Louis: Far better results are obtained in this work by closing layer by layer, and by approximating the mucous membranes without putting the stitch into the mouth. It is worth while in harelip to look for the muscle ends, as they can be grasped and approximated.

Dr. C. D. Lockwood, Pasadena, Calif.: I have followed the simple procedure of taking a pair of compasses and measuring the distance on both sides accurately from the location of the alae nasi to the junction of the skin with the mucous membrane on the lip margin. From this point another measurement is made on the mucous membrane. Exactly the same measurements are made on the two margins of the harelip, whether it be single or double. The edges are freshened, and the points marked by the compass are connected; if these are approximated accurately, perfect union will take place.

Empyema

Dr. Arvine E. Mozingo, Indianapolis: It is not definitely known who first treated empyema through a tube held airtight in the chest wall with a view of maintaining negative pressure and preventing collapse of the lung. I was able to follow up 80 per cent. of 138 cases treated by the method I have previously described (The Journal, Dec. 21, 1918, p. 2062) and found no recurrence. The question is often asked, Is the drainage free in the closed method? It is not free, for it is under absolute control. Nor is the drainage continuous, but intermittent, and the cavity under constant negative pressure. The secretion can be removed at will, and is usually removed from one to three times daily, at intervals of from two to twenty-four hours, according to the case. I have never seen an empyema case so serious that operation by the closed method could not be performed. In half of my series of forty-five consecutive cases, the operation was performed in the presence of an active pneumonia or some other serious complication.

Surgery of Mediastinum

Dr. Arnold Schwyzer, St. Paul: Purulent infections of the anterior mediastinum apart from direct trauma are mostly due to a breaking down of lymph glands or to the advance of an abscess which started in the neighborhood. I saw one case of abscess along the pericardium on the right side. It originated from a tuberculous chondritis of the fourth, fifth and sixth ribs. It had apparently started on the under surface. The abscess formed a narrow cavity of about 4 or 5 cm. depth along the pericardium. The whole of the affected cartilages was thoroughly excised. Iodoform was rubbed into the wound; the wound was closed up to a fine silkworm drain, and healing occurred promptly. Another case was one of lymph node abscess, taking its origin from what seemed to be one of the right pretracheobronchial glands. The abscess was located behind the second and third cartilages on the right side. At the depth of the abscess a somewhat melanotic but principally chalicotic necrosed lymph gland the size of a pealed almond was found. The patient was a stonemason, which explained the chalicosis. Healing took place after a few weeks. The patient returned about three years later with a similar condition on the other side. This time the abscess pointed in the sternal notch near the head of the left clavicle; and after incision we could enter an abscess cavity downward and inward behind the manubrium sterni, again about 5 cm. in depth. Again a necrotic mass came out. It was a necrotic lymph node of the anterior mediastinum, belonging to the group which lie in the angle of division of the superior vena cava into the two innominate veins, and which Bartels describes as lymphoglandulae anguli anonymi.

Movable Bodies in Knee Joint

Dr. O. F. Lamson, Seattle: Among the movable bodies to be considered are: osteocartilaginous loose bodies; dislocated semilunar cartilage; degenerated fat pads, due to chronic disease, such as tuberculosis and syphilis; sesamoid bone in the internal head of the gastrocnemius; a loose body, and joint lipomas. With manipulation, forced flexion and sudden extension, the offending loose body may usually be dislodged. Only surgery will give lasting relief. During operation the joint should be subjected to as little trauma and injury as possible, and more than the ordinary care should be taken to guard against infection. If the complete exposure of the joint is required, the longitudinal division of the patella may be imperative. But this procedure naturally entails more injury to the joint than the safer longitudinal incision of the external surface of the joint. The diagonal incision following the internal line of the joint is preferable for the removal of the internal semilunar cartilage and other free bodies within the joint.

DISCUSSION

Dr. M. S. Henderson, Rochester, Minn.: The loose bodies in the case cited seem to have their origin, not from the internal condyle of the femur, but from the tibia. This is very unusual, and the only instance that I know of such an origin of the body being demonstrable.

Dr. E. M. Sala, Rock Island, Ill.: I reported a case several years ago in which five loose bodies in the knee joint were removed by open operation, and the knee put at rest for six weeks with perfect restoration of the joint.

Dr. John P. Lord, Omaha: In a case I saw some years ago, I made a free transverse section, including the patella, clipping off some of these bodies which were attached anteriorly. The free access afforded by the ample exposure permitted the removal of the bodies in the condylar pouches. The largest of these bodies was 1¾ inches in diameter, and was doubtless formed by a section of the joint becoming detached.

Recurrent or Habitual Dislocation of Shoulder

Dr. M. S. Henderson, Rochester, Minn.: Of my twenty-three patients, the average age was 28 years. There were twenty males and three females. They were equally divided as to sides. Trauma was mentioned as the initial cause in every case but one. There were but two epileptics; nineteen patients were operated on, and three of these are so recent that they cannot be classified as to results. The type of operation used was capsulorrhaphy. Seven patients were cured; four patients were decidedly improved; that is, they have had very few dislocations since and are satisfied with the operation; one patient was improved; three operations were failures, and one patient was not traced.

Removal of Ventral Tumors of Sacrum by Posterior Route

Dr. Herman E. Pearse, Kansas City, Mo.: The patient is placed on his face with the pelvis well raised and thighs flexed. An incision is made from just posterior to the anus upward in the middle line and carried above the coccyx; then, curving to the left, it follows the left edge of the sacrum. It is carried down to the bone and dissected outward right and left, exposing the edges of the sacrum and the sacrosciatic ligament, and carrying the edges of the gluteal muscle. The third sacral nerves must be identified and the sacrum divided below them. They should, if possible, remain intact. The central canal of the sacrum should not be opened. The attachment of the sacrosciatic ligament to the coccyx should then be severed; also the lower sacrum should be freed with a blunt dissector from all connections. The amputation is best performed with a wire saw. The use of chisel and mallet here causes shock. All bleeding is arrested and the growth attacked according to its location, attachment and adhesions. From this point the operation may be of any severity; usually it will be exceedingly simple.

Technic and After-Treatment in Operations on Prostate

Dr. Arthur E. Benjamin, Minneapolis: The functional results following certain types of operations on the prostate are poor, or there may be a stricture or a fistula. The mortality rate is relatively high for the suprapubic operation, but the functional result and comfort of the patient have influenced most surgeons to adopt this method of operating. The function of the kidneys and the condition of the general health of the patient, as well as the local infection, should be treated before and subsequent to the operation. Vaccine treatment sometimes assists in overcoming infection.

DISCUSSION

Dr. N. J. Maclean, Winnipeg, Canada: I had two patients who had stone formation in the bladder following prostatectomy. One patient was passing small stones continuously, and the other patient, three years after the operation, had the bladder filled with large stones, as large as small hen's eggs. The after-treatment is important. I put in a large tube, and after twenty-four hours aspirate the urine that is in the bladder and put in argyrol solution. This is left in the bladder, and treatment is repeated once a day until the wound is closed. Since I have adopted this procedure I have not had postoperative stone formation.

Are We Getting Satisfactory Results in Stomach Surgery?

Dr. B. B. Davis, Omaha: From 15 to 40 per cent. of the operations performed for gastric ulcers are failures. At least, they do not restore the patient to sound health. The poor results following gastro-enterostomies have too often been set down as due to faulty technic, absence of organic lesions justifying the operation, incorrect diagnosis, etc. It is my opinion that active ulcers are better dealt with by excision or, better still, by cauterization. It is also important, when operating on ulcers, to find and remove the focus of infection from which the ulcers had their origin. The gallbladder and the appendix are always under suspicion, and no operation is complete until these organs have been inspected carefully and removed unless normal.

DISCUSSION

Dr. E. M. Sala, Rock Island, Ill.: If the anastomosis is made as near to the pylorus as possible, its contents will have to go up hill, to to speak, and thus be a more natural process.

Dr. Edward C. Moore, Los Angeles: If we were all satisfied with gastro-enterostomy, there would not be so many operations to correct this difficulty. I hesitate very much to perform a gastro-enterostomy in duodenal ulcer in which there is no obstruction.

Dr. Arnold Schwyzer, St. Paul: Gastro-enterostomy and the Finney method have advantages; but to decide which is preferable, one has to consider his own experience. In the last fifteen years I have performed about 140 stomach operations. There were many gastro-enterostomies, and about ten pyloroplasties. The results after pyloroplasty were not quite as good as the results of gastro-enterostomy.

Dr. Herman E. Pearse, Kansas City, Mo.: Gastro-enterostomy is not a drainage operation. The operation is most successful that places the stoma at the point of greatest acidity where alkaline bile can relieve the acidity, whether it be near the pylorus or fundus.

Laminectomy for Meningitis

Dr. Roland Hill, St. Louis: In cases of meningitis due to streptococcus or staphylococcus, operation should be performed. Whether or not it will be found advisable to operate in those cases of meningitis following influenza seems an open question. I have known of a few of these cases in which operation was performed, but have never known of one patient operated on early nor have I known a recovery to follow laminectomy. Recovery has followed repeated spinal puncture, and it does seem only rational that laminectomy should yield infinitely better results than spinal puncture if operation is performed before the cerebrospinal channels are blocked by inflammatory products or adhesions.

Section of Anterolateral Tract of the Cord for Relief of Intractable Pain Due to Spinal Cord Lesions

Dr. W. E. Leighton, St. Louis: The cord is exposed in the region of the fourth, fifth or sixth thoracic segments by the usual laminectomy; removal of two laminae are, as a rule, sufficient for proper exposure of the cord. The dura having been opened, the dentate ligament is identified, grasped with a mosquito forceps and severed from the dura. Traction on this ligament will rotate the cord so that the anterolateral tract may readily be exposed. A small cataract knife with its back toward the dentate ligament is inserted just in front of the ligament and passed to a depth of 2.5 mm. and brought out behind the origin of the anterior roots, making an incision approximately 2.5 mm. deep by 3 mm. wide. The section may be unilateral or bilateral, depending on the nature of the lesion. Following the section, the dura is closed and the laminectomy wound sutured in layers. Following the operation, careful nursing must be carried out as the patient has lost both pain and temperature sense if the operation has been performed correctly and the patient must also be warned of this. My experience in four cases has shown that the operation will give permanent relief in any lesion below the lower thoracic level. In cases of gastric crisis I believe the section will have to be made much higher than the sixth thoracic segment, and I see no reason why it should not be made as high as the second or third thoracic. I would also suggest to add section of all posterior nerve roots which are present in the field, as this would destroy sensory impulses which reach to a higher level and which are not touched in the section of the anterolateral columns, the site of section including only pain impulses which have crossed to the spinothalmic tract below this level.

Fifth Root Resection Under Local Anesthesia

Dr. William T. Coughlin, St. Louis: The patient is operated on while sitting in a dental chair. A linear incision, from 3½ to 4 inches long, extends upward and backward from the zygoma a little more than the breadth of a thumb in front of the tragus. No transverse cut is made. The skin and underlying tissues along this line are infiltrated layer by layer. A similar infiltration is made along two lines parallel to this and from about three-fourths to 1 inch from its beginning at the zygoma and ascending 1½ inches. The anesthesia used is 0.5 per cent. procain with epinephrin, 6 drops per ounce. The aponeurotic layer is incised along the upper margin of the zygoma from the incision each way for a distance of from three-fourths to 1 inch; the fibers of the temporal muscle are split as done by Abbe, and good retraction is made. The periosteum is scraped away from the surface of the squama and wing of the pterygoid. An opening is made low down with a burr, as in Doyen's method, and enlarged to about the size of half a dollar. The dura is slowly separated from the bone by Tiffany's method. The middle meningeal is always tied before being cut. It is necessary to inject procain around the region of the vessel before tying the artery. It is necessary to inject procain into the third division before commencing to clean it; also to inject into the ganglion before opening its sheath. When the root is reached there is an escape of cerebrospinal fluid. The inner aspect of the dura at its opening around the root is very sensitive. Here a pledget of cotton soaked in from 2 to 4 per cent. cocain solution is laid for a minute or until one can proceed without causing pain. A hook is passed around the root without making any attempt to separate the sensory from the motor root, and the operator may cut or avulse as best suits his fancy, since both seem to give equally as good results.

True Functions of a Tuberculosis Dispensary.—The original idea in the mind of the distinguished founder of the dispensary system for dealing with tuberculosis was that it should act primarily as a "clearing-house" for the different types of the disease. Within its walls the cases were to be sorted, classified and placed on the various roads that lead to recovery from, or amelioration of, the disease as it affects the patient or the community. So far as it does not fulfil this particular function, this indispensable unit in the fight against tuberculosis is not being used in the right manner. The gospel of prevention, too, is here preached by tuberculosis officer and nurse alike. In certain cases treatment is dispensed; and it is just at this point that a considerable amount of latitude has crept in. It is a mistake to allow the dispensary to assume the functions of a hospital outpatient department. Certain specialized forms of treatment, such as injections of various kinds, may legitimately be given, and no one will seriously contend that this practice should be abolished. In the interests of the public at large it is necessary that more attention should be bestowed on the dispensary as a preventive unit.—*Med. Officer* **24**:213, 1920.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, 1920, **110**, No. 5

- *Some Newer Concepts in Digitalis Therapy. C. Eggleston, New York, —p. 626.
- *Roentgenologic Aspects of Lower Right Quadrant Lesions. F. H. Baetjer and J. Friedenwald, Baltimore.—p. 639.
- Errors in Diagnosis and Treatment of Duodenal Ulcer. J. D. Dunham, Columbus, Ohio.—p. 647.
- *Corrections Versus Compensation of Physical Defects. R. I. Lee and L. T. Brown, Cambridge, Mass.—p. 651.
- *Clinical Study of Wassermann-Fast Syphilis, with Special Reference to Prognosis and Treatment. J. H. Stokes and G. J. Busman, Rochester, Minn.—p. 658.
- Influenzal Pneumonia: Certain Radiologic Features of Disease in Epidemic of 1920. J. A. Honeij and C. R. Scott, New Haven, Conn. —p. 669.
- *Latest (1920) Recrudescence of Influenza. M. E. Alexander and E. L. MacDonald, Waterbury, Conn.—p. 674.
- Case of Extradural and Subdural Abscess Following Suppurating Frontal Sinusitis and Osteomyelitis of Frontal Bone. J. H. Bryan, Washington, D. C.—p. 687.
- Benign Decidual Tumors of Uterus. J. B. Nichols, Washington, D. C. —p. 697.
- *Human Prehallux. J. J. Monahan, Chicago.—p. 708.
- Gravity Resisting Ability of Circulation; Its Measurement and Significance (Blood Ptosis). C. W. Crampton, Battle Creek, Mich.—p. 721.
- *Pernicious Anemia. J. G. Carr, Chicago.—p. 737.

Digitalis Therapy.—The proper administration of digitalis, Eggleston says, demands the ability to judge the degree of digitalization which is being produced because all of the digitalis bodies can cause serious poisoning and because the nature of heart failure is such that incomplete recovery or death may result from inadequate treatment. The more important criteria by which the degree of digitalization can be judged are discussed. Of the many proprietary preparations and specialties which are offered with high claims for oral administration none is superior to the powdered leaf or tincture of high grade, and most are decidedly inferior. All are quite costly and the price of some is exorbitant. If one feels impelled to employ one of these, Eggleston says that digipuratum or digipoten will be found to be the best, but these are merely carefully assayed, purified preparations from good digitalis leaves.

Roentgen-Ray Diagnosis of Abdominal Lesions.—As with other lesions, Baetjer and Friedenwald say, the lower right quadrant disturbances should be studied in conjunction with the clinical signs. If the roentgen-ray interpretation is diametrically opposed to all the clinical findings, and the two methods cannot be harmonized, it is probably wise to adhere to the clinical interpretation. In other words, no one method of diagnosis must be looked on as absolute.

Physical Defects and Disease.—Lee and Brown are not prepared to support the theory that many ailments of the nervous system or of the gastro-intestinal system are related to bad mechanical use of the body. However, they state that there is a frequent association of such symptoms with the mechanical use of the body. Their investigations have shown that albuminuria of young men which is not a true nephritis is associated almost exclusively with very bad mechanical use of the body. They believe that a sufficient case can be made out of correction as against compensation on the basis of actual ailments of the back and feet, generally conceded to be due to faulty use of the body even without the addition of possible symptoms connected with other organs. Physical training can only accomplish what it is expected to accomplish when it is based on satisfactory fundamental principles and when bodily mechanics is regarded in a similar fashion as are the disturbances of any other system of the body.

Wassermann-Fast Syphilis.—Of 458 syphilitic patients who had received from twelve to twenty-nine arsphenamin injections, combined with mercurial inunctions, the average being fourteen injections and ninety inunctions in eleven months, 6.6 per cent. of primary and secondary cases and 101, 22 per cent., of latent, late and hereditary cases (average duration thirteen years remained persistently Wassermann positive. Sixty-five per cent. of the patients with cardiovascular syphilis had aortitis, and 60 per cent. had myocardial changes. Of the neurosyphilitics, 40 per cent. had paresis and 50 per cent. had clinical tabes dorsalis. Fifty per cent. of patients with neurosyphilis had cardiovascular syphilis also. Gastric and hepatic syphilis were recognized in 52 and 47 per cent., respectively, of the visceral cases as against only 14 per cent. presenting recognizable splenic involvement. Patients with cutaneous syphilis showed the familiar immunity from neurosyphilis and the reverse. While pyogenic foci were present in 74 per cent. of the patients with resistant Wassermann reactions, no frank etiologic connection was apparent. The same was true of alcohol, which was used by only 12 per cent. of these patients. There was no evidence that Wassermann fastness is the result of infection with any special strain of organism. A persistently positive serum Wassermann reaction seems to be an accompaniment of grave rather than of trivial syphilis. Wassermann-fast patients should not be discharged from periodic careful reexamination, with special reference to the cardiovascular and nervous systems throughout life. The frequency of such examinations should be dictated by the gravity and extent of the original process and the degree of apparent resistance to treatment.

Recrudescence of Influenza. — Laboratory and clinical studies of 100 consecutive cases treated were made by Alexander and MacDonald. The rapid mode of spread and the numerous instances in which several members in the same household were simultaneously affected, they believe justify the opinion that the infection was epidemic in character. The prostration, headache pain in the back, the epistaxis, the normal leukocytosis, seem to point clinically that the infections were cases of influenza or la grippe. The finding of the bacillus of Pfeiffer in the throat smears of 57 per cent. of persons examined and in the sputum of 62 per cent. and in the blood culture from one case add a great deal of weight to this conclusion. The study of the sputum and the blood cultures in the pneumonia cases, as also the clinical development and prognosis, lead the authors to the conclusion that in the majority of instances the bacillus of Pfeiffer was to a greater or lesser extent responsible for the pneumonic consolidation either by occurring in combination with the pneumococcus and allied organisms, or else by leaving a locus minoris resistentiate in the lungs for the invasion of the pneumococcus and streptococcus.

Human Prehallux.—From its position, its time of development and its association with disease, Monahan looks on the human prehallux as an evidence of foot degeneration, a reversion to a lower form of foot structure brought about by the devoluting influences of the constitutional diseases with which it is associated.

Pernicious Anemia.—Carr presents the results of his analysis of 148 cases discharged from the Cook County Hospital under the diagnosis of pernicious anemia.

American Journal of Physiology, Baltimore

Dec. 1, 1920, **54**, No. 2

- *Distribution and Quantitative Action of Vagi as Determined by Electrical Changes Arising in Heart on Vagus Stimulation. E. W. H. Cruickshank, St. Louis.—p. 217.
- *Influence of Glands with Internal Secretions on Respiratory Exchange. D. Marine and C. H. Lenhart, Cleveland.—p. 248.
- Studies on Visceral Sensory Nervous System. III. Lung Automatism and Lung Reflexes in Reptilia (Turtles: Chrysemys Elegans and Malacoelemmys Lesueurii. Snake: Eutenia Elegans). A. J. Carlson and A. B. Luckhardt, Chicago.—p. 261.
- *Studies of Respiratory Mechanism in Cardiac Dyspnea. J. P. Peters, Jr., and D. P. Barr, New York.
  - I. Low Alveolar Carbon Dioxid of Cardiac Dyspnea.—p. 307.
  - II. Effective Lung Volume in Cardiac Dyspnea.—p. 335.
  - III. Effective Ventilation in Cardiac Dyspnea.—p. 345.
- *Studies on Brain Stem. IV. Relation of Cerebral Hemispheres and Thalamus to Arterial Blood Pressure. F. T. Rogers, Chicago.— p. 355.
- *Experimental Studies in Diabetes. Internal Pancreatic Function in Relation to Body Mass and Metabolism. 5. Influence of Fever and Intoxication. F. M. Allen, New York.—p. 375.
- *Id. 6. Gas Bacillus Infectious in Diabetic Dogs. M. B. Wishart and I. W. Pritchett, New York.—p. 382.
- *Studies in Experimental Traumatic Shock. I. Basal Metabolism. J. C. Aub, Boston.—p. 388.
- *Id. II. Oxygen Content of Blood. J. C. Aub and T. D. Cunningham, Boston.—p. 408.
- *Id. III. Chemical Changes in Blood. J. C. Aub and Hsien Wu, Boston.—p. 416.

Distribution and Quantitative Action of Vagi.—It is concluded by Cruickshank that the positive variation of the demarcation current that develops during vagus stimulation is a phenomenon, not due to, although usually associated, with stoppage of the heart. The greater tendency, noted in the literature, of stimulation of the left vagus to produce block is not necessarily due to a selective action of this nerve upon the conducting system; the result can be explained quite as well through the relatively slight action of the left nerve on the pace-maker, which is located on the right side of the heart, while the reactivity of the remainder of the heart is reduced.

Influence of Endocrines on Respiratory Exchange.—The effect of subcutaneous injection of epinephrin on normal and thyroidectomized rabbits was studied by Marine and Lenhart. Their results on rabbits confirm those of Sandiford on man. Epinephrin causes a rise in the oxygen consumption both in normal and thyroidectomized rabbits. The absolute rise may be greater in normals but the percentile rise may not be altered. Evidence is given that, in general, the onset of the rise in oxygen consumption following epinephrin is delayed in thyroidectomized animals and also that it does not last so long.

Respiratory Mechanism in Cardiac Dyspnea.—Peters and Barr state that the patient with cardiac decompensation maintains his alveolar carbon dioxid at a lower level than does the normal person, and the level to which he will permit it to rise under the influence of rebreathing is proportionately reduced. In cardiac patients with dyspnea no evidence of an increased residual air was obtained by the Lundsgaard method.

Relation of Brain Stem to Arterial Blood Pressure.—The experiments reported on by Rogers suggest that the cerebral hemispheres and thalamus exert a continuous tonic stimulating action on the subcortical blood pressure regulating mechanism. This action is not one of localized cerebral centers but varies according to the amount of brain substance destroyed, rather than the particular area destroyed.

Experimental Studies in Diabetes.—The observations concerning infectious fever reported on here by Allen with the previous ones concerning the pyrexia of exercise in dogs, prove that no specific aggravation of diabetes or lowering of tolerance results from the metabolic alteration attentant on elevation of body temperature in experimental animals.

Gas Bacillus Infection in Diabetic Dogs.—Intramuscular injections of pure cultures of *B. aerogenes* capsulatus produced local necrosis and gas formation in partially depancreatized diabetic dogs. Systemic or peritoneal infection was not obtained. The observations made by Wishart and Pritchett failed to indicate any lowering of resistance in these animals due either to the diabetes itself or to the excess of sugar in the body fluids. The latter point is further emphasized by the fact that the reactions were essentially similar in the first dog with mild glycosuria, in the second dog with heavy glycosuria, and in the third dog free from glycosuria. These results agree with the general experience that such animals ordinarily bear operations well and their wounds heal normally. A lowering of tolerance by infection was demonstrable both by feeding and by intravenous glucose tests. Though this influence is less in animals than in human patients, the difference seems to be one of degree rather than of kind.

Basal Metabolism in Experimental Traumatic Shock.—Experimental traumatic shock, Aub found, causes a marked fall in the rate of basal metabolism to 70 per cent. of the original level. The degree of fall is dependent on the severity of the shock produced. A similar fall of the metabolic rate may be accomplished rapidly by interfering with the circulation by increased pericardial pressure. The effect of hemorrhage is not constant. It may temporarily lower, or have no immediate effect on the metabolic rate. Recovery from shock after blood transfusion is usually associated with a prompt return of the metabolic rate to a normal level.

Oxygen Content of Blood in Experimental Traumatic Shock.—Aub and Cunningham state that there is a markedly diminished oxygen content of the venous blood in experimental traumatic shock. This change occurs before the blood pressure falls to a shock level, and is still present after apparent recovery from shock. The blood flow is also greatly decreased in the development of, during and after decreased metabolism. The sequence of these events in traumatic shock is discussed.

Chemical Changes in Blood in Experimental Traumatic Shock.—Animals with marked muscle trauma but without true shock showed only slight changes in total nonprotein nitrogen, urea, creatin and sugar in the blood. These constituents, especially the creatin and the sugar, rose markedly as shock developed. In control animals the determined constituents showed no appreciable change. The marked rise in creatin is direct evidence of the presence in the blood of products of muscle necrosis, and is, therefore, suggestive evidence for the theory of the chemical cause of traumatic shock. The cause of the rise in blood sugar is discussed briefly.

Boston Medical and Surgical Journal

Dec. 30, 1920, **183**, No. 27

*Preventive Medicine in Its Relation to Schools. F. S. Churchill, Milton.—p. 747.
*Preventive Medicine and Hygiene in Relation to Colleges. R. I. Lee, Cambridge.—p. 750.
General Management of Health in Industry. W. I. Clark, Jr., Worcester.—p. 755.
Control of Venereal Diseases. G. G. Smith, Boston.—p. 756.
Mental Hygiene. W. E. Fernald, Waverley.—p. 759.
Case of Multiple Sclerosis. F. L. Meredith, New York.—p. 761.
Diagnosis and Treatment of Neurosyphilis. H. C. Solomon, Boston.—p. 768.
Treatment of Fracture of Neck of Femur. R. Whitman, New York.—p. 773.
Spina Bifida: Operability and Time for Surgical Intervention. T. W. Harmer, Boston.—p. 775.

Jan. 6, 1921, **184**, No. 1

New England Surgical Society. H. Gage, Worcester.—p. 1.
Sliding Hernia. E. H. Risley, Waterville, Me.—p. 6.
Torsion of Fallopian Tube. S. S. Dearborn, Nashua, N. H.—p. 12.

Medical School Inspection.—Medical inspection of schools, conceived of as a measure of preventive medicine, is discussed by Churchill, and he gives a brief summary as to the nutritional condition of 1,552 pupils studied.

Preventive Medicine, Hygiene and Health Habits.—Lee believes that while our standard methods of preventive medicine with which we are all familiar can be perfected considerably, nevertheless, not much more is to be expected of them. Already, in consequence of competent medical advice, there is only an occasional inevitable death from such conditions as appendicitis, mastoid, etc. At the present time local sanitary inspection and public health measures largely guarantee the purity of water and milk and tend to eliminate typhoid fever. It is for these reasons that Lee suggest strongly that more emphasis should be laid on instruction in hygiene and the systematic endeavor to attempt to establish in the population of all communities adequate health habits.

Canadian Journal of Mental Hygiene, Toronto

October, 1920, **2**, No. 3

Care of Mentally Defective. C. E. Doherty.—p. 207.
*Occupational Therapy in a Mental Hospital. F. E. Devlin.—p. 219.
*Juvenile Delinquency and Mental Defect. C. K. Clarke.—p. 228.
*Parole of Insane. O. Nocl.—p. 233.
*Rôle of Psychiatric Clinic in Community. G. S. Mundie.—p. 237.

Occupational Therapy in Mental Hospital.—Devlin is of the opinion that the time has arrived when we should endeavor to seek out the good effects of occupational therapy and apply them not alone in demented cases, but as far as possible to all stages of mental diseases. Its results may prove of incalculable benefit to patients and of joy to their families. To the state the great saving in the cost of their maintenance, in preventing or uprooting habit disorganization, in the creation of much by their labor, that is also useful to themselves, in the enormously increased number of cases fit for parole even for considerable periods of time; and last, but not least, the greater probability of the restoration to health, mental and physical, of many of these persons who will thus be enabled to lead lives of usefulness to themselves and to society. Devlin advocates the training of a certain number of nurses, religious or lay, in each hospital for the insane to be known as nursing therapists, under the direction of one of their number to be known as chief therapist; also the creation of an index card system of occupational therapy for every patient which will note the effects and progress, or otherwise, in each individual case. Patients should be trained in groups of twenty, to which each patient will be assigned as soon as any special treatment he may require is finished.

Mental Defect and Juvenile Delinquency.—Clarke presents the results of an analysis of 4,310 cases of different mental types which passed through the Toronto General Hospital psychiatric clinic.

Prevention of Insanity.—The two principal factors which contribute to the crowding of hospitals for the insane, Noel says, are heredity and congenital conditions; that the way to combat them is to prevent consanguineous marriages, especially between families with doubtful heredity, and that children should be begotten according to principles of sound hygiene. This is the surest way of decreasing the number of the insane in the generations to come.

Mental Deficiency and Disease.—Mundie claims that the community, until recently, had laid too much stress on the physical side disease. More attention should be paid to the mental side of people. In this regard the work of the psychiatric clinic is valuable. Its purpose is to prevent and preserve the mental health of persons, to diagnose and estimate the number of feebleminded and mentally abnormal persons in the community, and, lastly, to try and solve the problem of those persons who physically well, are not feebleminded or insane, but are misfits in the community.

Colorado Medicine, Denver

December, 1920, **17**, No. 12

*Lethargic Encephalitis. G. E. Neuhaus, Denver.—p. 317.

Lethargic Encephalitis.—An analysis of fifteen cases is made by Neuhaus. Nine gave a positive history of having had influenza less than six months previously. The onset was gradual in twelve cases, sudden in three. In five cases, quite severe pain in some part of the body, either the shoulder or the arms and forearms, less frequently in the lower extremities, was a feature. A rise in temperature was observed in eight cases. In the lethargic cases it ran a fairly even course from 100.2 to about 102 F., at times showing marked exacerbation. Catalepsy was present in four patients. Mental symptoms were present in four patients at some time during their illness, but were a marked feature in only two cases. One patient who died within twenty-four hours had acute maniacal excitement. The Babinski reflex was observed in two cases, and in two others the Oppenheim and Gordon were noted without the Babinski. A poorly developed Kernig sign and some rigidity of the neck were present in about half the cases observed. Complications on the part of other organs were not observed. The laboratory findings were for the most part negative. The mortality in the series was 30 per cent. The treatment consisted mainly in careful nursing. Lumbar puncture and spinal drainage seemed distinctly beneficial in some cases.

Endocrinology, Los Angeles

October-December, 1920, **4**, No. 4

*Experimental Researches on Pituitary Body. J. Camus and G. Roussy, Paris.—p. 507.
Relation of Thyroid and of Suprarenals to Electric Conductivity of Other Tissues. G. W. Crile, Cleveland.—p. 523.
Secondary Sexual Characteristics and Endocrinology. A. Pezard, Paris.—p. 527.
*Origin and Evolution of Interstitial Cells and of Ovary and Significance of Different Internal Secretions of Ovary. I. Ochoterena and E. Ramirez, Mexico.—p. 541.
*Internal Secretion of Testis. A. C. Massaglia, Chicago.—p. 547.
*Effects of Roentgen-Ray Treatment of Hypophysis in Bronchial Asthma. M. Ascoli and A. Fagiuoli, Catania, Italy.—p. 567.
Fatal Case of Cardiac Dilatation with Associated Gastropathy and Endocrinopathy. C. M. Nice, Birmingham.—p. 574.
*Influence of Thyroids on Functions of Suprarenals. P. T. Herring, St. Andrews, Scotland.—p. 577.

Experimental Researches on Pituitary.—Diabetes insipidus, glycosuria and those dystrophies considered as hypophysial in origin are discussed by Camus and Roussy and experimental work is summarized. Different interventions practiced on the pituitary—partial removal of one or both lobes or total removal—failed to modify in appreciable fashion either the tolerance to carbohydrates or the appearance of alimentary glycosuria. The injection of concentrated extracts of the posterior lobe, the anterior lobe or of the whole hypophysis, did not sensibly modify—in the animals operated on—the limit of tolerance to carbohydrates.

Internal Secretions of Ovary.—Of the two endocrine functions of the ovary, Ochoterena and Ramirez state the corpus luteum mediates that having to do with the formation of decidual cells and the modification of the uterine mucosa which favor nidification of the ovum. If fecundation occurs the structure is transformed to the corpus luteum of pregnancy and alters the nature of its secretion. It assumes relations with the mammary glands and other endocrine organs. The secretion of the corpus luteum being antagonistic to that of the interstitial ovarian cells, when the corpus luteum retrogresses or is experimentally suppressed, the action of the interstitial secretion is manifested. This secretion is the determining factor of menstruation; during the menstrual period the corpus luteum is either nonexistent or in a regressive phase, while the interstitial cells manifest with maximum intensity the secretory phenomena. The ovarian congestion which coexists with menstruation favors the maturation of the graafian follicle. This ruptures and gives rise to a new corpus luteum which in turn depresses the interstitial secretion, causes the discontinuance of menstruation and thus again initiates the cycle previously described.

Internal Secretion of Testis.—The experimental work reported on by Massaglia is interpreted by him as showing that the testis has an internal secretion, which gives to the male the masculine sexual characters and sexual instinct and keeps the function of the hypophysis normal. His researches indicate that the Leydig's cells have the endocrine function. This conception is supported by the following facts: (1) The Leydig's cells have the characters of secretory cells in that they elaborate fatty granules and mitochondria. (2) The animal remains normal even when we have marked atrophy of the seminal epithelium. (3) It is only when the atrophic testis is removed with the Leydig's cells then in good condition, that changes are noted after castration. (4) No facts exist which speak for the conception that the spermatogenetic cells exercise the endocrine function: they complete a cytologic cycle to become spermatozoa, which have merely the biologic function of reproductive cells. The new information on the internal secretion of the testis that shows the effects of its abolition indicates that there exists through the internal testicular secretion a functional correlation between the testis and hypophysis cerebri. It lends support to the view that the pituitary body has the function of ruling the skeletal growth, and perhaps throws some light on the obscure etiology of gigantism and acromegaly. In the acromegalic there is found marked hypertrophy of the hypophysis with eosinophilia of its cells and deficient development of sexual organs. But in the acromegalic the more important fact is that it is a lesion (hypertrophy, adenoma) of the pituitary body, whereas in the castrated it is the loss of the internal secretion of the testis, which secondarily produces hypertrophy of the hypophysis.

Roentgen-Ray Treatment of Asthma.—Stimulating endocrine radiotherapy was used by Ascoli and Fagiuoli in a case of bronchial asthma, and case of scleroderma, angioneurotic edema and eunuchoidism.

Influence of Thyroid Function on Suprarenals.—There is much evidence, though not unanimous, Herring says, that hyperthyroidism increases the size and weight of the suprarenals. There is some evidence that hyperthyroidism does in the healthy animal increase the epinephrin load of the chromaphil tissues. A specific action of thyroid in stimulating the secretion of epinephrin and in sensitizing the structures amenable to its action, though not improbable is not satisfactorily proved. Hypothyroidism is shown to have no effect on the epinephrin load of the suprarenals.

Journal of Laboratory and Clinical Medicine, St. Louis

December, 1920, **6**, No. 3

*Practical Applications and Uses of Schick Test. A. Zingher, New York.—p. 117.
*Motility of Antrum and Relation of Rhythmic Activity of Pyloric

Sphincter to that of Antrum. H. Wheelon and J. E. Thomas, St. Louis.—p. 124.
*Quantitative Nature of Complement Fixation. J. J. Seelman, Milwaukee.—p. 144.
Complement vs. Amboceptor Titrations in Wassermann Test. R. L. Kahn, Lansing, Mich.—p. 153.
Composite Reagent for Determination of Sodium Chlorid in Urine. H. V. Atkinson, Chicago.—p. 160.
Utilization of Ciliary Ganglion for Class Work in Physiology and Pharmacology of Eye. H. McGuigan, Chicago.—p. 161.

Shick Test.—Zingher suggests that active immunization with toxin-antitoxin of all young children from 6 months to 2 years of age is essential in bringing up a diphtheria-immune population. He urges that Schick test and control test be applied to all children over 2 years of age, and all those giving a positive reaction should be actively immunized with toxin-antitoxin. Diphtheria outbreaks can be controlled in homes, institutions, and schools by promptly applying the Schick test and by giving prophylactic injections of antitoxin to the susceptible individuals.

Motility of Antrum.—Direct, graphic and radiographic observations made by Wheelon and Thomas show that the antrum and pyloric sphincters are rhythmical in action, that is, contractions and relaxations follow each other in a regular sequence. These rhythmical actions or cycles occur at the rate of from 3 to 5 per minute, and are maintained for hours. Rhythmical motility is best obtained when the stomach contains food, however, typical results may be obtained from the stomach recently emptied. The phases of activity in the sphincter are such as to supplement those of the antrum, hence, the motility of these two parts may be considered as constituting a cycle of the pars pylorica. The authors' results along with those of Cole and Luckhardt, Phillips and Carlson, demonstrate that the activities of the pyloric sphincter, at least in great part, are dependent on the activities of the antrum during digestive processes· is propagated into the sphincter, thereby causing it to contract at a time of relaxation of the antrum, and to relax because of the arrival of a wave of relaxation over the antrum. Such conditions indirectly lead to the conclusion that acid if it acts to regulate the "pylorus" must also act in a similar way upon the antrum and stomach as a whole, for, as shown above, motility of the antrum determines motility of the sphincter.

Wassermann Test.—The classical Wassermann test, when properly performed by a skilled technician, Seelman claims, tends to err altogether on the negative side. Partial reactions are always specific. The aim should be to make the standard test more delicate than the present classical test, without sacrificing its specificity, so that a larger number of definitely positive reactions may be obtained in cases of syphilis in which the blood contains only small amounts of fixing substances. It is suggested that this be accomplished by testing all serums with the classical method modified to remove its major sources of error, and a raw serum test modified to remove the usual sources of error inherent in present raw serum methods. A scheme of interpretation of partial reactions and their clinical application is given. This gives these reactions a more definite clinical value than they now have.

Journal of Parasitology, Urbana, Ill.

December, 1920, **7**, No. 2

*Etiology of Tsutsugamushi Disease. N. Hayashi.—p. 53.
Egg Laying Habits of Californian Anophelines. W. B. Herms and S. B. Freeborn, Berkeley, Calif.—p. 69.
Migratory Course of Trichosomoides Crassicauda (Bellingham) in Body of Final Host. S. Yokogawa.—p. 80.
Nosema Apis Zander. R. Kudo, Urbana.—p. 85.
Acanthocephala Parasitic in Dog. H. J. Van Cleave, Urbana.—p. 91.

Etiology of Tsutsugamushi Disease. — Minute bodies, described as "rod," "spheroid" and "ring-shaped," have been found in the lymphocytes of lymph nodes and in mononuclear endothelial phagocytes of the spleen and lymph nodes, and in the region of the bite in patients suffering from tsutsugamushi disease. They also occur free in the blood plasma, and in severe cases in the red cells. The disease has been transmitted experimentally to monkeys, guinea-pigs, rabbits and calves. Bodies similar in appearance and distribution to those found in human cases, have been demonstrated in experimentally infected animals. These bodies, on account of the difficulty of differentiating their cytoplasmic and chromatic elements, resemble bacteria, but no evidence of their bacterial nature has been obtained from cultural or animal experiments. Cultural experiments have proved wholly negative. Biologically, this protozoon is to be considered as a new species, resembling but showing differences from *Bartonella bacilliformis* and *Theileria parva.* The parasite to which it appears most closely allied is *Theileria parva.* The organism found in tsutsugamushi diseases Tayashi has designated tentatively as *Theileria tsutsugamuchi,* spec. nov.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

November, 1920, **16**, No. 4

*Action of Epinephrin on Heart. III. Modification of Action of Epinephrin by Chloroform. W. J. R. Heinekamp, Chicago.—p. 247.
Toxicity and Skin Irritant Effect of Certain Derivatives of Dichloroethyl Sulfid. E. K. Marshall, Jr., and J. W. Williams, St. Louis.—p. 259.
*Studies of Chronic Intoxications on Albino Rats. I. Organization of Investigations. T. Sollmann, O. H. Schettler and N. C. Wetzel, Cleveland.—p. 273.
Id. II. Alcohols (Ethyl, Methyl and "Wood") and Acetone. T. Sollmann, Cleveland.—p. 291.
Effect of Carminative Volatile Oils on Muscular Movements of Intestine. O. H. Plant, Philadelphia.—p. 311.

Chloroform Modifies Action of Epinephrin on Heart.—Chloroform is toxic for heart muscle, producing or tending to produce weakening of the organ. Because of the action of chloroform on the heart. Heinekamp states that epinephrin is contraindicated wherever chloroform is employed and chloroform wherever epinephrin is used.

Effect of Alcohol on Growth.—The investigation made by Sollmann emphasizes that the dangers of chronic alcoholism are much greater with methyl than with ethyl alcohol. It proves that the "impurities" of wood alcohol play only a minor part in chronic intoxication ,the methyl alcohol itself being the dominant toxic agent.

Nebraska State Medical Journal, Norfolk

December, 1920, **5**, No. 12

*Postoperative Gastric and Intestinal Hemorrhage. J. E. Summers, Omaha.—p. 341.
Modern Smallpox. F. A. Wells, Axtell.—p. 346.
Therapy of Corneal Ulcers. D. D. Sanderson, Lincoln.—p. 349.
Lethargic Encephalitis. F. X. Rudloff, Battle Creek, Mich.—p. 351.
*Treatment of Trichomonas Intestinalis with Methylene Blue. M. Block, Omaha.—p. 354.
Sporotrichosis; Report of Case. M. G. Wohl, Omaha.—p. 355.
Local Anesthesia in Treatment of Rectal and Anal Diseases. L. E. Moon, Omaha.—p. 357.

Control of Postoperative Hemorrhage.—It is urged by Summers that assistants and nurses should exercise more care and gentleness in the preoperative preparation of the patient. His position on the table; control while going under the anesthetic and while being prepared for the operation, should be such as to prevent injury to or undue pressure on any part of the body. This same rule should apply during the operative procedure and after until consciousness has been fully restored. The operating surgeon should make his incisions so as to, as far as possible, avoid injury to the blood vessels overlying the parts the subject of surgical inquiry or procedure. Incisions should be made sufficiently free so that the parts to be exposed and manipulated may be handled with the greatest gentleness. Violent retraction of incisions is always to be condemned. Asepsis should be absolute.

Methylene Blue in Trichomonas Infestation.—Methylene blue was used by Block in his case freely by month and as a rectal irrigation. His patient was given 9 grains by mouth daily, in divided doses of 3 grams each, also 10 grains to the quart of hot water as a rectal irrigation morning and evening. He was put on a liquid diet and instructed to remain quietly in bed. This was kept up over a period of five days when he complained of severe burning on urination and the preparation was withdrawn for a period of three days. A stool examination was made at this time, but no flagellate forms were found. The methylene blue was repeated over a period of five days and by this time the diarrhea entirely subsided, the stools took on a formed appearance, the distressed feeling disappeared, and the patient gained in weight. ·

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, 1920, **25**. No. 6

History of Electrotherapy. H. A. Colwell.—p. 169.
Radiography of Gallbladder. N. Macleod.—p. 181.

British Journal of Experimental Pathology, London

December, 1920, **1**, No. 6

*Etiology of Epidemic Influenza: Experiments in Search of Filter Passing Virus. H. B. Maitland, M. L. Cowan and H. K. Detweiler.—p. 263.
*Effect of Surgical Anesthesia on Reaction of Blood. J. B. Collip.—p. 282.
Influence of Reaction of Medium and of Presence of Buffer Salts on Metabolism of Bacteria. C. G. L. Wolf.—p. 288.
Glycogenic Infiltration of Liver of Laboratory Rabbits. H. M. Turnbull.—p. 310.

Etiology of Influenza.—Seventeen cases of influenza were studied by Maitland and his associates and by inoculating animals, principally guinea-pigs, with filtrates of material from these patients they have observed the same typical lesions. By reinoculating one guinea-pig from another they found the lesions repeated through seven reinoculations. Heating the inoculant to 56 C. for one hour did not diminish the animal lesions, nor did incubation with convalescent plasma. The authors were not able to obtain cultures of a filterable organism, although the attempt to do so was not exhaustive. They did find, however, that the typical lesions appeared in guinea-pigs after inoculation with sterile cultures of widely different types and ages. Further, this "typical" lung change was found in guinea-pigs from stock and breeding-pens that had never been inoculated, and also in animals that came from a breeding-farm and another laboratory. The same percentage of animal lesions occurred after inoculation with material from healthy controls as with influenzal material.

Effect of Anesthesia on Blood Reaction.—The rate of elimination of water, acid, and basic phosphates and ammonia by the kidney in periods before, during and after anesthesia has been determined by Collip in a number of cases. The acidity of the urine, as estimated by this method, is not materially altered during surgical anesthesia. A decrease in the C_H of the blood during surgical anesthesia is not indicated. The acidity of the urine may be decreased during anesthesia by the induction of hyperpnea. It is suggested that during surgical anesthesia two processes, which are mutually antagonistic, are active, one the "acidotic process" of Haggard and Henderson due directly to disturbance in metabolism as a result of anesthesia, the other the overventilation process. Whether the C_H of the blood falls, rises or remains unchanged during surgical anesthesia would therefore depend upon the relative intensities of these two processes.

British Medical Journal, London

Dec. 18, 1920, **2**, No. 3129

*Autohemagglutination. C. J. Bond.—p. 925.
Midwifery Practice. W. J. Young.—p. 927.
*Rickets in Outpatient Department. H. M. M. Mackay.—p. 929.
*Value of Extensive Inoculation of Community During Epidemic of Typhoid. A. Romanes and G. G. Johnstone.—p. 932.
Immediate Surgical Complications of Dysentery. B. Hughes and H. S. Banks.—p. 934.
Placenta Ablata Treated by Pituitary Extract with Obstetric Anesthesia. J. L. Smith.—p. 936.
Surgical Emphysema After a Blow on Neck. J. W. Heekes.—p. 936.
Pleural Reflex. W. F. Castle.—p. 936.

Autohemagglutination.—The phenomena of hemagglutination, Bond says, have been shown to possess a physiologic as well as a biologic significance. All red blood corpuscles are capable of forming hemagglutinogen under certain conditions. Agglutinogen, like agglutinin, exists in the nonspecific form, agglutinogen A, and in a graded series of specific forms, agglutinogen B, C, D, etc. The specific and the nonspecific agglutinogens (like the corresponding agglutinins) although allied, are not identical in composition or character. Agglutinogen has so far only been found in combination with or attached to the surface or stroma of the red cells. It apparently does not exist in the serum in the free or uncombined state. The specific and nonspecific agglutinins, on the other hand, are present in the serum in the free state, and both kinds are removed by filtering the serum through a porcelain filter.

Rickets.—MacKay's observations are in accordance with the fairly general belief that rickets is a dietetic disease and commonly develops in children receiving insufficient fat and too much carbohydrate in the food, and that it shows itself most commonly among those who have been bottle fed. The cases observed gave no indication that fat in the form of cod liver oil, butter, or cottonseed oil exerts any specific curative influence on the disease in doses of 2 drams daily. On the other hand, there was a marked improvement in a group of eighteen cases treated with larger doses of cod liver oil, together with advice as to diet, but it is certain that this improvement was in part due to the season of the year.

Value of Typhoid Inoculation.—The opinion is put forward by Romanes and Johnstone that an extensive inoculation during an epidemic of typhoid fever is beneficial, probably to the individual in particular and almost certainly so to the community as a whole.

Indian Journal of Medicine, Calcutta

October, 1920, **1**, No. 3

Transposition of Viscera: Three Cases. V. G. Nadgir.—p. 131.
Scopolamin Morphin Narcosis in Labor. J. M. Das.—p. 136.
Treatment of Cerebrospinal Meningitis by Spinal Irrigation with Electrargol. U. N. Brahmachari.—p. 147.
Two Cases of B. Coli Infection with Inflammation of Bile Passages. J. N. Maitra.—p. 150.
Treatment of Syphilis by Intravenous Injection of Concentrated Solution of Novarsenobillon. R. B. W. V. Kane.—p. 153.
Kala-Azar. S. Kundu.—p. 155.
Use of Prophylactic Vaccines in Influenza. P. Ganguly.—p. 162.
Case of Cholecystitis Complicating Influenza. N. Banerjee.—p. 166.
*Case of Cerebral Hemorrhage with Respiration Failure Six Hours Before Death. N. S. Nathan.—p. 168.
*Case of Syphilitic Pyrexia. B. Das.—p. 169.
Ocular Manifestations of Influenza. J. Maitra.—p. 171.

Cerebral Hemorrhage with Failing Respiration.—Nathan's patient was kept alive by means of artificial respiration. Whenever the artificial breathing was stopped, there were no respiratory movements. All the time the patient continued to have a good pulse.

Syphilitic Pyrexia.—The temperature of Das' patient was 101 F. in the morning and 103 F. in the afternoon for two months. After three days of treatment with iodids and mercury it fell to normal and remained normal.

Japan Medical World, Tokyo

Nov. 27, 1920, **10**, No. 48

Regulation of Musculus Culullaris by Nerves. S. Nishi.—p. 1035.
In What Cases of Irreducible Hernia is Taxis Applicable? S. Yokoi.—p. 1035.
Color Blindness in School Children. T. Takeuchi.—p. 1036.

Dec. 4, 1920, **10**, No. 49

Ophthalmic Symptoms of Lethargic Encephalitis. C. Koguchi.—p. 1059.
Disinfection of House and Elimination of Fly in Cholera. H. Toyoda.—p. 1059.
Human and Animal Anthrax. Sakurada.—p. 1060.

Journal of Tropical Medicine and Hygiene, London

Dec. 1, 1920, **23**, No. 23

*Treatment of Nodular Leprosy by Intravenous Injections of Chaulmoogra Oil. P. Harper.—p. 285.
Preventive Use of Quinin. H. Seidelin.—p. 285.

Iodin, Ether and Chaulmoogra Oil in Leprosy.—A mixture consisting of iodin, 1 grain; ether, 500 minims, and chaulmoogra oil, 500 minims, is used by Harper. For the first two or three days only 10 minims of the mixture is injected. Thereafter 20 minims are given. Good results are reported from the use of this mixture.

Lancet, London

Dec. 11, 1920, **2**, No. 24

Neurologic Aspects of Ophthalmic Cases. J. Taylor.—p. 1181.
Man versus Microbe. W. J. Collins.—p. 1183.
*Cancer of Colon: Causation and Treatment. W. T. Lane.—p. 1184.
*Clinical Aspects of Enteric Group Infection. J. R. Harper.—p. 1190.

*Gastric Analysis in Acne Rosacea. J. A. Ryle and H. W. Barber.—p. 1195.
Achylia Gastrica. T. I. Bennett.—p. 1196.
*Loss of Speech Following Anesthesia. A. B. Clark.—p. 1198.

Cancer of Colon.—Lane emphasizes that the treatment of cancer of the colon must differ with the locality and extent of the growth, the condition of the intestines at the time of the operation (especially as regards accumulated contents), the vitality of the individual, the invasion of adjacent viscera or the abdominal wall, the presence of secondary growths, the degree of intra-abdominal tension, the age and sex of the patients, the amount of fat present in the tissues, and the circumstances in which the operation is performed. A careful study of the causation and the mechanics of stasis on which cancer depends would indicate clearly that the ideal operation for cancer of the large bowel is colectomy, providing that a sufficient length of pelvic colon can be secured into which the end of the ileum can be inserted directly, and that other conditions are favorable to its performance.

Enteric Group Infection.—Harper maintains that an accurate diagnosis of enteric group infection can only follow as the result of the intimate working of the clinician and the bacteriologist. In probably 70 per cent. of cases the clinician experienced in this group infection will be able to diagnose it as such, but it is impossible for him to decide from the clinical picture which member of the group is the causal organism. A positive diagnosis can only be made by the isolation of the specific organism, or by the fact that the patient has acquired an immunity to one of the organisms.

Gastric Analysis in Acne Rosacea.—A number of cases of acne rosacea were examined by Ryle and Barber with a view to determining, if possible, the actual pathogenesis of the condition and the most satisfactory method of treatment. The connection between this disease and dyspepsia is generally recognized, and it is usually supposed that overindulgence in alcohol, tea, or coffee produces its effect by setting up a chronic gastritis. Twelve cases of acne rosacea were investigated by the fractional method of gastric analysis. In five there was complete achlorhydria throughout the period of the meal. In two cases there was an extreme degree of hypochlorhydria. Of the remaining five cases, one showed no secretion of free hydrochloric until after one hour, and two showed a temporary high peak in the curve of acidity, with an abrupt fall to the base line. Other features revealed by the test were a tendency to rapid emptying, such as obtains in other cases of so-called achylia gastrica, and a highly mucoid resting secretion, frequently of the viscid consistency of raw eggwhite. The increased liability to acne rosacea during menstrual period and pregnancy is of interest, in view of the fact that achylia is also reputed to be more common at these times. The administration of dilute hydrochloric acid, 30 minims and upward, well diluted, after meals or during meals, has yielded very satisfactory results.

Loss of Speech Following Anesthesia.—In the case cited by Clark gas and ether were given, followed by chloroform and C. E. mixture, the quantities used being 2 ounces of ether and 3 ounces each of chloroform and C. E. mixture. The patient took the anesthetic well, and never appeared to be very deeply under or abnormal in any way. The same evening, after recovery from the anesthetic, he could not answer any questions or speak a single word. The following day he could utter a few words, but showed marked incoordination of speech and was unable to write sense, though apparently knowing quite well what he wished to write. There was no personal or family history bearing on the case. His speech was still rather slow and deliberate, fifty days after operation.

National Medical Journal of China, Shanghai

September, 1920, **6**, No. 3

Prevalence of Syphilis in Peking. E. T. H. Tsen.—p. 159.
Complement Fixation Test for Syphilis. E. T. H. Tsen.—p. 167.
Native Ophthalmic Practice in China. H. T. Pi.—p. 188.
Esteem in Which Profession of Scientific Medicine is Held in China. P. C. Kiang.—p. 196.
Chinese Hermaphrodite and Dicephalous Monster. C. S. Lin.—p. 208.

South African Medical Record, Cape Town

Nov. 27, 1920, **18**, No. 22

Influence of Great War on Modern Surgery. C. F. M. Saint.—p. 431.

Annales de Médecine, Paris

September, 1920, **8**, No. 3

*The Cholesterin Cycle. A. Chauffard, G. Laroche and A. Grigaut.—p. 149.
Bacillus Faecalis Alcaligenes as Responsible for Certain Mild Typhoidal and Other Conditions. A. Rochaix and A. Blanchard.—p. 173.
*Subacute Hypertrophy of the Tonsils. G. Portmann.—p. 185.
*Bacteriology of Whooping Cough. E. Libert.—p. 218.

The Cholesterin Cycle in the Organism.—Chauffard, Laroche and Grigaut report further research which has confirmed their previous assertion that the suprarenals are the source of origin of cholesterin. In four fetuses the suprarenals contained from 2.60 to 8.16 per thousand cholesterin, and in five newly born infants, from 14.05 to 36.10 per thousand, while the livers in the two groups contained only from 2.42 to 2.67, and the kidneys only from 2.14 to 2.90. There is no doubt, they add, that the suprarenals control the cholesterin content of the blood. In chemical tests of the suprarenals from sixty-eight cadavers, the range of the cholesterin content was from 1.18 to 82.8 gm. per thousand. Physiology shows that the suprarenals function most actively when the organism has most need of lipoids, as in pregnancy. Their charts show that the bile contains most cholesterin in the pregnant, next in pneumonia, tuberculous meningitis, chronic nephritis and diabetes, all above the normal standard (1.50), the range being from 1.95 to 7.50. But the liver eliminates and transforms far more cholesterin than is contained in the bile. Possibly it may be eliminated in the form of cholalic acid. The cholesterin becomes oxidized more completely in the liver than in the other tissues, passing beyond the oxycholesterins which represent less perfectly oxidized cholesterin. They recall that we have no means of influencing the cholesterin cycle. To date we know of no way to modify the functioning of the suprarenals. We can change the food, but this is not very effectual. We can act on the liver, however, and the research of Rouzaud and of Cabanis at Vichy has demonstrated that after a course of the waters there, hypercholesterinemia subsides to the normal cholesterin content. This fact they regard as throwing light on both pathologic and normal physiology. This seems to be the only way to date in which we can regulate the cholesterin content of the blood. The cholesterin content of blood from the placenta and from the umbilical vein and artery proves that the fetus retains most of the cholesterin derived from the mother. This is the reverse of what occurs with urea; blood coming from the fetus is richer in urea than blood passing from the mother to the fetus.

Subacute Hypertrophy of the Tonsils.—Portmann devotes thirty-four pages and five illustrations to the study of the acute, subacute and chronic forms of hypertrophy of the tonsils. The subacute hypertrophy seems to be the reaction of the tonsils to any endogenous or exogenous infection when there is a tendency to the lymphatic or lymphatic-thymic state.

Bacteriology of Whooping Cough.—Libert cites authorities who have confirmed the causal rôle of the Bordet-Gengou bacillus in the etiology of pertussis and have reproduced whooping cough with it in dogs and rabbits. We now have only to await confirmation of the success obtained by some clinicians with an antipertussis serum or vaccine.

Archives Médicales Belges, Liége

August, 1920, **73**, No. 8

*Lessons from the War in Military Hygiene. Maistriau.—p. 643.
Chronic Urethritis and Prostatitis from Colon Bacillus Infection. C. E. Verdier (U. S. A.)—p. 656.
*Traumatic Aneurysms. R. Lenger, M. Stassen and J. Voncken.—p. 660.

Some of the Lessons from the War in Regard to Army Hygiene.—Maistriau remarks that some of the lessons learned from the war have the authority of a huge, carefully conducted laboratory experiment, and that we must not fail to profit by them while the remembrance of them is still perfect.

Traumatic Aneurysms.—The history of the various measures that have been applied in treatment of traumatic aneurysms is reviewed. The practical conclusion of the discussion and the statistics is that ligation and resection of the aneurysm are the safest and best means for treatment in the majority of cases. Only with exceptionally favorable conditions should end-to-end suture be considered, but this is sometimes the only means to save the limb.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 12, 1920, **44**, No. 34

Typhoid Septicemia with Intermittent Fever. H. Bourges.—p. 1330.
*Acute Purulent Pleurisy. M. Renaud.—p. 1334. Conc'n.
Apyretic Spirochetal Jaundice. M. Herscher and J. Roberti.—p. 1343.
*Radioscopy of Aneurysm of Abdominal Aorta. Ribadeau-Dumas and Mallet.—p. 1348.
*Syndrome of the Cavernous Sinus. Foix.—p. 1355.
*Sclerosis in Patches. G. Guillain. P. Jacquet and Lechelle.—p. 1362.
*Sodium Carbonate Treatment of Variecs. Sicard and Paraf.—p. 1369.
*Abnormal Spinal Fluid in Hysteria. A. Rouquier.—p. 1375.
*Varicose Phlebitis and Embolism. J. Amaudrut.—p. 1380.
*Epidemic Encephalitis. R. Cruchet.—p. 1382.
*Pneumothorax with Pulmonary Tuberculosis. L. Bernard and Salomon.—p. 1387.

Treatment of Acute Purulent Pleurisy.—Renaud here reiterates that he has noted in his more than a thousand cases of acute pleuropulmonary disease in the last two years that the lung process is the main element in the disease and its evolution determines the prognosis. When suppuration occurs, this is a manifestation of the victory of the organism over the infection. The general symptoms subside as the purulent process becomes installed. In the primary phase, the infectious disease with localization in the lung and pleura calls for treatment of the lung and heart. The pleural complication is negligible in comparison. Treatment with repose, strict hygiene and dieting, digitalis and cold baths, with possibly venesection during the first phase, keeping the patient in bed until complete resolution of the pulmonary process—this may require three weeks at least with pneumonia—and neglecting the pleura, should be the rule. When there is no longer fear of collapse on the part of the heart, he gives an antiserum by the vein with epinephrin. Not until after the patient has been tided along to the second phase does he consider the pleura with puncture and lavage and possibly injection of an antiserum. There is no hurry; expectant treatment for days or weeks may lead to a vomica. If not, he introduces a rubber drain not over 9, 8 or 10 mm. in diameter with siphon drainage. This small drain is like a continuous puncture; it allows irrigation with an antiseptic, and extensive operative procedures are unnecessary. He has thus cured completely twelve patients with associated acute pulmonary and pleural processes without sequelae. Four recovered with a spontaneous vomica; five after puncture repeated from two to ten times, and three after puncture at first and then the narrow tube drainage. He reiterates that there is no need for the extensive intervention which others have been advocating recently for acute purulent pleurisy.

Radioscopy of Aneurysm of Abdominal Aorta.—In three of the four cases described the abdomen was inflated to promote radioscopy by the pneumoperitoneum; carbon dioxid had been injected or a mixture of this with oxygen, and the characteristic roentgen-ray findings are reproduced. Only one of the four patients had presented the classic attacks of pain, and in this case the sac-like aneurysm was back of the stomach and had probably irritated the solar plexus. In three of the cases there was aortic valvular disease and in two an aneurysm elsewhere. All were syphilitic, while the fourth patient was tuberculous with gout and lead poisoning. In Halle's case a murmur from the abdominal aorta was propagated along the spine to nearly the top of the head, but was most pronounced in the sacrum region; it could be heard with the stethoscope along the femurs.

Progressive Unilateral Ophthalmoplegia.—Foix warns that disease in the external wall of the cavernous sinus should always be suggested by rapidly progressive unilateral ophthalmoplegia accompanied with pain in the region of the ophthalmic nerve. The absence of disturbance in the circulation, and negative roentgenoscopy should not exclude this assumption. Necropsy revealed a sarcoma in one of the two cases reported, located in the posterior lobe of the pituitary. The paralysis had begun in both in the sixth pair, and had then involved the third and fourth pairs. In the second case a tumor was removed which had been encroaching on the rear wall of the sphenoidal sinus, and the patient is still being given prophylactic radiotherapy. The above symptoms should suggest the advisability of intervention with access through the nose. This may cure a sphenoidal lesion and mitigate in case of a tumor beyond.

Disseminated Sclerosis.—Among the peculiar features of the case to which attention is called is the inversion of the plantar reflex when the young man is placed face downward. Also that the previously mild pathologic condition became suddenly and permanently much worse after intercurrent diphtheria. Another feature was the aggravation in the symptoms which followed intravenous tentative treatment with neo-arsphenamin. Bacteriologic examination and inoculation of the blood were negative; also the Wassermann test for blood and spinal fluid, but the Emmanuel test in the latter was positive, and the benzoin test partially positive.

Obliteration of Varicose Veins.—Sicard and Paraf have found that injection directly into the vein of 10 c.c. of a 10 per cent. solution of sodium carbonate obliterates the vein without either local or general untoward by-effects. The amount may be injected at different points in the vein to a total of 30 c.c., every day or second day, but a single injection often answers the purpose. The patient sits in a chair on a table or stands for the injection and then reclines for a few minutes, after which he can go about his business. The sodium carbonate is not toxic and there has been no sign of its migration in the more than forty patients thus injected, nor in the hundreds they have injected by the vein with other drugs.

Abnormal Spinal Fluid in Hysteria.—Rouquier found abnormally high albumin and sugar content in the cerebrospinal fluid in fifteen cases of severe intermittent paroxysms of hysteric contracture or convulsions.

Embolism from Varicose Veins.—The interest of Amaudrut's case lies in the development of intestinal and pulmonary embolism from the varices on the legs, with a consecutive abscess in the lung, and its healing under induced pneumothorax.

Epidemic Encephalitis.—Cruchet recalls his publications in April, 1917, after nearly a year's observation of forty cases of an epidemic subacute encephalitis. The disease was reported a month later by Economo of Vienna and baptized lethargic encephalitis. Cruchet here comments on the peculiar gravity of the cases with true myoclonia, and the myorhythmic form, the most common.

Pneumothorax with Bilateral Tuberculosis.—In the case described the proposed artificial pneumothorax was abandoned as both lungs seemed seriously affected. But pneumothorax then occurred spontaneously, and great improvement has followed, to an almost clinical cure, the pneumothorax having been kept up artificially.

Journal de Médecine de Bordeaux

Dec. 10, 1920, **91**, No. 23

*Rehabilitation of the Disabled. J. Gourdon and Dijonneau.—p. 627.
Occlusion of Intestine from Band Developed in Ten Days After Laparotomy. R. Villar.—p. 635.

Rehabilitation of the Disabled.—This profusely illustrated article discusses the work of assembling parts of a machine, *ajustage,* and the question as to which of the war disabled are capable of resuming or learning work of this kind.

Journal de Radiologie et d'Electrologie, Paris

November, 1920, **4**, No. 11

*Radiologic Control of Pseudarthrosis. M. Galop.—p. 481.
Bilateral Köhler's Disease. A. Lomon.—p. 488.
Technic for Radium Treatment of Fibromas. S. Laborde.—p. 489.
*Combined Radiotherapy of Tumors. N. S. Finzi.—p. 491.

Pseudarthrosis of Forearm.—Galop's numerous illustrations demonstrate anew the importance of roentgen-ray examination in the differential diagnosis and for control of the healing of fractures, and especially of pseudarthrosis of the forearm. They show the preferable technic and present unmistakable evidence that well placed metal clips, clamps and wires are tolerated perfectly by the tissues, without any trace of osteitis at the point of contact. The transformation of the bone graft as it blends to form a homogeneous mass with the stumps can be traced, and likewise the failure to do this when suppuration interferes.

Combined Radiotherapy of Malignant Tumors.—Finzi recapitulates the experiences at St. Bartholomew's Hospital, London, proclaiming in conclusion that "inoperable is no longer synonymous with incurable."

Lyon Médical

Nov. 25, 1920, **129**, No. 22

*Epithelioma in Kidney Pelvis. E. Perrin and G. Aigrot.—p. 929.
*Epidural Injections for Sciatica. H. Feuillade.—p. 933.
Relations Between Physicians of Enemy Countries. M. Durand.—p. 950.

Epithelioma in Kidney Pelvis.—In the case described, painful hematuria was the only symptom from the nonpapillary epithelioma found in the pelvis of the left kidney. Even when the kidney was exposed, the diagnosis was still dubious until after exploratory nephrotomy.

Epidural Injections for Sciatica.—Feuillade states that the pain of sciatic neuralgia almost invariably subsides at once after epidural injection of an anesthetic or of enough physiologic saline solution to arrest the pain by mechanical means. When the pain is without complications and is traceable to exposure to wet and cold, a series of epidural injections generally cures it completely, and may prove successful even in rebellious chronic cases. As this method of treatment is so simple and effectual, he urges its application from the first in cases of sciatic neuralgia, without wasting time on other measures. The patient can recline on the side or kneel, stooping to make the region of the sacrum and coccyx protrude, thus stretching the obturator ligament. The needle is introduced between the tuberosities of the sacrum in the middle of the hiatus between the sacrum and coccyx, perpendicular to the skin, and is pushed through the obturator ligament. When this is pierced, the tip of the needle is turned into the axis of the sacral canal, and the tip is pushed into the spinal canal to a total depth of 3 or 4 cm. The fluid is then slowly injected; it lies between the dura and the periosteum of the spinal canal and spreads along the nerve roots. From 1 to 3 c.c. of a 1 per cent. solution of cocain is an effectual analgesic. For mechanical action he injects from 10 to 20 c.c. of physiologic saline, with or without a little cocain. A little epinephrin is always useful to modify the circulation in the region. When the neuralgia can be traced to one or more of the nerve roots, the analgesic has to be injected into the subarachnoid space, the technic that of lumbar puncture instead of the epidural technic.

Presse Médicale, Paris

Dec. 11, 1921, **28**, No. 91

*The Digestion Hemolysis Test for Insufficiency of the Liver. F. Widal, P. Abrami and N. Iancovesco.—p. 893.
Partial Antigens in Therapeusis. L. Cheinisse.—p. 899.

Digestion Hemolysis as Sign of Insufficiency of the Liver.—Widal, Abrami and Iancovesco describe what they say is an instructive, reliable and very sensitive test of insufficiency of the liver. It requires only counting the leukocytes before and at intervals for an hour after drinking a glass of milk, fasting. With a normal liver, the leukocyte figure remains about the same, but with derangement of liver functioning there is pronounced destruction of leukocytes during the first hour or two of digestion. Their research has demonstrated that some of the proteins in the food which escape complete disintegration, pass through the wall of the intestine, and penetrate into the portal vein. The blood traversing the liver has certain of these incompletely disintegrated proteins held back by the liver. This they call the proteopexic function of the liver. When the liver is incapable of thus retaining these incompletely disintegrated proteins, they pass on into the general circulation, where they exert a destructive action on the blood corpuscles, the digestion hemoclasic crisis as they call it. They found no trace of this digestion hemolysis in the large numbers of healthy persons examined, nor in those with different diseases sparing the liver. But in various forms of liver disease this hemoclasic crisis was pronounced, the leukocytes dropping to one half or one third of the previous figure. Other symptoms may accompany this hemoclasic crisis, but the drop in the leukocytes is enough of a reaction without heeding the change in the blood pressure, etc. This test is so sensitive that it reveals latent insufficiency of the liver, and the return to normal conditions can be traced with it. They found that the liver is always more or less injured by arsphenamin treatment, chloroform, etc., and the insufficiency may persist for two or three weeks after the arsphenamin. In ten diabetics, ingestion of from 2 to 20 gm. of glucose brought on the hemoclasic crisis in nine; the one exception was a case of renal diabetes. The test is positive in some persons with even as little as 15 gm. of milk, but 200 gm. is the usual amount used. Their research suggests further that certain phenomena which have hitherto been ascribed to motor or reflex disturbances in the stomach, are in fact due to this digestion proteopexic insufficiency of the liver. It is most pronounced with toxic, bacterial or circulatory damage of the liver, probably because the action of these factors is diffuse. They explain why this proteopexic insufficiency has nothing to do with alimentary anaphylaxis. The large numbers of hospital patients taking arsphenamin treatment gave them exceptional opportunity for study of the damage of the liver from the arsenicals, and its course under different doses and technics and on repetition of the dose. The proteopexic function of the liver is impaired first and early, and even with very small doses. Jaundice represents the severest form of this insufficiency of the liver for which the arsenicals are responsible. As a rule the hepatism is latent.

Progrès Médical, Paris

Oct. 23, 1920, **35**, No. 43

*Pellagra. L. Bory.—p. 461.
*Chondromas on the Limbs. Delbet.—p. 462.

Pellagra.—Bory agrees with those who think that pellagra develops only on a soil prepared by a one-sided diet, usually exclusively cereal, but that the infection is transmitted probably by some winged insect, presumably a sand-fly. He has recently encountered two cases, one in an Italian soldier in France, coming from a hotbed of pellagra. The other case developed in northern France in a mosquito haunted region but no other instance of the disease has been known there before or since. Bory learned, however, that a body of Italian troops had been camped in the vicinity for several weeks, and he reasons that the insects had become infected from them. The man contracting the disease was probably the only one sufficiently predisposed by his one-sided diet, as he had lived for years exclusively on milk, rice and other cereals on account of chronic digestive disturbance.

Chondroma.—Delbet recalls that malignant tumors are essentially single; multiplicity suggests a benign course. Chondromas develop almost exclusively during the period of growth. The alleged chondromas found in the parotid gland, testicle, tonsil, etc., are not true chondromas, but mixed tumors, embryomas. In a case described there were several chondromas on the man's fingers but the joints were intact; these tumors were translucent to light but not to the roentgen rays. They had softened in the interior, forming a pseudocyst. The chondromas which undergo osteoid transformation are extremely malignant. In the case described, the roentgen rays indicate this osteoid degeneration, and there is a suspiciously enlarged gland in each axilla. Delbet proposes to resect the enlarged gland on the side of the chondroma, basing the decision as to the operation on the chondromas on the microscopic findings in the gland.

Schweizerische medizinische Wochenschrift, Basel

Nov. 25, 1920, **50**, No. 48

*Poisoning with Water-Glass. H. Eichhorst.—p. 1081.
The Stages of Development of Pulmonary Tuberculosis. O. Amrein. —p. 1083.
Nature and Importance of High Frequency Currents. H. Weber.—p. 1086.

Water-Glass Poisoning.—Eichhorst explains that water-glass is being used now in many households for preserving eggs for the winter, and reports the case of a man who drank about 200 c.c. of it by mistake for wine as it was kept in a wine bottle. He vomited part of the fluid, but the lining of the alimentary canal was evidently irritated, with gray discoloration, burning pains, vomiting, diarrhea, occult bleeding and diffuse and severe abdominal pains. The kidneys also showed irritation, albumin, casts and blood appearing in the urine for a few days, and also sugar and acetone, the blood pressure running up to 152, with lymphocytosis and residual nitrogen of 0.073 per cent. The sugar content of the blood was not high, but the temperature rose for a few days. Treatment consisted of giving scraps of ice, with ice bag to the neck, rinsing out the mouth with an anesthetic, and giving iced milk and mixture of acacia. Eichhorst mentions parenthetically in conclusion that the herb equisetum has been recommended as a diuretic. This herb is very rich in silicic acid, and the hematuria in this water-glass poisoning case suggests caution in the use of equisetum. Lehmann has reported a case of hemoglobinuria developing after drinking a decoction of *Equisetum limosum.*

Annali d'Igiene, Rome

August, 1920, **30**, No. 8

Parasites of Field Mice. A. Splendore.—p. 445. Cont'd.
*Tobacco Smoke as Disinfectant for the Mouth. V. Puntoni.—p. 469.
*Immunity of Rats to Plague. F. Piccininni.—p. 484.
Etiology of Malignant Tumors. E. M. Perdue (Kansas City).—p. 497. Comment, A. Scala.—p. 502.

September, 1920, **30**, No. 9

The Proteids of the Cholera Vibrio. G. Sanarelli.—p. 521.
Diagnosis of Rabies in Putrefied Brain. V. Puntoni.—p. 538.
Serodiagnosis of Bacillary Dysentery. C. Vallardi.—p. 544.
Parasites in Field Mice and Wild Rats. A. Splendore.—p. 560. Cont'n.
Campaign Against Malaria at Fiumicino. B. Grassi and M. Sella. Supplement.

Tobacco Smoke as Disinfectant for the Mouth.—Puntoni used a series of connected flasks to approximate conditions when tobacco smoke is drawn into the mouth, and reports research with this and with other means for determining its bactericidal influence on various bacteria. He found that it has a strong disinfecting action in vitro on certain micro-organisms, such as the meningococcus, cholera vibrio and Pfeiffer bacillus, but the saliva in the mouth and the attraction of the mucosa attenuate the action of the smoke in the mouth. Only with the strongest smoke and the most susceptible micro-organisms (meningococcus and cholera vibrio) was any bactericidal effect apparent in the mouth. Typhoid and other more resistant germs are not affected, and it is absurd, he says, to ascribe any bactericidal action to smoke inhaled into the lower air passages. No difference in the bactericidal action of the smoke could be detected between ordinary and denicotinized cigars. The bactericidal action was only slightly attenuated by passage of the smoke through pressed cotton, although this retained all the nicotine. Several elements of the smoke evidently combine in the disinfecting action.

Plague in Rats at Naples.—Piccininni is in charge of the bacteriologic laboratory of the port of Naples. In 1914, eighteen rats with plague were found in 2,310 examined; none in 1915 and 1916; two in 1918 out of 1,421 examined, and twenty-five in 1919 but none had been found in 1920 to date of writing. He states that the majority of the rats at the port are immune to plague, and that this is probably the case in all large ports with vessels arriving from plague infested regions. This immunity of the local rats is a potent means of defense against the diffusion of plague in the ports. But the inland rats are not thus protected, and the port rats and inland rats should be kept separate. This has been done at Naples for many years and it is undoubtedly to this that the city of Naples owes its freedom from plague in rats and man.

Pediatria, Naples

Nov. 1, 1920, **28**, No. 21

*Etiology of Epidemic Encephalitis. S. Maggiore and M. Sindoni.—p. 985.
*Congenital Heart Defects and Syphilis. S. de Stefano.—p. 992.
The Thymus in Young Children. II. A. F. Canelli.—p. 1002. Cont'd.

Etiology of Epidemic Encephalitis.—Maggiore and Sindoni have already reported their success in treating epidemic encephalitis with an anti-influenza bacillus vaccine as a form of protein therapy. They have further succeeded in isolating from the blood and spinal fluid of five patients with different types of epidemic encephalitis a gram-negative coccus with which they reproduced the disease in rabbits by intracranial injection of a patient's spinal fluid or intravenous injection of a culture of the coccus. Repeated passages through animals reproduced invariably the same clinical picture and pathologic anatomic findings. These cocci seem to resemble in every respect the germs isolated by Noguchi in epidemic poliomyelitis, the only difference apparently being the greater susceptibility of rabbits and of adults to this encephalitis coccus. The seven various types of epidemic poliomyelitis are found in epidemic encephalitis, and the pathologic anatomy is closely alike, they say, especially the neurophagia and the polyblastic infiltration of the pia. The inference as to the identity of the two diseases is obvious, they conclude.

Congenital Heart Defects.—De Stefano reports that in the last six years at the Children's Clinic at Naples there were twenty-six boys and six girls with congenital cardiopathies. Fully 72 per cent. presented signs of unmistakable inherited syphilis and it was probable in all the others except five.

Policlinico, Rome

Dec. 6, 1920, **27**, No. 49

Diagnosis of Influenzal Pulmonary Abscess. F. Ciccarelli.—p. 1403.
*Abdominal Reflexes with Pneumonia. S. Pastore.—p. 1406.
Simple Ulcer of the Intestine. G. Basile.—p. 1410.
Automatic Vaginal Speculum. U. La-Monica.—p. 1412.
Identification of Instrument After Crime. A. De Dominicis.—p. 1414.

Abdominal Reflexes with Acute Pleural and Pulmonary Disease.—Pastore does not refer to the abdominal symptoms which frequently usher in pneumonia in children but subside as the pneumonia becomes installed. He describes some cases in which the clinical picture seemed to be that of actual appendicitis, and not until the fourth day or later did the pneumonia become apparent, or it was overshadowed to the end. Operations on the appendix showed that it was normal. In one boy of 10 the pain and other symptoms deceptively simulating acute appendicitis developed the third day of a typical left pneumonia and persisted until the eighth day when the crisis of the pneumonia was reached. Then all the symptoms subsided. In these puzzling cases palpation through the rectum is often instructive, or palpation of Douglas' pouch, or pressure on the right kidney region; the latter elicits pain at McBurney's point in case of appendicitis. Another aid in differentiation is the wide difference between the temperature in the axilla and in the rectum with appendicitis. Flushed cheeks point to pneumonia rather than appendicitis. Radioscopy may be instructive. The pneumonia is not always on the side of the symptoms suggesting appendicitis, and actual appendicitis may accompany the pneumonia. Talamon has reported a case of suppurative parotitis, and then appendicitis, accompanying pneumonia. Ferrier found at necropsy, in a right pneumonia case, unsuspected appenditicis and ulcerative endocarditis, with pneumococci in the pus from all. Pastore cites a number of cases of intestinal complications of pneumonia, including dysenteriform enteritis and perforating duodenal ulcer. The lymphatic constitution and the female sex seem to predispose to these appendicitis complications, by way of the sympathetic system. The pneumococcus may attack the appendix first and migrate thence to the lung. "The practitioner must keep his eye on the lung in appendicitis and on the appendix in pneumonia."

Riforma Medica, Naples

Oct. 16, 1920, **36**, No. 42

Present Status of Mammary Tumors. D. Giordano.—p. 949.
*Hemorrhagic Purpura and Tuberculosis. G. Garin.—p. 952.
Filtrable Virus in Lethargic Encephalitis. Durand.—p. 957.
Lethargic Encephalitis Suggesting Influenza. G. Sofrè.—p. 957.
Perforation of Bowel in Typhoid in Children. M. Gioseffi.—p. 959.
Carbohydrates in Diet of Diabetics. A. Ferrannini.—p. 960.
Torticollis. E. Aievoli.—p. 961.

Hemorrhagic Purpura and Tuberculosis.—Garin cites Schupfer's case of chronic hemorrhagic purpura with fifteen attacks in the course of fourteen years, and his twenty-six primary cases to sustain the view that hemorrhagic purpura is not a morbid entity but is merely a manifestation of some other disease. The primary disease is almost inevitably tuberculosis. In a personal case described, everything seemed to indicate a primary severe hemorrhagic purpura in a young man followed rapidly by acute nephritis which proved fatal in less than a month after the first symptoms of the purpura. Necropsy disclosed miliary tuberculosis, affecting the kidneys predominantly. The purpura, pain in the joints, etc., were merely the expression of toxic action from the tuberculosis.

Rivista Critica de Clinica Medica, Florence

Oct. 25, 1920, **21**, No. 30

Clinical Pictures of Epidemic Encephalitis and Their Interpretation. A. Varisco.—p. 349. Conc'n in No. 32, p. 373.

Nov. 5, 1920, **21**, No. 31

Present Status of Bowen's Precancerous Dermatosis. D'Arbela.—p. 368.

Revista de la Asoc. Méd. Argentina, Buenos Aires

July-September, 1920, **33**, No. 189-191

Gumma Evacuated Through Bronchus. Arrillaga and Elizalde.—p. 335.
Differences Between Tuberculous and Syphilitic Granulation Tissue. P. I. Elizalde.—p. 345.
*Bladder-Kidney Reflex. O. M. Pico.—p. 358.
Sensitiveness to Curare of European and American Frogs. L. Cervera and J. Guglielmetti.—p. 362.
The Natural Antitoxin Content of Normal Horse Serum in Treatment of Diphtheria. R. Kraus and A. Sordelli.—p. 365.
*Case of Recklinghausen's Disease. M. R. Castex and A. Marco del Pont.—p. 369.
*Etiology and Treatment of Diabetes. T. Padilla and E. S. Paz.—p. 383.
*The Stomach-Gallbladder-Duodenum Syndrome. L. Agote.—p. 391.
*Somnolency from Thyroid Insufficiency. C. Bonorino Udaondo.—p. 413.
Case of Lethargic Encephalitis. M. R. Castex and N. Romano.—p. 423.
*Serotherapy of Chancroid. J. Reenstierna.—p. 433.
Paroxysmal Tachycardia; Two Cases. R. A. Bullrich.—p. 440.
Progressive Lipodystrophy. J. P. Garrahan.—p. 447.
*Primary Hypogenitalism; Three Cases. M. R. Castex and C. P. Waldorp.—p. 458.

Bladder-Kidney Reflex.—Pico has been testing on dogs the inhibition of secretion of urine when the bladder is much distended, and concludes that this so-called bladder-kidney reflex is merely a vasomotor reflex such as is liable to be induced by any painful stimulus.

Recklinghausen's Disease.—Castex and del Pont give a colored plate and photomicrograms of an extreme case of subcutaneous tumors of the Recklinghausen type in a man of 48. The tumors show a sarcomatous structure with a tendency to fatty degeneration, but they were small and had never been noticed by the man who had applied for treatment for an acute throat disturbance. He presented numerous manifestations of tertiary syphilis, with hypertrophy of the heart and a gummatous bone process.

Diabetes.—Padilla and Paz report three new cases and the outcome in three cases previously published, in all of which diabetes had developed on a basis of syphilis. The fact that the sugar disappeared completely from the urine under treatment for syphilis in all these six cases confirms, they declare, the syphilitic nature of the diabetes. One man did not complete the course, and the glycosuria returned after primary improvement. Dietetic treatment is wise even in these syphilitic cases of diabetes, to avoid straining the pancreas.

Clinical Picture from Adhesions Between Stomach, Gallbladder and Duodenum.—Agote describes five cases, out of a more extensive experience, in which symptoms suggesting gallstones, gastric ulcer and periduodenitis were blended, without a clear clinical picture of either. In one typical case the man developed duodenal ulcer, cardiospasm and gallstone colic, the blending of the symptoms proving very puzzling, but a triple operation, cholecystectomy, gastro-enterostomy and temporary gastrotomy, restored apparently complete and permanent clinical health. The only way to differentiate this *sindrome gastro-cistico-duodenal,* he says, is to compare feature by feature the symptoms observed with the features of pure, uncomplicated cholelithiasis, and disease in the stomach, duodenum or gallbladder, noting the confusion in the symptoms, their changing about, the waves in their intensity, absence of anorexia, constant sensation of oppression in the gallbladder and epigastric region, the usually normal composition of the gastric juice, the long duration of the disturbances without any complete subsidence at any time, and the localized reactions in the peritoneum. All these viscera are innervated and irrigated by a common nerve and blood vessel supply.

Thyroid Deficiency and Somnolency.—Bonorino reports two cases of prolonged somnolency in a woman of 29 and man of 33. He accepted it as a manifestation of thyroid insufficiency, corroborated by a few other minor symptoms, and the cure under thyroid treatment confirmed the correctness of this assumption, and the efficacy of thyroid treatment in such cases. His review of the literature shows the frequency of a tendency to sleeplessness with excessive functioning of the thyroid, in contrast to the frequent irresistible and prolonged somnolency with thyroid dysfunction.

Serotherapy of Chancroids.—Reenstierna's experiences in this line were reviewed Nov. 20, 1920, p. 1460, when published elsewhere.

Primary Genital Dystrophy.—Castex and Waldorp describe with nineteen illustrations three cases of primary hypogenitalism in men of 22, 64 and 48, all evidently endocrinopathies from tardy inherited syphilis. Each represents a different type, one a feminine eunuchoid development, another presenting the Rummo and Ferrannini type of genitodystrophic senilism or geroderma; the third a type of primary tardy hypogenitalism, the previously virile man of 48 acquiring characteristics resembling those of an elderly woman, with indications of pituitary and thyroid malfunction. Under treatment for syphilis, supplemented by organotherapy, testicle, thyroid and pituitary, conditions were materially improved and the aspect and functions of manhood returned to some extent.

Semana Médica, Buenos Aires

Sept. 23, 1920, **27**, No. 39

*Anatomy of Duodenum and Pancreas. A. Abeberry Oneto.—p. 395.
*Chemotherapy of Syphilis. C. Pillado Matheu.—p. 415.
Dystocia from Agglutination of the Cervix. T. A. Chamorro.—p. 422.
*Crossed Hemiplegia from Brain Tumor. J. M. Obarrio.—p. 423.

Anatomy of the Duodenum and Pancreas.—This is the long and profusely illustrated thesis presented in competition for the chair of descriptive anatomy, based on original research and the findings compared with textbooks and atlases.

Chemotherapy of Syphilis.—Pillado Matheu argues that the drugs used in treatment of syphilis are not specific but act by stimulating oxidations, and that the amin elements are the important ones, the arsenic being merely a catalyzer.

Crossed Hemiplegia from Tumor in the Pons.—The symptoms in the boy of 5 are compared with those on record in cases of crossed hemiplegia, and the diagnosis is made, by exclusion, of a glioma in the pons.

Oct. 14, 1920, **27**, No. 42

Extraperitoneal Cesarean Section. A. R. Enríquez and T. A. Chamorro.—p. 503.
Electronegative Peroxids in Treatment of Tuberculosis. F. Landolph.—p. 506.
*Digestive Anti-Anaphylaxis. A. Zubizarreta.—p. 513.
*Operative Pneumothorax. R. Finochietto.—p. 517.
Hemihypertrophy. J. P. Garrahan.—p. 519.
Large Doses of Sodium Cacodylate and Arrenal by the Vein. A. Bergman.—p. 521.

Cure of Digestive Anaphylaxis.—Zubizarreta recalls Arraga's experience with the severe disturbances sometimes encountered when infants fed on cow's milk were vaccinated. The vaccine is cow's lymph, and when it gets into the circulation through the scarification it may act as a parenteral protein to bring on an attack of anaphylaxis from the imperfectly digested cow's milk already in the system. He recalls further the fact that the protein bringing on the attack does not have to be injected parenterally for this to occur. He has had guinea-pigs develop attacks of anaphylaxis after they had been fed large amounts of rabbit's serum and then, a week or so later, had been fed more of the same serum. It acted like a parenteral injection to bring on the attack. This is what he calls digestive anaphylaxis. "If for any reason the special substance involved does not become animalized or homologized, further ingestion of more of the same substance brings on the attack of anaphylaxis." The homologizing, as he calls it, seems to be done in the upper digestive tract. After injection through a laparotomy of egg albumin into the stomach of a rabbit, borne without harm, a subsequent intravenous injection of the same is also borne without harm. But if the egg albumin is injected lower down in the digestive tract, in the large intestine, the animal dies or the possibly fatal attack of digestive anaphylaxis follows.

To differentiate digestive anaphylaxis in a patient, he injects 2 c.c. of the patient's serum into the peritoneum of a guinea-pig, and twenty-four hours later he injects a dilute solution of egg yolk into a vein of the same animal. If the guinea-pig shows signs of anaphylactic shock, the diagnosis of digestive anaphylaxis for eggs is certain. A skin test is also instructive; for this he applies with a spatula to a scarified region a small amount of the food substance suspected. If insoluble, it is pulverized, the powder scattered on the scarified surface and moistened with a few drops of physiologic saline. With a positive reaction, an urticaria-like wheal forms, about 0.5 cm. in diameter, which gradually subsides. These two tests are applied regularly in his service, and have thrown light on a number of puzzling cases. He has found that certain children are unable to eat fresh eggs while they can take eggs with impunity when they have been kept for a time; it is hard to convince families that the disturbances presented by their children can be warded off by buying the eggs from the grocery instead of serving eggs from their own poultry yard. Another practical point learned from his experience is the benefit from extract of stomach and upper intestine tissues, rich in the ferments of digestion and homologization, reemplacing or stimulating the missing ferments in the patients. In the case of one girl of 10, intense anaphylaxis was induced whenever she ate meat. Fever, vomiting, diarrhea, great prostration, shifting edema, and intense general pruritus followed every attempt to eat beef. As a measure for anti-anaphylaxis he ordered the child to take 0 5 gm. peptone an hour before the meat meal. She could then eat beef with some degree of comfort, the anaphylactic symptoms afterward being less severe, but still regularly appearing. He then changed to Liebig's beef extract, ordering 1 c.c. in hot water an hour before the meal. The result, he says, was actually brilliant. During the following six months she was able to eat beef at will, once or twice a day, and has never shown the slightest symptoms of the old intolerance. Since then the anti-anaphylaxis measure has been abandoned, and the child seems quite normal in every respect. This case teaches that beef meat is liable to induce anaphylaxis; the child never showed any intolerance for milk.

Operative Pneumothorax.—Finochietto advises a preliminary artificial pneumothorax before an operation for a hydatid cyst in the lung. It aids in the differential diagnosis, and prepares the pleura and the lung for the operation. After the operation, it aids in checking the flow of blood and in preventing the filling up of the cavity. In 90 per cent. of all such cases the hydatid cyst has already induced perforation of one or more of the adjacent bronchial twigs. He recalls Posadas' pioneer work in this line in 1898, his partial and temporary thoracoplastic operation exposing the field, and his method of harpooning with a large Hagedorn needle allowing a very slow and gradual formation of the pneumothorax through the needle holes, the harpoon holding up the lung as the pleura is amply opened. The principles he thus applied received little heed for twenty years, but the present day simple surgery of the lung is based on the identical principles which he advocated for treatment of deep and nonadherent hydatid cysts in the lungs twenty-two years ago.

Deutsche medizinische Wochenschrift, Berlin

Oct. 1, 1920, **46,** No. 40

Therapeutic Inoculation with Recurrent Fever in General Paresis. F. Plaut and G. Steiner.—p. 1101.
Trials with Tuberculins of Different Sorts. Schuster.—p. 1102.
Birth and Infant Death Rate Since the War. A. Schlossmann.—p. 1104.
Clinical Examination of the Circulation in Comparison with the Results with the von Basch Models. W. Arnoldi.—p. 1106.
Effect of Iontophoresis in Eye Affections. G. Erlanger.—p. 1107.
Coxa Vara. M. Zondek.—p. 1109.
*Latent Syphilis of the Throat. Gerber.—p. 1110.
Roentgen Findings of the Diaphragm. J. Ziegler.—p. 1112.
Humagsolan in Alopecia Areata. Prior.—p. 1114.
Present Clinical Status of Cardiovascular Syphilis. Rosin.—p. 1114.
Otologic Hints for the General Practitioner. G. Brühl.—p. 1117.

Latent Syphilis of the Throat.—Gerber regrets to note that one of the mistakes made during the present campaign of enlightenment in regard to syphilis is that the disease is still represented almost exclusively as an external disease—as a disease of the genital organs. It is the same mistake that is made when lupus is represented solely as a skin disease, which prevents the early recognition of the affection. That syphilis may appear first in the throat and only in the throat seems to be lost sight of by many physicians. Some do not seem to be able to get away from the idea that the primary effect in syphilis is always a hard nodule, whereas it may be a soft chancre, a pimple, a vesicle or a mere sore. Such symptoms may mean everything and they may mean nothing. As for the roseola, that may consist of only a slight mottling of the skin requiring a skilled eye for its recognition. The opalescent patches are often found only in some out-of-the-way place. Quite often there is a fibrinous coating presenting the appearance of angina simplex, lacunaris, necrotica; diphtheria, Plaut-Vincent angina or a herpes vesicle. Patients with syphilis of the throat usually state that they have been suffering for several weeks from a sore throat which would not yield to treatment. Some complain of headache or of slight twinges of pain and obstruction in the ears. There is no fever. Many patients look the picture of health; others are weak and anemic. The peculiarity of the symptoms lies first in their mild nature and secondly in their long duration. Other diseases with similar symptoms have a more rapid course with more marked subjective and objective symptoms. If, in addition, he finds at the posterior edge of the sternocleidomastoid muscle a number of small, hard, indolent glands, he is almost sure of the diagnosis of syphilis, as scrofulous children seldom enter into the case.

Therapeutische Halbmonatshefte, Berlin

Sept. 15, 1920, **34,** No. 18

Diseases of the Ear. M. Maier.—p. 493. Cont'd.
The Drug Uzara. A. Gürber.—p. 496. Begun in No. 17, p. 465.
Use in General Practice of a Combination of Sodium Cacodylate and Strychnin. L. Veilchenblau.—p. 508.

Zentralblatt für Chirurgie, Leipzig

Sept. 25, 1920, **47,** No. 39

*Incision for Access to Stomach and Gallbladder. Linnartz.—p. 1194.
*Serodiagnosis and Immunotherapy in Carcinoma. W. Drügg.—p. 1198.
Bridging Over of Nerve Defects. F. Cahen.—p. 1202.
Wire Extension for Fractures. E. Herzberg.—p. 1205.

The Incision in Operations on the Stomach and Gallbladder.—After trying various incisions, during his twelve years' experience, Linnartz concluded that the incision parallel to the costal arch and at the level of the margin of the liver was the best. He used to divide the rectus muscle completely, but he came to regard the division of the muscle as a surgical crudity, at least in the cases in which a smaller opening will suffice. Later he divided the muscle half way, but of recent years he has discarded entirely the division of the muscle and has, at the same time, given another direction to the skin incision. He finds that a transverse incision perpendicular to the median line, a thumb's breadth above the umbilicus (the rectus muscle being pushed aside), is sufficient for uncomplicated cases requiring removal of the gallbladder; also for operations on the stomach. Hernias are avoided, the scar is scarcely visible, and the wound heals almost always by first intention. In a few cases in men it may be necessary to incise the rectus if it is unyielding. In rare cases the right-angle incision may be indicated, and even division of the rectus. The incision he advocates begins at the median margin of the rectus muscle, crosses the median line and divides the anterior aponeurosis and terminates at the junction of the seventh rib with the costal cartilage.

Serodiagnosis and Immunotherapy as Applied to Carcinoma.—Drügg states that it has been the object of much endeavor to discover in the early stages of carcinoma the fine changes that occur in the organism, but the attempts have not as yet been particularly successful. The difficulties of the problem are great and Drügg thinks it will be solved only after we have gained more thorough knowledge of the biology of this tumor and of the biologic relationship existing between it and its host. Abderhalden extended his studies on protective ferments to carcinomas, and the demonstration of carcinoma-destroying ferments in the blood serum of carcinoma patients has led logically to the consistent administration of serum (horse serum, for exemple) containing such ferments, in hopes of forcing the formation of protective ferments in case they did not develop spontaneously, or of reinforcing them if they were present in inadequate quantities. Drügg reports in detail the results of his injections of protective horse serums in five cases of carcinoma. In Case 1 a woman, aged 43, had been suffering for years from multiple sclerosis. A plum-sized nodule was present in the left mamma—of recent origin, it was said. The left supraclavicular glands were enlarged and hard. An examination of tissue taken from the nodule yielded a diagnosis of hard carcinoma with scirrhous tissue. The blood of the patient was sent to Abderhalden for examination. He reported: "No digestion of carcinoma of the breast." During a period of twelve days, 200 c.c. of prepared horse serum (obtained after previous treatment with scirrhous carcinoma of the breast) were injected subcutaneously or intramuscularly. The temperature at first was 102.2 F. After the injections normal temperature returned at once. A general feeling of discomfort and of stiffness in the joints was present. At the site of the injections there was marked infiltration and some pain. At the site of the diagnostic excision a marked serous secretion appeared. Six weeks after beginning the injections the nodule in the breast could no longer be felt. The supraclavicular glands were unchanged.

The report from a second examination of the blood made by Abderhalden read: "Digestion of mammary fibroadenoma; slight digestion of mammary carcinoma." An examination after the lapse of three years revealed a pale, pliable scar. There were no nodules in the breast or in the scar. The supraclavicular glands were barely palpable. The wound had suppurated for several months and had then closed. The general health of the patient was good. In the four other cases reported, which were more advanced and more severe, although temporary relief was afforded, the fatal result could not be forestalled. Drügg offers this only as a preliminary report.

Zentralblatt für Gynäkologie, Leipzig

Sept. 25, 1920, **44**, No. 39

*Stricture of the Female Urethra. Heinrichsdorff.—p. 1081.
Two Cases of Fistula of the Cervix Uteri Caused by Attempts at Criminal Abortion. H. Becker.—p. 1084.
Blood Transfusion in Obstetrics and Gynecology. A. Vágó.—p. 1087.

Stricture of the Female Urethra.—In Heinrichsdorff's experience, urethral stricture in women has been a rare finding; he therefore gives an account of a peculiar case. The patient, a woman aged 65, had been suffering from involuntary dribbling of urine for about a year. Voluntary micturition was difficult. The urine passed contained considerable blood. The urethra was much constricted. The vicinity was infiltrated. The introduction of a very small catheter was difficult. Following its introduction, several liters of bloody, foul-smelling, dark-colored urine were withdrawn. Bladder lavage was done and by gradual dilatation of the urethra it was planned to introduce the cystoscope. The following day the patient had a high fever and her strength failed rapidly, for which reason the cystoscope was not used. Death in coma occurred on the third day. Necropsy revealed that the urethra in its proximal third was so constricted by a bean-sized, hard, rounded protuberance of the posterior wall that only small sounds could be passed. The wall of the neck of the bladder was hard and much thickened. The bladder itself was extremely large, the wall was stiff and in places a centimeter thick. In some places the bladder wall was thin and protruded outward. In the posterior, right, upper quadrant there was a dime-sized ulceration. Both ureters were thick as a finger, tortuous and filled with a purulent fluid. The kidneys were enlarged and very soft, studded with small abscesses, very little normal tissue being left. The condition was thus due to stenosis of the upper urethra, which had entailed retention and stagnation of urine and dilatation of the superior urinary passages, followed by their infection and a suppurative process throughout the kidneys. The inflammation of the mucosa of the bladder gave rise to a circumscribed ulceration, which may be regarded as the cause of the hemorrhage from the bladder. He thinks that cicatricial changes from obstetric trauma are probably responsible for the stenosis, his case thus confirming the assumption that urethral stricture in women is of traumatic origin.

Zentralblatt für innere Medizin, Leipzig

Sept. 25, 1920, **41**, No. 39

*Effect of Hypophysis Extracts on Secretion of Urine. F. Brunn.—p. 674.

Effect of Hypophysis Extracts on the Secretion of Urine.—Brunn states that while, on the basis of earlier animal experiments, it was reported that extracts of the hypophysis exert a diuretic effect on the secretion of urine, a large number of writers today agree that the subcutaneous injection of any of the commercial hypophysis preparations results in a checking of diuresis. Saxl and Brunn found that in from three to four hours after an injection of a hypophysis preparation a very small quantity of highly concentrated urine is secreted. In other trials an artificial polyuria was produced by allowing the subject to drink a liter of water; the half-hourly portions of urine were collected and the volume and specific gravity were determined. In from three to four hours the effect of the extract had worn off and copious diuresis set in, which corresponded to the normal results in experiments with water, only postponed, as it were, for four hours. The excretion of sodium chlorid was not affected, on the whole, by the extract. The checking of diuresis was more marked the greater the original water diuresis and the less the sodium chlorid diuresis; in other words, the more dilute the urine and the lower the specific gravity. As throwing light on the possible mechanism of the effect of hypophysis extracts on diuresis, Brunn calls especial attention to the fact that during the checking of diuresis marked hydremia is noted. This seems to point to a blocking in the kidney and opposes the assumption that the tissues under the effect of the extract hold back the water, to a great extent, and cannot give it off into the blood stream.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1920, No. 3. Parallel Dutch-English or German Edition

*Sterilization of Water with Lime. J. Smit.—p. 2.
*Destruction of Cellulose by Aerobic Bacteria. J. Groenewege.—p. 38.
Case of Autochthonous Infection with Actinomyces. J. A. De Nooy.—p. 146.

Purification and Sterilization of Drinking Water with Lime.—Smit reports that his extensive experiments with lime have confirmed its sterilizing and clarifying power for river water. He refers to the turbid, brown rivers of Java in which the amount of dissolved impurities and content of ammonia is small. The addition of milk of lime causes flaking of the colloid particles responsible for the turbidity. Ordinary laboratory filter paper retained practically all bacteria when the fluid passed through it had been rendered alkaline. His tabulations show that there is a possibility of obtaining nearly sterile water from turbid and greatly polluted water by mixing lime with it for just a few seconds, and passing the mixture through ordinary coarse filter paper, provided the first 250 c.c. be thrown away. His tests do not prove that the method can be applied on a large scale, with sand instead of paper, but they render it strongly probable. He reiterates that the filtrate only requires neutralization with carbon dioxid, which is harmless, to give a completely reliable, sufficiently soft and palatable water.

Destruction of Cellulose by Aerobic Bacteria.—Groenewege says that his research on septic tanks demonstrated that the aerobes play a much more important part in digesting cellulose than anaerobes. The exhaustive research here described has confirmed among other things that the cell produces an enzyme—cellulase—which is to cellulose what diastase is to starch. The cultures of bacteria on solid mediums which induce denitrification in cellulose seem to represent a kind of symbiosis, as he explains.

1920, No. 4

*"Low Fever." C. D. de Langen.—p. 48.
The Malaria Problem at Batavia. M. L. van Breemen.—p. 62.
Sugar Content of Blood During Voyage from Holland to Dutch Indies. H. Schut.—p. 116.

Calcium in Treatment of "Low Fever."—De Langen refers to the condition comparatively frequent in Europeans residing in tropical lowlands in which the temperature keeps slightly above normal without any appreciable cause. Those who are aware of this abnormal temperature are liable to dwell on it and begin to feel ill. If not, they may keep in good condition, and sooner or later the temperature subsides to the normal range. If the daily variations of temperature are greater, there is liable to be subjective malaise, and in twelve such patients examined the blood sugar was found above normal.

When the temperature returned permanently to normal, the blood sugar also returned to the normal level. De Langen arscribes the whole to exaggerated activity of the sympathetic nervous system, which he has found exceptionally common in the tropics, and consequently he has been treating these low fevers with calcium. This we know has a sedative influence on the sympathetic. A trip to the mountains is generally promptly successful in restoring the temperature and the sugar content of the blood to normal, but he has found almost equally effectual a course of treatment with calcium chlorid combined with Fowler's solution, supplemented with food containing calcium. In some cases the calcium has to be kept up indefinitely; in others one or two months is long enough. Epinephrin increases all the symptoms. No benefit was realized with pilocarpin which seems theoretically indicated.

A low fever was sometimes discovered in persons complaining merely of dull headache, or as a complication of quinin treatment. Dropping the quinin cured those in this group, and the calcium-Fowler's solution treatment cured those in the headache group. Subnormal temperature with headache in women may be due to endocrine deficiency. He has cured the serious headache in some cases of this kind with ovarian or thyroid treatment, but had no opportunity to examine the blood for sugar. He regards it as probable, however, that abnormal conditions in the autonomic nervous system are responsible for the disturbances. Chronic hyperthermia is common in children in his environment, and this too responds well to calcium, but he warns that the thermometer should not be applied to a child within an hour after a meal, and never unless the child has been resting quietly for half an hour. Otherwise, children have such unstable temperatures that fever may be assumed when the temperature is essentially normal. After recovery from a febrile disease, there may be long persisting slight temperature unless the child is sent to the mountains or takes calcium. In short, he declares, in the tropics the physician must not be too ready with the diagnosis of tuberculosis or malaria with persisting low fever.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 6, 1920, 2, No. 19

*Diagnosis of Cerebellopontine Tumors. H. W. Stenvers.—p. 1871.
Difference in Onset of Organic and Genuine Epilepsy. J. J. H. M. Klessens.—p. 1883.
Advancing Spectacles to Adapt to Accommodation. C. O. Roelofs.—p. 1891.
*Poisoning from Chocolate. J. P. Asjes.—p. 1894.

Diagnosis of Cerebellopontine Tumors.—Stenvers states that in five of the six tumors of this kind he has had to examine, the neurologists and ophthalmologists consulted had diagnosed the case incorrectly until the roentgen-ray findings in the petrous bone gave the clue. He describes further a case of trigeminal and occipital neuralgia, with facial paresis, right hypoglossus paresis, slight changes in the fundus of the eye, abnormal corneal reflex, slight nystagmus, a tumor in the vicinity of the ear, disturbance in taste and partial deafness, with extreme sensibility to loud sounds. Muskens has reported an almost identical case and explained it as a cerebellopontine tumor, but in Stenvers' case necropsy revealed that the causal lesion was an extracranial metastasic tumor protruding into the middle cranial fossa. The pontine angle was normal. He adds that in every case of cerebellopontine angle tumor which he has examined, the petrous portion of the temporal bone was always found decidedly abnormal, and the roentgen examination invariably had revealed this anomaly in the petrous bone during life. The clinical-neurologic diagnosis should always be confirmed by roentgen examination of the petrous bone (*rotsbeen*).

Monomethylamin Poisoning.—The two children presented severe intoxication after eating some chocolate and drinking some buttermilk. They recovered, and Asjes' tests showed monomethylamin poisoning. He ascribes it to some contamination of the chocolate as it was being packed, with production of monomethylamin by bacteria. The chocolate had not tasted right, and the children had thrown away half of the piece.

Nov. 20, 1920, 2, No. 21

Psychology of Reaction Processes. A. A. Grünbaum.—p. 2095.
Roentgen Ray Treatment of Mammary Cancer. C. H. Kok.—p. 2108.
*The Records of Medical Science. F. Hijmans.—p. 2112.
Hyperthermia as Phenomenon in Course of Abstention from Morphin. G. C. Bolten.—p. 2115.
Origin and Significance of Urobilinuria. A. Hoedemakers.—p. 2120.

The Records of Medical Science.—Hijmans offers some suggestions which he thinks would much facilitate the search through medical literature for articles on a special subject. Among them is his suggestion that the title of every medical article and abstract thereof should be accompanied by the decimal number which represents its classification by the librarians' method of decimal classification for books and documents. He also suggests means to avoid duplication of effort by different reviewers duplicating abstracts of the one article. For this he outlines international cooperation and national cooperation between medical journals, with an international central bureau.

Hygiea, Stockholm

Nov. 30, 1920, 82, No. 22

*Impressions from a Visit to America. I. Holmgren.—p. 721.

Medical Impressions of America.—Forty-six pages and fifty-four illustrations give an informal account of Prof. Israel Holmgren's visit to some of the medical centers of this country a little over a year ago. He was accompanied by Prof. P. Haglund, also of the Stockholm medical school, and Prof. P. F. Holst of the Christiania school. One of the illustrations shows the building of the American Medical Association. The various departments and the features of the work done there are described in detail, especially the Spanish edition of The Journal and the card catalogue of physicians in the United States. "Each physician in the country," he says, "has an individual register, . . . and the information in regard to the antecedents of every physician is thus accessible at any moment if occasion arises to require it. . . . I am confident that this organization has done much for the rapid improvement of conditions for the members of the profession in the United States." In speaking of the absence of wine at the hotels, he remarks that the diners seem to derive the same effect from dancing between the courses of the dinner as from the wine served in Sweden. The nurses' homes in the different cities, the management of the hospitals, the way in which the physicians make their rounds, the Swedish hospital in Chicago and elsewhere, the plans of the hospital buildings in general, and the private homes of the physicians who entertained him are described, as also the research being done by Carrel and others in the institutions he visited. (His account of his visit to the headquarters of the American Medical Association was translated in full on page 188.)

Ugeskrift for Læger, Copenhagen

Nov. 18, 1920, 82, No. 47

*Variations in Erythrocyte Count in the Normal. K. Bierring.—p. 1445.
*Postoperative Atony of the Stomach. I. Hansen.—p. 1450.

Variations in the Erythrocyte Count in the Normal.—Bierring found differences up to 2,400,000 in the blood at different times in healthy persons. There does not seem to be any regularity about the fluctuations and they occur indiscriminately in men and in women.

Postoperative Atony of the Stomach.—The extreme dilatation of the stomach was combated with lavage of the stomach and a dose of 1 mg. of strychnin nitrate. Recovery followed without the necessity for postural treatment which would have been very painful on account of the preceding laparotomy and relaparotomy that had been done on suspicion of a vicious circle.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 5 Chicago, Illinois January 29, 1921

UREMIA *

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NEW YORK

In his Harvey lecture on "Nephritis," Theodore Janeway stated three problems, the solution of which are necessary for a clearer conception of the symptoms of renal disease—edema, vascular hypertension and uremia. At that time, 1913, I was studying uremia in the belief that the solution of this question might aid materially in solving the others and possibly throw light on the essentially most significant problem, namely, the mode of production of nephritis generally.

By uremia we understand an intoxication that is likely to supervene in nephritis, manifested by psychomotor disorders. The term takes origin in the fact disclosed by the first chemical studies of body fluids of nephritics—the increase of urea in the blood and cerebrospinal fluid, which was first detected by Christison and Babbington. It was a natural inference that the retention in the body of considerable amounts of substances known to be waste products, since they were present in normal urine, should be considered responsible for the conspicuous symptom of epileptiform convulsions. The initial error in this deduction was the ancient enemy of medical science—faulty logic—and it required the energies of some of the best minds for the next half century to correct the conception. Owen Rees, it is true, objected to the current theory on the ground that larger amounts of urea were recovered from the blood in a case of obstructive anuria than had been noted in any case of Bright's disease, yet there had been in his case no nervous disturbances, no convulsive seizures. Subsequent results of animal experimentation cast a shadow of doubt on the theory which, however, was but slightly altered since ammonium carbonate, the supposed precursor of urea, focused attention (Frerichs) for a generation, until Oppler, under Hoppe-Seyler's direction, finally disproved the hypothesis.

The attention of students with a chemical bent turned to the extractives; but as theories based on the idea of the toxic nature of urinary elements weakened, the morbid anatomists advanced other theories based on supposed changes in the central nervous system, as inflammation of the arachnoid, and edema of the brain, general or local. Traube's attention was arrested by the frequency of serous effusions in nephritis, and this fact, together with cardiac hypertrophy and the increased arterial pressure, led him into a complex mechanical explanation of cerebral edema.

The history of these early investigations is here merely outlined because no abiding truth was revealed, no principle of wider application determined. This history is also an exception in medicine since not here, as has so often happened, did the clinician separate out of chaotic disorder the several disease entities and state clearly the problem for solution. To a confusion of clinical entities must be ascribed the barren results of carefully done work. For example, the intimate relation between cardiac disorders and renal disease or their similarities could not have been duly appreciated till a later date, nor the types of cerebral accident that may result.

Now, while the term uremia may be inexact, yet it has won a general usage as descriptive of several symptom complexes accompanying nephritis. These symptoms fall roughly into groups. Thus, headache, vomiting, diarrhea and amaurosis are styled toxic; then there are psychic symptoms: hallucinatory-paranoid states, stupor and coma, and motor symptoms: transient paralyses, paresis and hemiplegia and convulsions. Careful clinical studies have shown that of these symptoms some are likely to occur together, while others are more or less fortuitous; and so there has grown up a conception of types of uremia. The convulsive or epileptiform type was the earliest one recognized in Bright's time. With this epileptiform uremia, headache and sudden amaurosis are often precursors, and coma a sequel. The convulsive seizures and not infrequent recovery are the striking features. A second type never displays a sudden onset, but is marked by gradually deepening coma, unaccompanied by psychic disorder or signs of motor irritation. A third type shows visual disturbances only when demonstrable lesions of the eye are present (hemorrhages, exudate, neuritis, which is in contrast to the blindness of the first type of uremia), and is prone to gastro-intestinal and psychic disorders, of which the latter are commonly hallucinations and paranoid delusions. Convulsions do not occur, lethargy and somnolence are the rule, and coma is terminal.

Symptoms are associated into groups, not alone because they seem most commonly thus associated in disease, but also because each of these symptom complexes appears often as a result of certain disturbances in renal function and, furthermore, these uremic types have each a more or less clearly defined disorder of metabolism. It will be my endeavor to present the evidence for these statements.

It has doubtless been a great handicap to study, that pathology has not been able to discover in uremia lesions of the central nervous system with sufficient constancy to correct clinical judgment. The diagnosis of uremia can only be suspected from the character of organic change found postmortem. Aside from the lesions in the kidney and occasionally ulceration in the

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* From the Medical Clinic, New York Hospital, Cornell Medical College.

* Harvey Lecture, read before the New York Academy of Medicine, Nov. 20, 1920.

lower gastro-intestinal tract, uremia leaves inconstant signs. Since the symptoms are so largely those related to the central nervous system, attention has been given chiefly to search for cellular alteration in the brain and cord.

EDEMA OF THE BRAIN

It is well known that some increase of fluid in the ventricles and meninges postmortem is only an expression of the agonal transudation that occurs in all serous lined cavities, and is therefore of slight significance. This explains the edema of the brain noted so constantly by the early students, notably Rees. The question of cerebral edema must be approached with due caution because the problem has never received adequate attention. Very nice considerations are involved in any attempt to explain an increase of fluid in a closed chamber, such as the cranial cavity. Suffice it here to say that the larger problem is not comprehended; and in many instances in which the increase in fluid is but moderate we cannot be sure of cerebral edema unless there is an accompanying disorder, such as hyperemia, to explain it. Roughly, there is differentiated an active and a passive edema; and although the weight of Traube's name focused attention on edema of the brain as an explanation for uremia, the part played by the general circulation in this edema, and hence by myocardial disease, was not appreciated till von Recklinghausen's work. We recognize now that edema may be due to circulatory disorders and that in nephritis there is especially apt to supervene as a late complication an edema resultant on myocardial insufficiency. This fact, now appreciated, often confused clinicians of the last century.

Quite different in causation probably is the edema associated with the lesion styled serous encephalitis. Not confined to the meninges, the edema of the central nervous system in uremia has more similarity to serous encephalitis than to purely passive edema. But with our knowledge of serous transudation, agonal or postmortem, this observation cannot be forced. The question of edema generally is an unsolved problem and one that might profitably be attacked by physiochemical methods.

In its highest severity, edema of the brain appears with constancy in but one type of uremia, that type in which stupor and coma without convulsion, without psychic or motor disorder, is the prominent nervous symptom. The clinical picture, so far as referable to the nervous system, and the neuropathology are then in similarity with that of chronic alcoholism. That this edema of the brain may bear a causal relation to stupor or coma is suggested, at least, by the transient clearing of the mental state following removal of cerebrospinal fluid, which in this type of uremia is usually under increased tension. Cerebral edema seems in these cases only a part of the general anasarca that is the prominent clinical symptom.

CEREBRAL HYPEREMIA

Definite cerebral hyperemia we have observed in only one type of uremia. Difficult to estimate and therefore uncertain in mild degrees, this hyperemia is in some cases beyond doubt, and in several instances it has been accompanied by numerous pin-point hemorrhages scattered generally throughout the brain substance. There was also at times edema, the nature of which is uncertain. In brief, these lesions are not to be differentiated from those seen in morphin poisoning. Now the interesting fact to us was that, while this picture is not seen with constancy, it was the significant lesion in some patients who died of convulsive uremia, and was not observed in other types. Edema in slight degree might or might not be present; it might often be absent, and then the neuropathology of epileptiform uremia stood, in some measure at least, differentiated from that of other types of uremia. A conservative deduction from these observations is that two types of lesions are notable in the central nervous system, and in their extreme degrees these lesions appear to be associated with definite groups of symptoms. Only so far do they suggest differences in causal factors.

TOXICITY

Since its recognition as a sequel to nephritis, uremia has been regarded generally as an intoxication, and efforts directed to determine the cause were largely made by chemical methods. Down to the time of Bourchard, it was believed that urine is poisonous or contains a poison. And since the epileptiform type of uremia was so easily differentiated, little attempt was made to discover variations in the clinical complex or to hunt for more than one immediate cause, all alike being a result of renal disease. Today we recognize that disorder of the functions of the kidneys may take several forms, and conceivably some variability in nervous symptomatology might be expected. It is generally accepted that nephritis may be characterized by imperfect nitrogen excretion, or in other cases by defect in salt and water excretion. And we observe cases in which the former condition prevails without evidence of the latter; hence, when the two occur together we recognize not a third type, but a mixed complex, at least from a physiologic aspect.

The older ideas held some truth, buried, nevertheless, in a maze of misconceptions. It has been known for ages that persistent anuria leads to death. Rees objected to Christison's theory of urea poisoning on the ground that anuria due to stone did not induce convulsions, although fatal. This observation has been repeatedly confirmed. It matters not whether anuria be due to obstruction of ureters, renal arteries or veins, or removal of both kidneys: the symptoms resulting are alike, the most notable being progressive weakness and an increasing somnolence, nausea, headache and stupor, terminating in death. None of the classical symptoms of epileptiform uremia are noted; amaurosis, palsies and convulsions are absent. The renal arteries or veins, or ureters, were ligated in a number of dogs which were observed carefully by us, but there was no clinical resemblance to a uremic picture of the convulsive type. I studied with the greatest care from day to day three patients who had been deprived of the only functioning kidney by emergency operations. In none of these was there the slightest evidence of irritability of the motor nervous system, or impairment of the psychic functions until the last days of life. None had amaurosis, muscle spasms, paralysis or convulsions. All alike experienced, first, weakness, slight vertigo and mental dulness; then, a tendency to sleep which lapsed into coma, with death on the ninth to eleventh day after the operation. The blood in all of these cases showed a higher concentration of nitrogen and urea than usually occurs with uremic patients. Similar symptoms were experienced by Hewlett [1] and his two assistants following the ingestion of large amounts of urea. In one experiment enough urea was taken to raise the blood-urea up to

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[1] Hewlett, A. W.; Gilbert, Q. O., and Wickett, A. D.: The Toxic Effects of Urea on Normal Individuals, Arch. Int. Med. **18**: 636 (Nov.) 1916.

240 mg. per cent. All suffered from the same symptoms, differing only in degree: nausea, headache, vertigo, mental irritability, apathy and somnolence.

It is our conception that one type of uremia is due chiefly to the retention in the body of substances normally excreted in the urine. The conditions leading to anuria induce symptoms (weakness, somnolence, etc.) resembling in certain respects asthenic uremia, but there is not a complete reproduction of the complex. At first glance it would seem that these conditions of anuria are exact and perfectly analogous to those of nephritis, since they effect an extreme nitrogen retention. That this is not entirely true will appear on further examination of the problem.

ANURIA AND NITROGEN RETENTION

A number of years ago, Voit[2] studied the toxicity of urea and several other urine elements and found that he could feed dogs large amounts of urea in their food without apparent injurious result, provided the animals were permitted as much water as they desired. If, however, the water was limited to very small amounts or was withheld, symptoms such as vomiting, lethargy and ataxia developed. This observation contains a principle that is applicable to the conditions observed in chronic nephritis with nitrogen retention. This principle I must explain. We have been able to show in our studies of cases of chronic nephritis with nitrogen retention that the amount of nitrogen excreted in the urine bears a relation to the volume of urine, a fact that was determined in this way: Patients with no defect in water excretion were given diets containing a definite known amount of nitrogen, the only variable being water, and it was then observed that if we gave much water no nitrogen was retained in the body, all being excreted; but if water was limited to less than a liter a day, nitrogen was retained and after a period the blood analysis showed an increasing amount of urea and nonprotein nitrogen: in other words, an accumulation of nitrogenous waste. This is experimental confirmation of a well established clinical doctrine, namely, that these chronic nephritis patients with nitrogen retention require much water in order to eliminate the nitrogenous waste, because the diseased kidney can excrete only at a low level of concentration of urea. Senator warned of the danger of uremic symptoms if water is withheld.

It now becomes evident that the comparison of metabolism between anuria, on the one hand, and nephritis with nitrogen retention on the other, reveals an important difference. Both alike lose a definite amount of water through the lungs, but the patient with anuria loses no water through the kidney; consequently, even though nitrogenous substances are retained, water also is retained and the concentration of nitrogen in the tissues is thus relieved for some time. Furthermore, in nephritis the kidney excretes selectively, some substances with relative ease, others with increasing difficulty, so that there results in disease selective concentration. Not all the nitrogen components of urine are retained in equal degree, some being retained more than others. This fact defines a contrast in the kind of nitrogen retention of nephritis to that of anuria. With anuria, all the substances normally excreted in the urine are held back in the body; with nephritis, on the contrary, some are retained more than others. Now does the examination of blood in these two conditions accord with theory? In nephrectomized dogs we noted that urea formed 60 per cent. or more of the nonprotein nitrogen. In the anuria of mercury poisoning the urea ran as high as 90 per cent. of the nonprotein nitrogen in some cases, and was generally high. With uremia, however, while both urea and nonprotein nitrogen may be high, the urea nitrogen forms a smaller percentage of the total than with anuria, seldom more than 65 per cent., and often less than 50 per cent. of the total. We find, then, just the difference we should expect theoretically. In chronic interstitial nephritis this process of heaping up nitrogen waste is gradual and the cells become tolerant to abnormal amounts of these urinary elements. An excellent example of the effects of retention in the body of nitrogenous waste products consequent to desiccation is observed in cholera; a uremic syndrome is one of the late complications of cholera, although the accompanying nephritis is not of severe degree. Here the extreme loss of water from the body in the stools results in actual desiccation; the specific gravity of the blood may rise to 1.060. Accompanying this there is also an increase of nitrogen waste, owing to an increased catabolism of protein consequent to the infection. A similar condition of affairs I have observed in diphtheria, anuria due to desiccation leading to asthenic uremia, and at necropsy no significant lesion being demonstrable in the kidneys. The dryness of the tissues in these cases is well known.

But the best illustration of the relation which water excretion bears to the onset of uremic symptoms in nephritis with nitrogen retention is offered by the effects of diuresis. Addison remarked that when certain cases of Bright's disease with edema developed diuresis and the edema subsided, uremia resulted. This is now a common observation, and uremia may be not only a consequence of water loss through the kidneys but may also follow diaphoresis or restriction of the fluid ingested. All of these conditions, diuresis, diaphoresis or restricted fluid ingestion, result in a concentration of waste products in blood and tissues in cases of nephritis. There is not, then, the perfect analogy between anuria and the nitrogen retention of nephritis that has been supposed.

CHEMISTRY OF THE BLOOD

The chemistry of the blood has been well studied in asthenic uremia because this is the most common type. It is now well known that all of the nitrogenous bodies found in urine are generally increased in the blood, some bodies more than others. Besides this we have observed that the amounts of nitrogen retained in the body by very sick patients (the difference between the nitrogen ingested in food and that excreted in the urine, feces, etc.) could not be accounted for by the nonprotein nitrogen of the total blood in the body. These two facts led us to analysis of tissues postmortem. In brief, it has been quite definitely learned, I think, that the tissues retain more of these catabolic products than does the blood. In fact, there is some ground for opinion that the excess in blood expresses a supersaturation of tissues. But this is not demonstrated.

In the range of problems yet unsolved is the question of the physical state of these organic compounds in the body fluids. Are they merely in solution or are they in combination with colloids? As yet not determined, the latter state seems, however, more probable, and these colloidal compounds would then be directly influenced by various conditions, such as hydrogen-ion concentration. It will be recalled that the acidosis theory of uremia has repeatedly been advanced, at first by

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[2] Voit: Ztschr. f. Biol. **4**: 140, 1868.

Senator; and while acidosis is often detectable, it usually occurs in significant degree only in the terminal period of life. Exceptionally, however, acidosis may be a prominent factor,[3] and it is of interest that appropriate alkaline therapy then ameliorites or altogether relieves the uremic symptoms. This is an unusual uremic manifestation.

We see, then, that asthenic uremia is a complex syndrome, of which I have attempted to indicate only the chief components. The objection to the hypothesis of intoxication by excretory compounds loses force on careful scrutiny, since nephritis is comparable to anuria only in certain aspects. In one case, anuria, we observe the effects of a sudden overwhelming dosage; in the other case, asthenic uremia, we observe the results of slow cumulative poisoning from the same elements but in different proportions. There is as much correspondence of symptoms in the two conditions as we should expect, more similarity, in fact, than exists between the clinical effects of large toxic doses of known poisons and the slow cumulative effects of that poison. There is also found the difference in chemical composition of body fluids that we should theoretically expect to find.

For a generation after Bright, the term uremia was applied chiefly to a symptom complex characterized by epileptiform convulsions. The extension of the definition to cover the various types of intoxications that we have been discussing was of later development. The striking features of the epileptiform type of uremia in some respects seems to differentiate a separate and peculiar entity. In many cases, without premonitory symptoms, there occur sudden and violent convulsive seizures, transient palsies and hemiplegia, and a peculiar form of blindness unassociated with detectable cause in retina or nerve; with a recovery and return to health in some instances (as Addison observed). These symptoms are in such sharp contrast to asthenic uremia that they suggest the effects of a peculiar toxin. The disorder has always been regarded as an intoxication. The explosive character of the symptoms aid correct diagnosis and study, in contrast to the insidious onset of other types of uremia easily confused with various cerebral accidents.

From time to time, attempts have been made to demonstrate the presence of a toxic substance in the blood from cases of convulsive uremia; but none have achieved convincing results. Nor has it been shown that urine from these patients is either less toxic or more toxic than normal. Each one of the organic substances excreted in urine was tested for its toxic properties a generation ago but with no result, unless one consider the experiment of Landois, who applied creatinin to the brain cortex and elicited convulsive seizures.

If convulsive uremia is an intoxication, as the older students conjectured, then the toxin is probably recoverable from the blood or tissues.

When the urine is subjected to fractional analysis, we find that the various bodies composing the noncolloidal nitrogen are known down to a small percentage. Thus, from 75 to 85 per cent. is urea, the remainder ammonia, uric acid, creatinin, etc., and only an insignificant fraction is in doubt. Now, turning to blood, the nonprotein nitrogen or filtrate nitrogen is composed of known elements only in part. The sum of the known bodies totals, at most, only about 80 per cent. of the total filtrate nitrogen, and this sum may fall to less than 50 per cent. of the total nonprotein nitrogen of the blood. Much less is known concerning the crystalloids of blood than of urine. Since we observed that the unknown fraction was large, not only in nephritis but also in the blood of healthy persons generally, our first suspicion was that amino-acids made up a considerable part of this unknown nitrogen. But this idea proved to be incorrect. The amino-acid fraction varies but little and is not appreciably increased in nephritis with nitrogen retention. But this fact had considerable interest to us because, since this undetermined nitrogen is not composed of amino-acids, it is probably not destined for cellular nutrition, but, on the contrary, is a catabolic product, a precursor of some known urinary element. The definite fact gained from our studies in fractional blood analysis was that a large fraction of the noncolloidal nitrogen of blood consists of substances not found in urine. This fact opened certain possibilities for study which had seemed useless so long as the search for a uremic toxin was restricted to the well known ingredients of urine. From this time our energies were directed toward the isolation of various organic substances from the blood of patients suffering from convulsive uremia and testing these substances on animals. This is not the time to discuss intricate chemical methods employed for fractioning the blood, since they have been reported elsewhere. Suffice it to say that in analysis of blood two difficulties must be surmounted: The first is to separate all protein without effecting any chemical change in the protein molecule that might produce cleavage products; for this, only colloidal methods are suitable. The second difficulty to be met is the ever present possibility of altering some nontoxic substance into a toxic one through the action of chemical reagents. It is also to be remembered that chemical reagents might likewise transform a toxic body into one relatively harmless.

By the employment of colloidal methods, all protein can be separated from blood, and a water clear filtrate secured which gives no reaction for protein by any method. In general, the methods employed in our work were, with slight changes, those commonly used by biochemists for the separation of alkaloidal bases. An alcoholic solution of the hydrochlorids is finally secured from which a crystalline salt separates on the addition of gold or platinum chlorid. These crystals may be purified by recrystallization, broken up with hydrogen sulphid, and the pure base recovered for tests on animals.

ISOLATION OF A TOXIC BASE

Considering the relative body weight of man and guinea-pig, there should be sufficient toxin in 200 c.c. of blood from a uremic patient to produce definite symptoms in the guinea-pig. This we employed as our standard. The amount of toxin in 200 c.c. of blood is a fraction of a milligram. The base was dissolved in 1 c.c. of physiologic sodium chlorid solution and injected into the peritoneal cavity. This in outline was our method. We have now examined samples of blood from twenty-two cases of epileptiform uremia and from more than twice as many controls. For controls we used blood from other types of uremia and cases of anuria, epilepsy and also normal individuals. From none of these control samples has a toxic substance been isolated. When, however, the solution of the base from the blood of cases of epileptiform uremia is injected into a guinea-pig, the result has been uniformly fatal. The first symptoms usually appear about five minutes after the injection is made. There is rapid breathing and muscular twitching; this is often followed by a series of convulsive seizures, terminating in death in a few minutes. In other cases the animals show paresis of the hind legs, and have frequent bowel movements before convulsions develop. A few did not have definite convulsions, but severe twitching movements accompanying a stuporous state terminating in death. The result of our investigations seemed to indicate that the blood of patients with epileptiform uremia contains an organic base which is toxic. Usually not more than a few hundred cubic centimeters of blood can be taken from uremic patients, and from this blood only a small amount of the base can be recovered; the most recovered was weighed in milligrams.

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[3] Chace, A. F., and Myers, V. C.: Acidosis in Nephritis, J. A. M. A. **71**: 641 (March 6) 1920.

The question then arose, Had we perhaps made this organic poison by our chemical procedures? The possibility remained that the blood of uremic patients may contain some substance not present in blood normally, or in other diseases, and that our chemical manipulation so altered the nature of this substance that it became toxic. To determine this possibility we dialyzed blood from cases of convulsive uremia against distilled water; then this diffusate was reduced to a small volume at low temperature and tested on animals. These diffusates are, of course, a mixture of all the noncolloids of blood. The interesting fact is that those samples from uremic patients were usually quite toxic, while other samples were inert.

The substance isolated is basic in its properties and forms crystalline salts with platinum and gold. Of its chemical nature we know next to nothing, because we have never been able to collect a sufficient quantity for analysis. Probably our chemical methods are imperfect and we either lose or destroy much in preparation. And in criticism of the work it is necessary to state that the existence of a toxin in uremic blood will not have been demonstrated until its chemical identity is known. That is the only assurance against the effect of reagents on unknown and possibly labile organic compounds. Apparently we are dealing with a substance as poisonous as strychnin, the amount of which in the body at any one time is possibly but a small fraction of a gram. We can easily conjecture several sources of such a poison in the precursors of known organic extractives; especially inviting is the idea of reversible reactions in this connection, whereby the accumulation in the body fluids of a catabolic product results in the increase also of its immediate precursor, which is often toxic but normally present in only the minutest amounts.

CONCLUSION

Uremia presents a complex and intricate problem, and I do not wish to leave the impression that we now understand the clinical manifestations and their immediate causation. My thesis has been to indicate some of the more important components in uremic states and the probable origin of these individual factors. As in nephritis we conceive of specific renal functions, and that the disorder of each alone or in combinations produces various symptoms, so in uremia our conception is of several simple types, each a resultant on a peculiar metabolic defect. These simple components or types, frequently merging in various combinations, effect the varied syndromes we name uremia.

Prevalence of Congenital Syphilis.—There are no very accurate figures in existence as to the prevalence of congenital syphilis in the community at large, but we have no hesitancy in definitely stating that it is not nearly as large as 8 per cent. --Solomon, *Social Hygiene* **6**:479 (Oct.) 1920.

DIVERTICULA OF THE ESOPHAGUS

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CHICAGO

Until eight or ten years ago, comparatively few pulsion diverticula of the esophagus had been recognized and operated on, and the results up to that time had not been satisfactory on account of the mortality attending the radical operations for the cure of this condition. Within the last ten years a much larger number of these cases have been recognized, and much better results have been obtained by radical operations. There is, to begin with, a wider knowledge of the fact that these cases are by no means rare. The typical syndrome that they produce is more frequently recognized, and a definite demonstration of the size and location of the diverticulum is now easily made by barium solution and roentgen-ray examination.

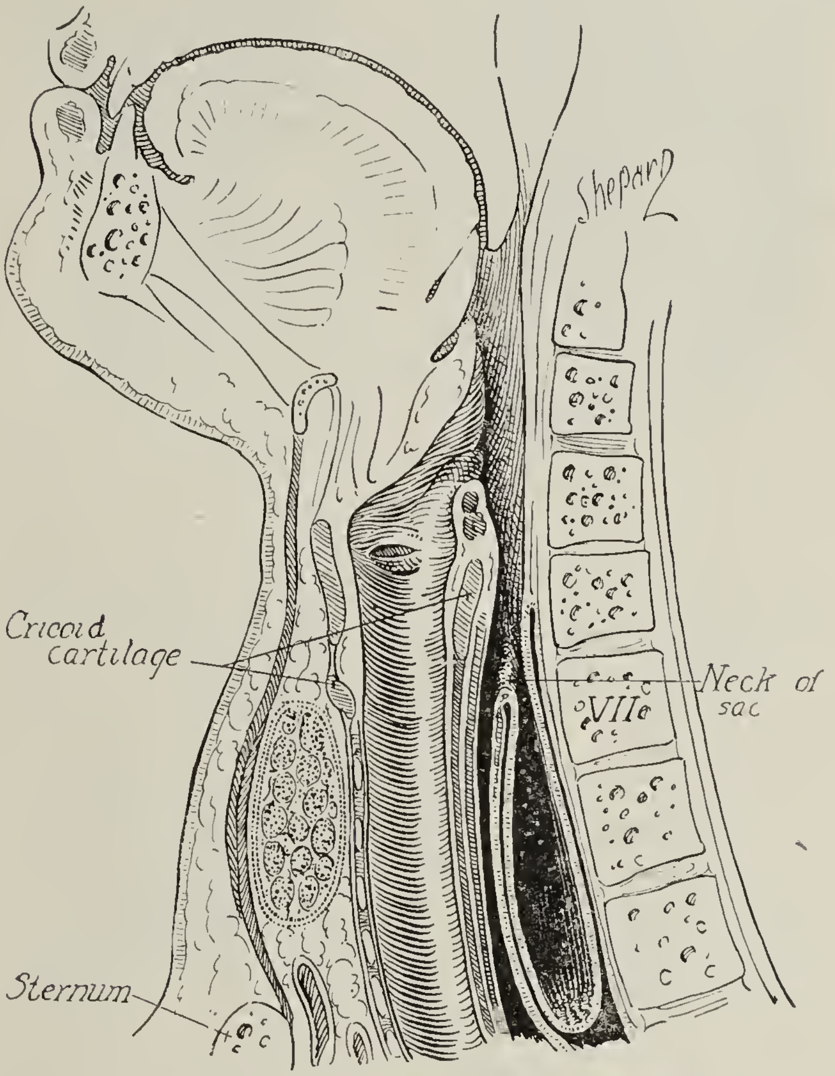

Fig. 1.—Sagittal section of neck, showing anatomic relations of hernial sac.

My own knowledge of the subject dates back about ten years, when I operated on my first patient. Since that time I have had the opportunity of studying a considerable number of cases with my colleague Dr. Bertram W. Sippy and his associates, and I shall present the facts that we have been able to obtain from this clinical experience, and describe a satisfactory method of operation which we have developed.

ANATOMY OF THE CONDITION

Diverticula of the esophagus, just as inguinal hernias, always occur at exactly the same point. Inguinal hernias always come out through the external abdominal ring. Pulsion diverticula present themselves at the junction of the esophagus and the pharynx in the median line posteriorly. At this point there is a triangular area where the oblique muscles of the pharynx and the transverse circular muscles of the esophagus meet, leaving a small area not covered with musculature but simply by a subcutaneous layer (Fig. 2). In cases in which a diverticulum develops it is probable that there is more than the usual normal weakness at this point, probably a congenital absence of muscle fiber over a large area, permitting a pushing out of the mucosa and submucosa in the process of deglutition, so that with this impulse applied to this weak area during swallowing, a pouch of mucous membrane and submucosa is pushed out through this small triangular defect. The neck of the pouch always remains comparatively small. The pouch itself may reach a size sufficient to hold 8 or 12 ounces, or even more. Developing, as it does, always from the same point, the sac occupies a position in the middle line behind the esophagus and in front of the vertebral column, as shown in sagittal section in Figure 1 and in cross-section in Figure 3.

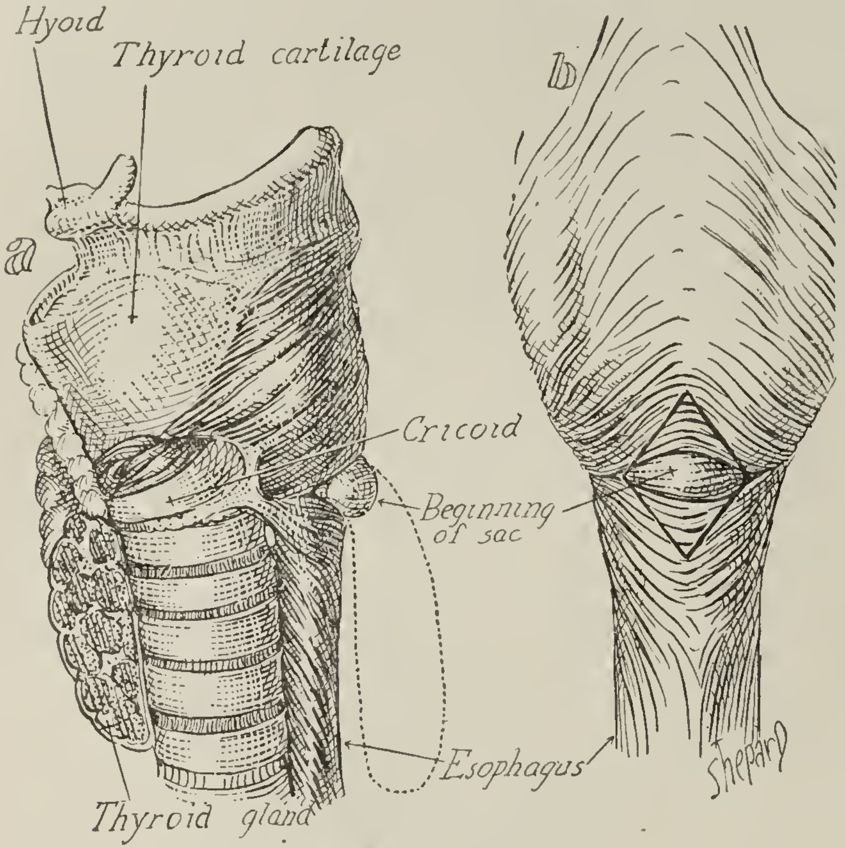

Fig. 2.—Anatomic relations.

We must not confuse pulsion diverticula of the esophagus with traction diverticula, which are frequently discussed at the same time. Traction diverticula may occur at any point, especially within the thorax, and as a rule they are caused by cicatricial contraction of some old inflammatory process drawing the wall of the esophagus outward and making more or less of a funnel-shaped diverticulum. These cases are seldom, if ever, of interest to the clinician except for the primary lesion that is responsible for their production.

DEGREES OF SEVERITY

Pulsion diverticula vary greatly in size and in the severity of the symptoms that they produce. Many of the small diverticula are of little moment and are associated simply with a little irritation in swallowing and an occasional slight regurgitation, and produce no great amount of discomfort to the patient and no serious impression on his health. On the other hand, diverticula of larger size may become a serious menace and may produce a fatal termination. As they increase in size and as the amount which they can contain not only increases but becomes a source of danger and discomfort from decomposition of the contents, swallowing becomes more and more difficult until, in the extreme picture, the patient in his effort to swallow simply fills up the diverticulum, and little food, even liquid food, passes into the esophagus; and the patient, unless relieved, may die of starvation. I have, in fact, had the opportunity in one case of seeing this serious picture of death from acidosis and starvation in the case of an esophageal diverticulum, and have had in one other case a patient in such serious condition that operation on the esophagus had to be preceded by a gastrostomy, so that we could feed the patient and get him in good enough condition for operation on the diverticulum. In minor cases in which the patient has a small diverticulum causing little distress, with the general health still unimpaired, one might safely permit these patients to go on without interference if they so desire until the symptoms become more annoying. On the other hand, because of the fact that these small diverticula can be cured so safely and readily, I think that good judgment would dictate an operation unless there is some special contraindication in the way of age or organic lesion to any operative interference. In the outspoken case in which the diverticulum is of fair size and the condition is an annoying one because of regurgitation and decomposition of food and the peculiar gurgling noise that is made while the patient is eating, which is sometimes so distressing and annoying that the family of the patient does not like to eat at the same table with him, there can be little doubt that the patient should be given the benefit of a radical operation.

OPERATIVE PROCEDURE

Until comparatively recently, this operation carried so much risk that it was regarded as a very serious undertaking and one which was not to be advocated unless there was great urgency. In the old operation the risk was due to the fact that the diverticulum was isolated and cut off and the opening closed with sutures, with the result that many of them leaked into the raw tissues of the operative wound and the patient often died of sepsis and from mediastinitis. The great risk of the older methods of handling these cases was the danger of infection from leakage. My colleague, Dr. Sippy, was deeply impressed by a case he had in which operation was performed by one of our best American surgeons and the patient had died from leakage and infection, and he felt that some operation should be developed that would eliminate this risk. After talking the matter over with him and studying a case that he

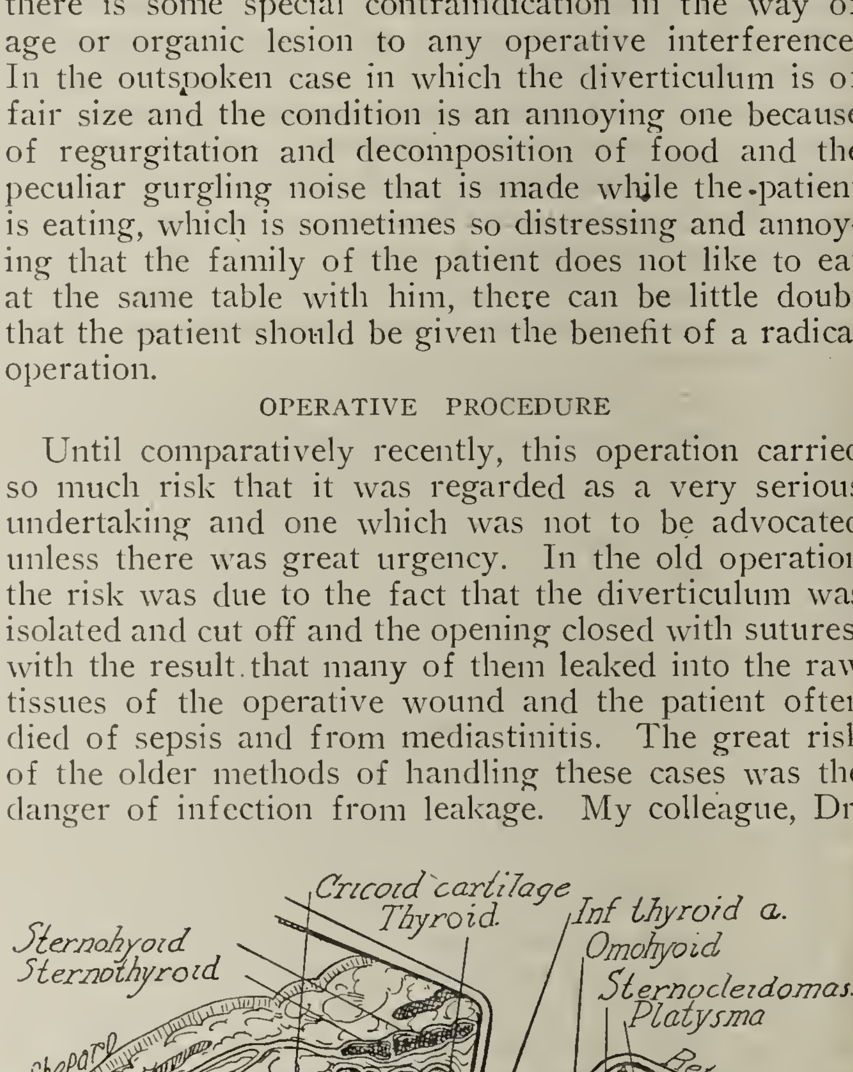

Fig. 3.—Cross-section of neck at **cricoid** cartilage, showing approach to esophagus at neck of sac.

had referred to me, I devised a plan of operation which had for its purpose the obliteration of the diverticulum without carrying with it any risk of leakage, or at least reducing the dangers of leakage to a minimum. The plan which we have adopted is as follows:

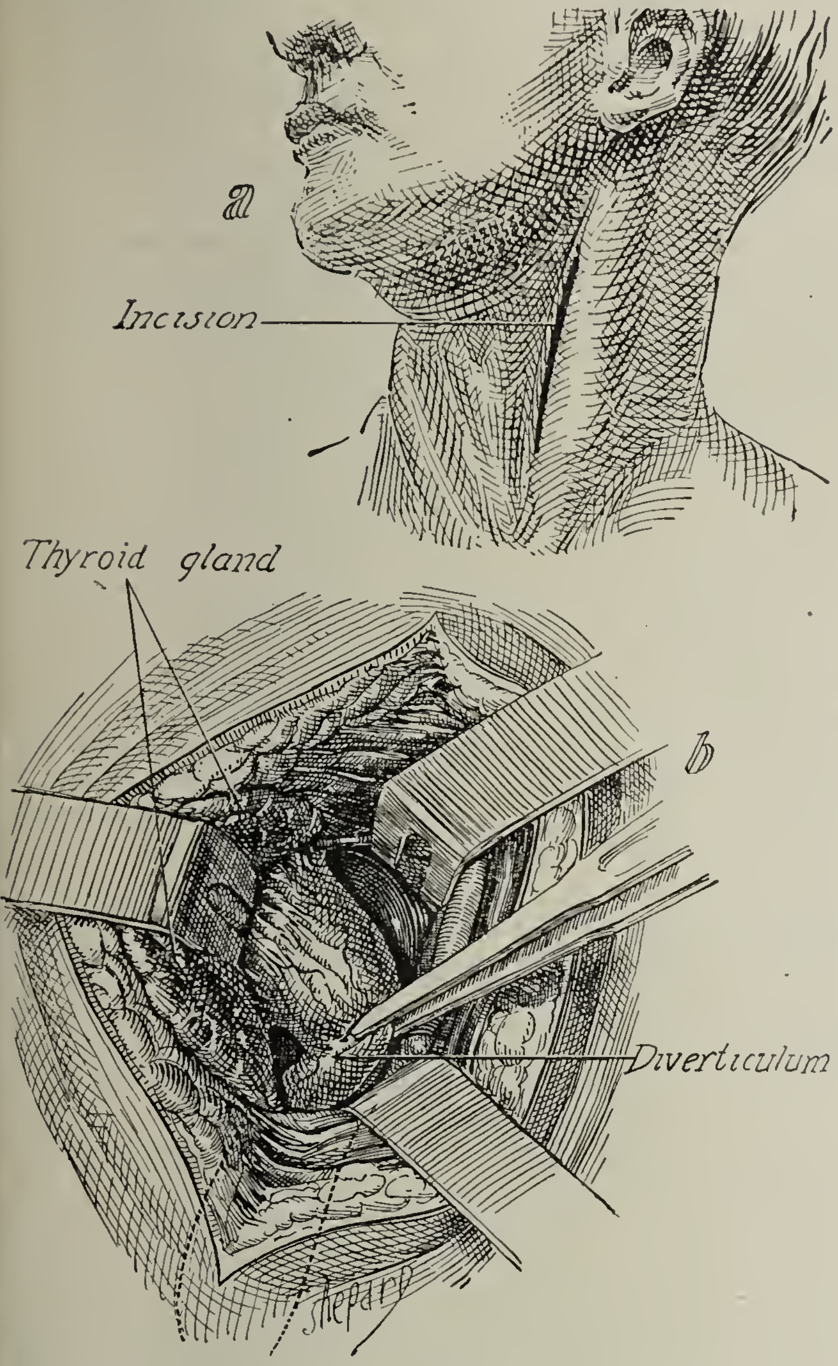

Fig. 4.—*a*, incision along internal border of sternocleidomastoid muscle; *b*, dissection made, sac pulled out.

First, we perform all of these operations under local anesthesia, using 0.5 per cent. procain or apothesin solution in distilled water with 1:200,000 epinephrin. I have made my incision usually on the left side. We infiltrate very thoroughly all the tissues on the inner side of the left sternocleidomastoid from the hyoid bone down to the sternum. We then divide the skin and superficial fascia for a distance of 5 or 6 inches along the inner border of the sternocleidomastoid (Fig. 4). The sternocleidomastoid is then drawn to the outer side with retractors, and the deep cervical fascia is divided parallel with the external incision, and the great vessels of the neck, the internal jugular and carotid, and the pneumogastric nerve are drawn to the outer side. The thyroid gland, sternohyoid and sternothyroid are drawn to the inner side. In the bottom of this wound one often finds interfering with the free exposure of the diverticulum the inferior thyroid artery; and when this is in the way it is doubly ligated and divided between the ligatures. This enables one to draw the thyroid gland well to the inner side and to expose the lateral wall of the esophagus; usually, if the patient swallows, the diverticulum comes into view. In most of our cases we have found that it lies in some loose areolar tissues and that it can be readily pulled into view. One must be careful to use dissecting forceps without teeth and carefully draw the diverticulum out from its bed so as to avoid rupturing its coats (Fig. 5). As the diverticulum is drawn out through the wound it looks like a hernial sac. One should remember that it is composed simply of mucous membrane and a submucous fibrous coat. If the diverticulum is small, not larger than one's thumb, that is to say, from 2 to 2½ inches long and not more than an inch across, it can be readily handled by invaginating it into the esophagus with three purse-string sutures, because a diverticulum of this size invaginated into the esophagus cannot do any harm. It is dangerous, however, as we known by experience, to invaginate a large diverticulum into the esophagus because of the danger of its being carried up in the effort of vomiting and closing the opening of the larynx. A diverticulum larger than the thumb should, therefore, be handled not by invagination alone but in the following way:

We should invaginate with three purse-string sutures of black silk or Pagenstecher linen one half of the diverticulum into the other half, as shown in Figure 5 *a*. Then the rest of the diverticulum should be obliterated by longitudinal sutures, six or eight, running parallel with the long axis of the diverticulum. When the operation is complete as far as the esophagus is concerned, it gives one the picture shown in Figure 5 *c*.

In a large diverticulum another method may be employed. Instead of the one I have just described, the diverticulum can be crushed at its center with a pair of heavy forceps, tied with a silk ligature, and the portion distal to the ligature then cut off with the electric cautery. The remains of the diverticulum, which are then no larger than one's thumb, can be treated by invaginating them into the esophagus with three purse-string sutures, just as we handle the smaller diverticula (Fig. 6).

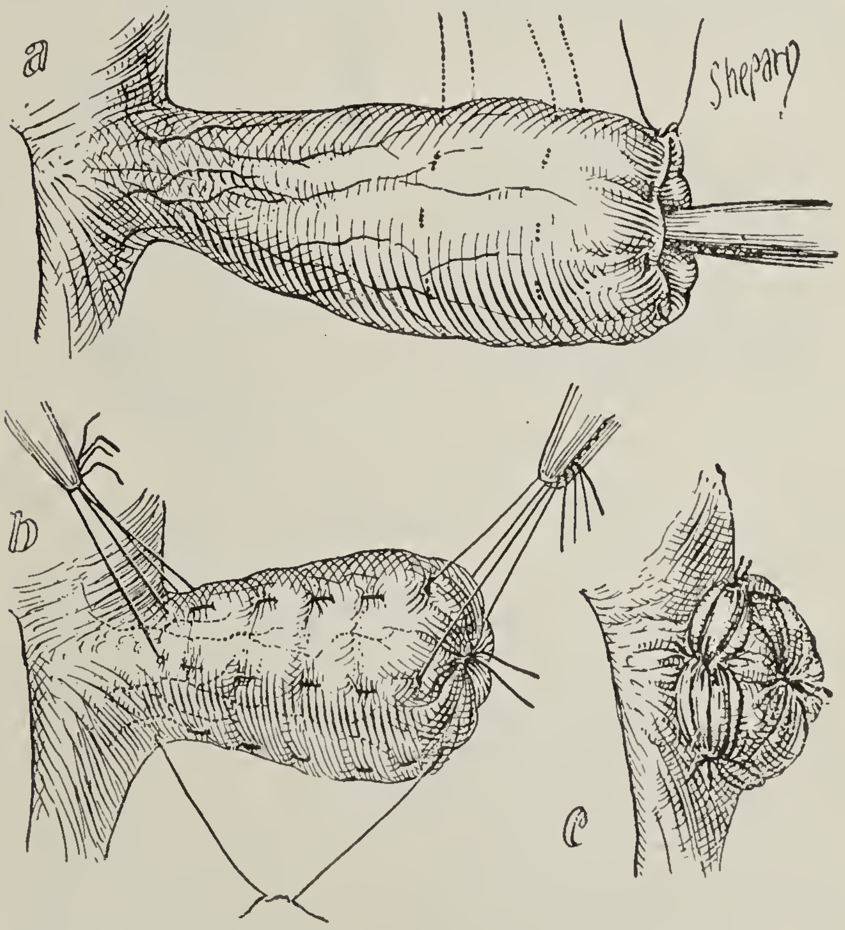

Fig. 5.—*a*, invagination of sac with purse-string sutures; *b c*, longitudinal sutures placed and tied.

I am uncertain in my own mind which of these is the better plan. I believe that we should employ both methods in a series of cases to determine which should be adopted as the standard procedure. I feel, however, that I am in a position to say with a good deal of positiveness that small diverticula, not larger than a thumb, can be safely handled and permanently cured by invagination into the esophagus and immediate closure of the external wound. On that basis I think it is probable that if we reduce in size by removing the excess portion all our diverticula cases to cases not larger than a thumb, it will furnish us a very satisfactory operation for all of these diverticula cases.

The remaining steps of the operation consist simply in leaving a soft rubber tube containing a strand of iodoform gauze in the center of the wound from the operative field of the esophagus to the middle of the external incision and closing the rest of the wound, this soft rubber drain containing the iodoform gauze to be removed at the end of forty-eight hours.

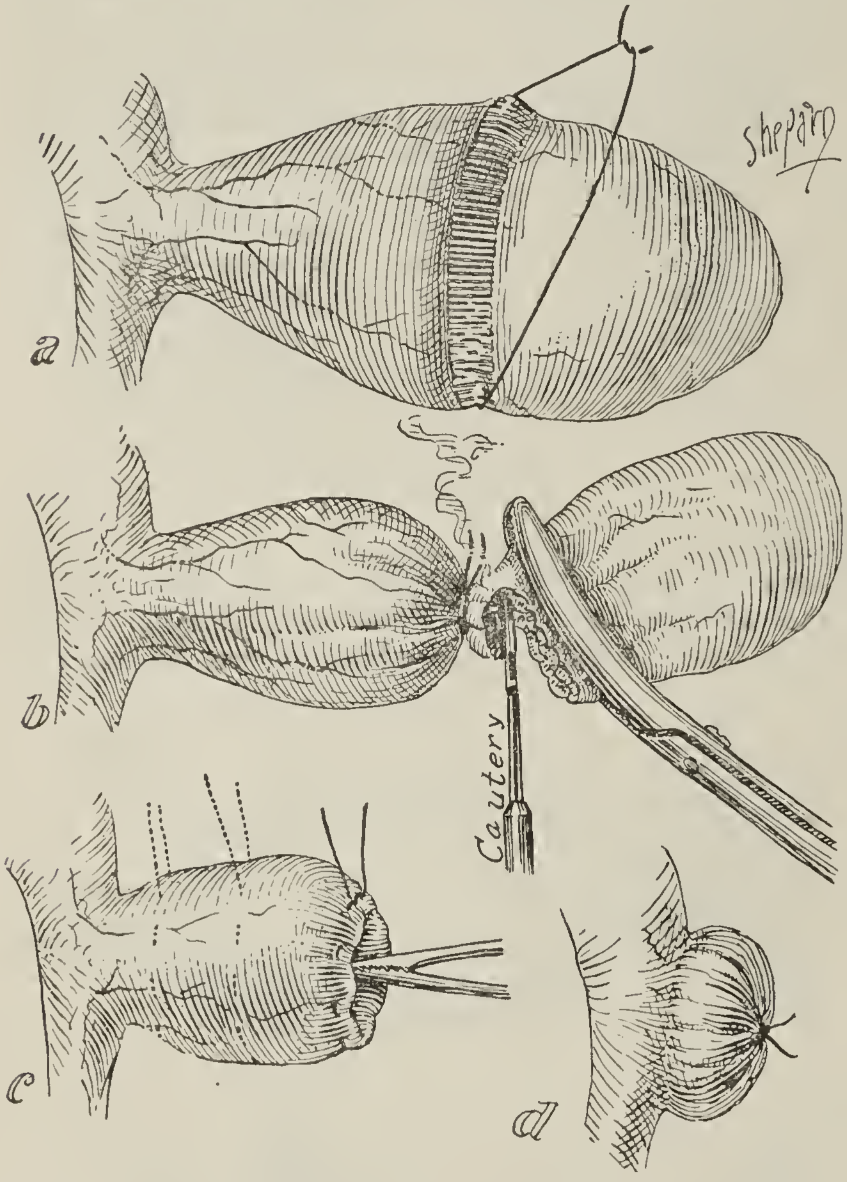

Fig. 6.—*a*, sac crushed with heavy clamp; *b*, sac tied and divided with cautery; *c*, *d*, invagination of sac stump with purse-string sutures.

The patient is fed in a simple way, by the introduction of a No. 14 American size catheter into the esophagus three times a day, fluid nourishment and plenty of water being introduced through this tube and the patient not being permitted to swallow until wound healing is complete—about ten days.

There are three points especially to be emphasized in the ordinary handling of these cases: (1) in the extremely rare case in which the patient is so reduced by starvation that he has little or no resisting power, the importance of performing a gastrostomy, feeding the patient and getting him into better condition before undertaking the operation on the diverticulum; (2) the importance of local anesthesia; (3) the importance of a technic such as I have described, or at least a technic that will prevent the risks of leakage and infection.

122 South Michigan Avenue.

SPONTANEOUS AND OPERATIVE CURE OF CIRRHOSIS OF THE LIVER

REPORT OF ILLUSTRATIVE CASES *

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Some writers give such a gloomy prognosis for cirrhosis of the liver that I am prompted to report a few cases, the outcome of which justifies a greater optimism. One of these cases is so remarkable that I venture to describe it at some length.

REPORT OF CASE WITH SPONTANEOUS CURE

Case 1.—David G., a boilermaker, aged 57, had been a very hard drinker all his life. For years, his daily consumption was a quart of beer and whisky mixed. He began to use tobacco at the age of 7, and always used it to excess. He was admitted to the surgical wards of the Philadelphia General Hospital, Oct. 11, 1910, on account of a fracture of the left wrist, and was later transferred to the medical wards with a diagnosis of cirrhosis of the liver. When I saw him he had marked ascites with general enlargement of the veins of the abdomen and a very typical caput medusae. In addition to the fracture of the wrist there was also an osteoarthritis of the right hip which rendered him very lame. Soon after his admission to the medical wards he had a profuse hemorrhage, in all probability from the lower end of the esophagus or from the stomach. Edema of the legs set in about the beginning of November. At the same time the abdomen became more tense, but the patient for a long time refused to be tapped. Finally he yielded. After the tapping, the liver and the spleen could be plainly felt. From this time, Feb. 6, 1911, onward the patient had to be tapped at varying intervals, the longest being twenty-four days, the shortest nine days. At each tapping, except the last one, from 3½ to 4½ gallons of straw-colored fluid were removed. We left the time for the tapping to the patient's own judgment; he would always wait until his distress became unbearable. Despite the tapping, the edema of the legs steadily increased until the limbs became of such enormous size that they could not be lifted or moved in the slightest degree. The scrotum was also greatly swollen. Toward the end of November, the patient grew irritable and peevish, and objected to every disturbance. At the beginning of December a persistent hiccup set in. At this time the irritable mental state gave place to a stupor—the patient lay constantly with his eyes shut; his face was sallow and of an ashen pallor. We did not think that he could live more than a few days. December 11, he was tapped for the thirty-sixth time, a gallon and a half of fluid being removed.

One day while I was making a casual examination—we had all kept aloof from him on account of his ugly disposition—I detected over the abdomen, particularly in the region of the liver and spleen, an exquisite friction, appreciable both to touch and to the ear. Over this area of friction there was also considerable tenderness. I then learned that the man had had much pain subsequent to the last tapping, and had been getting a small daily dose of morphin for its control.

To our great astonishment the abdomen did not fill up again. Not only was there no return of ascites, but all the edema of the hugely swollen legs and of the scrotum disappeared, and the man soon began to show again his pristine amiability. Eventually he was able to be up and about, and even left the hospital, to which, however, he returned, being unable, on account of his lame hip, to earn a living.

I have seen him many times since and have exhibited him in my lectures. There is no ascites; the venous distention and the caput medusae have disappeared; the liver and the spleen are of normal size, and but for the ostearthritis the man is perfectly well. As far as I know he has not touched alcohol since his first admission to the medical wards at the hospital.

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* Read before the American Gastro-Enterological Association, May 3, 1920.

The urine during his sojourn never exceeded 40 ounces a day, despite the use of many diuretics, until after the last tapping, when it increased wonderfully, reaching as high as 105 ounces a day without any drugs. The specific gravity varied from 1.010 to 1.020; occasionally there was a trace of albumin; usually the urine was chemically and microscopically normal. The blood, about the middle period of his illness, showed: hemoglobin, 65 per cent.; red cells, 3,910,000; white cells 6,800. The differential blood count revealed polymorphonuclears, 83 per cent.; small lymphocytes, 11 per cent.; large lymphocytes, 6 per cent.

The total amount of fluid removed in the thirty-six tappings we estimated as from 140 to 150 gallons, or, in round numbers, nearly 1,200 pints, which, considering the specific gravity of the fluid, amounts to more than 1,200 pounds. This amount, representing about ten times the man's own weight, was removed in the space of nine months.[1]

The man's history and symptoms were typical of cirrhosis of the liver. He had no history of syphilis; in fact, no history of anything except extreme alcoholism. The edema of the legs and of the scrotum did not impress us as being due to cardiac disease. We were inclined to attribute it to thrombosis of the lower vena cava, but its spontaneous disappearance negatives that view. Probably pressure on the vena cava, aided by a general weakness of the circulation, was responsible for it.

How are we to explain the almost miraculous cure? Evidently, as indicated by the extensive friction, pain and tenderness, a fibrinous peritonitis followed the last tapping.[2]

The adhesions resulting from this peritonitis constituted a spontaneous Talma operation and sufficed to establish an adequate collateral circulation.

REPORT OF CASES OF CURE BY OPERATION

The other cases illustrate cure by the Talma operation.

Case 2.—S. G., a man, aged 53, married, a retired iron merchant, native of Indiana, residing in Buffalo, came under my observation, Sept. 14, 1915. His father died of diabetes at the age of 75; his sister has diabetes and gallstone disease. His wife has never been pregnant. The patient has smoked to excess, but has never used alcohol or tea, and coffee only in moderation. He has never had syphilis, and the Wassermann test, which has been taken a number of times, has always been negative. During the preceding twenty years he had had attacks that from his description I should call biliary colic. In 1904, while in Edinburgh, he had a violent chill followed by jaundice, itching of the skin, and clay colored stools. Dr. Lauder Brunton diagnosed malaria. Ten years before I saw him, traces of sugar were found in the urine. Four years later he received some hypodermic injections, perhaps of mercury, which made him feel better.

In June, 1915, after eating three bananas, he had a violent attack of colic. Soon afterward the abdomen began to fill with fluid and it was necessary to tap him. He was tapped four times, at intervals of from ten days to two weeks; at each paracentesis from 4 to 7 quarts of fluid were drawn off. At the end of August he was sent by his physicians to the Mayo Clinic, where a laparotomy was performed; the liver being found the seat of a manifest cirrhosis, a Talma operation was performed. The patient was brought to me about a month later. I found the liver enlarged and finely nodular. The spleen was also enlarged and the abdomen was full of fluid. There were no hemorrhoids or caput medusae. October 7, he was tapped, and more than 6 quarts of straw-colored fluid were removed. After that the liver could be felt a hand's breadth below the costal arch; it appeared to be tough and leathery. In a little while fluid could again be demonstrated, but it did not reach any large amount. Eventually it became absorbed so that no further tapping was required. A year after the operation the patient was able to walk 5 miles without the slightest trouble and now, nearly four and a half years since the operation, he is well except that the urine occasionally contains traces of sugar and of albumin, with stray hyaline casts. The spleen is no longer palpable, and the liver has receded to the costal margin. Only one attack of abdominal pain of the nature of biliary colic has occurred since the operation.

Case 3.—C. H. M., aged 62, born in Philadelphia, a house painter until a year and a half before I saw him, and since then a night watchman in a bakery, had been a heavy drinker of beer and whisky for twenty years; he had also consumed large amounts of tobacco. His wife was in the insane department of the Philadelphia General Hospital. He had never had any venereal or other serious disease, except an attack of influenza in the fall of 1918 which lasted about four weeks, but did not confine him to bed. He never had painters' colic or any symptoms of lead poisoning. He had always enjoyed excellent health.

In February, 1919, without any apparent cause, the abdomen began to swell. Getting no relief from treatment, he came to the Philadelphia General Hospital, April 20. He had the general appearance of a patient with cirrhosis of the liver. The muscles were rather wasted. The weight on admission was 140 pounds; his best weight had been 170 pounds. The heart presented nothing abnormal. Over the bases of the lungs posteriorly, a few râles could be heard. The abdomen was greatly distended, the veins much enlarged. The liver and spleen could not be palpated. May 3, he was tapped, 4½ gallons of straw-colored fluid being removed. After the tapping, the liver could be felt 3 inches below the costal margin; it was hard, finely nodular and tender. The spleen was not palpable. From that time on until October 22, he was tapped seventeen times at intervals ranging from four to twenty-three days, a total of nearly 50 gallons of fluid being withdrawn.

The urine was examined on twelve occasions and showed a few hyaline and granular casts, a trace of albumin, and occasional leukocytes. The specific gravity varied from 1.011 to 1.025. The phenolsulphonephthalein test was made four times with rather varying results; the elimination in the first hour was from 8 to 30 per cent., in the second from 5 to 20 per cent., and the total from 13 to 50 per cent. The Wassermann test with blood, spinal and peritoneal fluid was always negative. A blood count revealed: red cells, 4,800,000; white cells, 13,000; hemoglobin, 90 per cent. The blood sugar, after the administration of 100 gm. of dextrose at 11 a. m. (breakfast at 6 a. m.) was: at 11 a. m., 0.08 per cent.; at 12 m., 0.15 per cent.; at 1 p. m., 0.14 per cent. The peritoneal fluid was sterile and contained only a few leukocytes and epithelial cells.

As the patient was losing ground and had begun to dread the tapping, it was easy to persuade him to submit to an operation. This was performed under ether anesthesia, October 22, by Dr. T. Turner Thomas, of the surgical staff of the hospital. Just preceding operation, the patient was tapped, and about 9 quarts of fluid removed from the abdominal cavity. A right rectus incision about 4 inches long was made over the gallbladder. The remaining fluid was removed from the abdomen with towels. The upper surface of the liver, spleen and the adjacent peritoneum were rubbed with gauze until blood exuded slightly. The omentum was sutured to the anterior abdominal wall with four catgut sutures, and the lower portion of the omentum was sutured in the abdominal incision just beneath the skin. The incision was closed in the usual way. A short median line incision was made just above the pubis, and a rubber drainage tube inserted into the pelvis. On direct inspection during the operation, the liver was found somewhat enlarged, deeply congested and finely granular.

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[1] In A. J. C. Hare's "Walks in London" **1**: 311, I came across this legend, taken from the tomb of Dame Mary Page (1728): "In sixty-seven months she was tapped sixty-six times and had taken away two hundred and forty gallons of water without ever repining at her case or ever fearing the operation." This is a better record than that of David G.

[2] It is not without interest that the intern who did the tapping was at that time on service in the erysipelas wards of the hospital.

Convalescence was uneventful, except for considerable gaseous distention of the abdomen and some looseness of the bowels. November 12, the sutures were removed from the upper incision; healing was complete and clean. December 23, the patient was retransferred to the medical wards, from which after a short stay he was dismissed virtually well.

COMMENT

The first case illustrates the wonderful *vis medicatrix naturae.* The other two cases show what may be accomplished by surgical means.

Cirrhosis of the liver is one of the few chronic nonbacterial visceral diseases—perhaps the only one—that may actually be cured. It is interesting that the cure of one of its outstanding symptoms, namely, the ascites, brings about arrest or cure of the cirrhotic process. We have been accustomed to look on hepatic cirrhosis as a progressive disease, and on ascites as a symptom of an advanced and, to all intents and purposes, an incurable stage. Yet, as the cases here reported and many others prove, after the ascites is abolished, not only does the cirrhosis make no further progress, but the damage that has been done to the liver seems to be compensated in a sufficient degree to permit a virtual restoration to health. When the cirrhosis is dependent on syphilis, such a striking therapeutic result is more easily comprehended. But in none of the cases here recorded could syphilitic infection be demonstrated.[3]

The cure of cirrhosis by the Talma operation cannot be due merely to the establishment of an adequate collateral circulation. That would be too mechanical a view of the matter. The liver itself must undergo a change, and probably also the spleen, the share of which in the pathogenesis of cirrhosis is, I believe, much greater than is generally conceded.

I have seen the Talma operation fail, owing, I believe, to my having postponed it too long.

If the intervals between tappings are decreasing, there is no use in waiting. The chances for a fortunate outcome from tapping alone, as in the first case, are so slight, and the action of drugs is so uncertain, that the patient should have the benefit of an operation if the circulation and the kidney function are such that the operation per se is justified. The operation is best performed when the abdomen is full of fluid. One should not be discouraged if a good result is not immediately apparent, and if the patient has to be tapped once or twice afterward. As Case 2 shows, the result may nevertheless be entirely satisfactory.

1715 Spruce Street.

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[3] Polyserositis, which exhibits a tendency to spontaneous cure, closely simulates cirrhosis of the liver. The three cases here reported gave no sign of being anything more than cirrhosis, evidence of general serous membrane involvement being lacking.

Conjugal and Congenital Syphilis.—The family of every syphilitic patient should be examined, irrespective of the stage of the disease or the symptomatology presented by the patient when first seen. If this is done, cases of conjugal and congenital syphilis will be discovered which would otherwise be neglected. They will often be found at a period when symptoms are not active, and thus treatment may be instituted before irreparable destructive lesions have occurred. An opportunity is offered to prevent the development of such disabling conditions as general paresis, tabes dorsalis, aneurysms, and the like. The possibility of bearing healthy children may be increased. Every clinic dealing with syphilitic patients, whether it is primarily a syphilitic clinic, a neurological clinic, a cardiac clinic, or an internal medicine clinic should be equipped with the machinery for bringing the members of the syphilitic's family to the clinic for examination.—Solomon, *Social Hygiene* **6**:487 (Oct.) 1920.

THE TREATMENT OF PERNICIOUS ANEMIA BY SPLENECTOMY

SECOND REPORT *

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In 1917, one of us (Giffin) published in The Journal[1] a review of the results in a series of thirty-one cases of pernicious anemia treated by splenectomy. In that series it was demonstrated that splenectomy was followed by a markedly favorable immediate reaction; 78 per cent. of those who recovered from operation showed very definite temporary improvement in their general condition and in their blood pictures. Moreover, there was at least a temporary reduction of the hemolytic factor evidenced by the fall in the values for bile pigments in the duodenal contents. The operative mortality was low. Two living patients had at that time maintained a satisfactory condition for one year, and three for nine months. Most of the patients, however, had been operated on so recently that conclusions concerning the postoperative duration of life could not be drawn.

Although the second report will be of interest as a further study of the influence of splenectomy on the various factors concerned in pernicious anemia, it will be of value chiefly as a statement of the postoperative life of these patients.

Including the thirty-one cases reviewed at the time of the first report, there are now (November, 1920) fifty in which operation was performed more than three years ago.

OPERATIVE MORTALITY

The immediate operative mortality of the series was 6 per cent. (three cases). The deaths occurred in the first nineteen cases. The reduction of mortality can be ascribed chiefly to more careful preoperative treatment and the exclusion of the anemias of the more acute type. The operative mortality in our patients with pernicious anemia has been considerably lower than in patients with splenic anemia, though not as low as in those with hemolytic jaundice. The small size of the spleen and the absence of adhesions reduce the surgical difficulties of splenectomy. The postoperative complications so common in cases of splenic anemia are absent, and excessive operative hemorrhage, after careful preoperative preparation, does not occur.

POSTOPERATIVE MORTALITY

Forty-two of the forty-seven patients who recovered from operation have died. Three patients died within three months of operation, one more within six months. A total of nine died within nine months; seventeen within one year; twenty-six within one and one-half years; thirty within two years; thirty-five within two and one-half years, and thirty-seven, 78.7 per cent. of those who recovered from operation, within three years. Ten patients (21.3 per cent.) survived the operation three years or longer. Thus, twenty-six patients (55 per cent.) died within eighteen months of operation. Twenty-two of these twenty-six died between the sixth and eighteenth months; seventeen of the twenty-six died between the ninth and eighteenth months. Twenty-one patients (45 per cent.) lived longer than eighteen months following operation. Of the ten who lived longer than three years, five are still alive and in good condition. Of the five now dead, two survived operation four years; one, forty-six months; one, forty-four months, and one, thirty-six months. The average duration of life for the entire group of forty-two patients who have died since splenectomy is nineteen months. In other words, five patients (10.6 per cent.) of the forty-seven who recovered from operation are still alive and in good condition, ten (21.3 per cent.) lived longer than three years, while twenty-one (45 per cent.) lived longer than eighteen months after operation.

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* From the Division of Medicine, Mayo Clinic.

[1] Giffin, H. Z.: A Report on the Treatment of Pernicious Anemia by Transfusion and Splenectomy, J. A. M. A. **68**: 429-432 (Feb. 10) 1917.

SURVIVING PATIENTS

Five (10.6 per cent.) of the forty-seven patients who recovered from operation are alive. Two were splenectomized four years and nine months ago, one four years and eight months, one four years and five months, and one four years and three months. These five patients at the time of their last reports were in good general condition. The preoperative history of these patients in each case was approximately one year; the total average duration of the disease was considerably more than five years. Including with these the patients who survived operation at least three years but who are now dead, there is a total of ten (21.3 per cent.) in whom the total duration of disease before and after operation was four and one-half years or more. This is clearly longer than the average expectation of life of patients with pernicious anemia, and would seem to lead to the definite conclusion that life is prolonged in a considerable percentage of cases.

POSTOPERATIVE RELAPSES AND REMISSIONS

The relapses in pernicious anemia have seemed to be somewhat altered by splenectomy. It has been established that an improvement in the anemia occurs following operation, and that this continues for at least from three to six months, and in some cases longer. This improvement is associated with a diminution of hemolytic activity that is evidenced by the temporary decrease of jaundice and by the fall in the pigments observed in the examination of the duodenal contents. Later there are recurrences associated with all the symptoms and signs of the preoperative period. In our cases the anemia in general became more chronic in type, and, although in most instances the blood did not approximate normal, it was maintained at a fairly satisfactory level for a long time. Recurrences were liable to follow some acute infection, frequently a severe cold or "grip." During these recurrences the patients were less toxic than is the rule when patients are not splenectomized. The response to transfusion after splenectomy was very satisfactory; in fact, frequently two transfusions, and sometimes one, brought about a remission in patients in whom three or four ordinarily would have been necessary, if the patients had not been splenectomized. Still later in the disease, as would be expected, the benefit from transfusions decreased.

DEGENERATION OF THE SPINAL CORD

On neurologic examination before operation, twenty-nine patients (58 per cent.) showed definite evidence of sclerosis of the spinal cord. Eight more (16 per cent.) registered complaints suggestive of early involvement of the spinal cord, making a total of thirty-seven patients (74 per cent.).

The fifty patients have been divided into four groups: Group 1, patients who showed no evidence of degeneration of the spinal cord before or after splenectomy; Group 2, patients who showed evidence of degeneration of the spinal cord, but whose nervous symptoms were not observed to progress after splenectomy; Group 3, patients whose nervous symptoms progressed somewhat after splenectomy, and Group 4, patients whose nervous symptoms improved at least subjectively after splenectomy.

Group 1: None of the thirteen patients without signs of degeneration of the spinal cord before operation developed signs afterward. In this group are included three patients who survived operation more than three years.

Group 2: Fourteen patients with degeneration of the spinal cord or with subjective symptoms observed no progress in the nervous symptoms after operation; they represent 37.8 per cent. of the patients with degeneration of the cord before operation. In this group are included several patients who survived operation as long as four years and who complained of only slight symptoms.

Group 3: Twelve patients showed an advance in nervous symptoms after splenectomy, four a slight advance, seven a moderate advance, and one a rapid and marked advance; this patient had shown signs of fairly marked degeneration of the cord before splenectomy. This group represents 32.4 per cent. of the thirty-seven patients with degeneration of the cord before operation.

Group 4: Eleven patients with changes in the cord stated that their nervous symptoms, such as numbness and tingling of the extremities, were definitely improved after operation. These patients represent 29.7 per cent. of the patients with degeneration of the cord before operation. Some survived operation more than three years, some more than four. None presented marked neurologic signs before operation, and no objective improvement of these signs was observed in patients in whom a careful neurologic examination had been made before operation.

It is quite likely that the patient's improvement is subjective and the result of the amelioration of his general condition. On the other hand, there is some indication that the progress of the degeneration of the cord was less rapid following operation than would have been expected. The data at hand indicate that degeneration of the cord had not become marked in patients in whom the degeneration was slight previous to splenectomy. It is possible that the progress of the degeneration is arrested in some of the patients. Mental symptoms have not developed following operation.

A STUDY OF THE BILE PIGMENTS

If the bile pigments may be considered an index of hemolytic activity, the results obtained are very definite. The bile pigments in the duodenal contents, as discussed in a former paper,[2] were estimated by a modified Schneider technic, in Wilbur and Addis units. The objection has been raised that such a procedure cannot be exact; moreover, that the spectroscopic unit is quantitatively inaccurate. From the clinical standpoint, however, the test has been found to be of very definite value. The presence of more than a trace of urobilinogen is important, although its exact significance is not ascertained. Ordinarily, the readings for urobilinogen in pernicious anemia range from 200 to 2,000 units. The readings for urobilin, which is normally present in from 400 to 1,000 units, are also high, so that the combined values of urobilinogen and urobilin frequently reach 3,000 units and occasionally 6,000 units. Within three weeks after splenectomy, urobilinogen disappeared from the duodenal contents in every case in which the test was made, with two exceptions, and urobilin dropped to normal. One case reacted in an unusual manner and will be discussed separately (Case 2).

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[2] Giffin, H. Z., Sanford, A. H., and Szlapka, T. L.: The Estimation of Urobilin and Urobilinogen in the Duodenal Contents, Am. J. M. Sc. **155**: 562-579 (April) 1918.

The estimation of bile pigments by the fractional method of obtaining the bile by means of magnesium sulphate has recently shown variations which are difficult to explain.

The recurrences of anemia, slight icterus, and all the usual features of the ordinary relapses in cases in which operation has not been performed suggest a recurrence of the toxic damage and of increased hemolysis. Our cases, however, suggest that postoperative hemolysis is less active and the crises are less prolonged.

THE BLOOD COUNT

Splenectomy in some manner produces a profound reaction in the bone marrow. This clinical observation is corroborated by recent experimental work by Johnstone. The duration of this experimentally increased reaction in the bone marrow corresponds to the period of remission which is commonly observed after splenectomy for pernicious anemia. Large showers of normoblasts and megaloblasts are found in the blood smears. As many as 300, and once 900, nucleated erythrocytes have been observed while counting 300 leukocytes. In some cases these enormous numbers of nucleated cells have been found to be present for as long as four years after operation. The occurrence of postoperative leukocytosis was discussed in our former paper. Leukocytosis persisted much longer following splenectomy than would ordinarily be expected. Marked leukocytosis has been observed in several instances during the third year. A considerable fluctuation in the differential count occurred, tending frequently to a preponderance of polymorphonuclear cells. However, the degree of change in the blood picture following splenectomy was not always an index of the patient's postoperative progress. Several of the most successful cases showed few nucleated red cells and only slight leukocytosis.

THE SELECTION OF PATIENTS SUITABLE FOR SPLENECTOMY

In the selection of patients for operation in this series, preference was given persons between the ages of 35 and 45 with a previous history of one year or less, a favorable type of blood picture, and with little if any evidence of degeneration of the spinal cord. An absence of marked leukopenia with a polymorphonuclear rather than a lymphocytic predominance in the leukocyte count, marked hemolytic activity, estimated by the examination of the pigments in the duodenal contents in the presence of a competent bone marrow and a moderately enlarged spleen, were regarded as favorable to splenectomy. Patients in acute exacerbations and patients showing evidence of bone marrow exhaustion were excluded so far as possible. Two patients who died within three months after operation had the more acute type of anemia. In the light of our present knowledge it is probable that these were unfavorable cases for operation. However, a review of the preoperative and postoperative blood counts and a comparison of the favorable and the unfavorable results fail to bring out any definite conclusions with respect to the relationship of the foregoing factors to the actual duration of life. Not a few of the most encouraging preoperative blood counts occurred in patients whose postoperative course was short.

ABDOMINAL FINDINGS AT THE TIME OF OPERATION

The spleens of three patients were definitely less than normal in weight. Two of the patients died within eighteen months of operation; one is still alive and in good condition. The spleens of three other patients were very large, weighing 1,120 gm., 1,640 gm. and 2,330 gm. The clinical characteristics were also somewhat atypical in these patients; they were evidently anemias of the hemolytic type, but the color index was not constantly as high as usual. These three patients are dead. The weight of the spleens of the remaining patients varied from normal to 770 gm. The average weight, excluding the three very large spleens, was 358.7 gm.

Except for the splenic enlargement, nothing of special significance was observed in the abdomen with any degree of regularity. In a few cases the liver was moderately enlarged. The gallbladder was slightly thickened or adherent in only nine cases, and gallstones were present in four. One of the surviving patients in this series had a cholecystostomy for stones three and one-half years after splenectomy, with a normal postoperative convalescence. In our experience, however, obvious signs of gallbladder disease are not common in pernicious enemia.

In cases in which the appendix was examined, the surgeon did not note signs of active or extensive inflammatory reaction. A small duodenal ulcer was found in one case.

FOCAL INFECTIONS

An effort was made, whenever advisable, to remove all foci of infection. Pyorrhea, abscessed teeth, septic tonsils and sinus disease were given especial attention. The importance of cleaning up these possible sources of trouble, especially the teeth, was emphasized to the patient, in some instances with good cooperation. Not uncommonly, however, the patient neglected to follow the advice given. We have been surprised to note that three of the surviving patients in this series still retain obviously septic teeth and gums, apparently without injury to their general condition. While we still advise the removal of septic foci, believing that they may well have a physiologic and possibly an etiologic relation to pernicious anemia, we have been gradually forced to some doubt as to their grave importance in the stage of pernicious anemia in which our patients present themselves for examination. Greater benefit would doubtless have been obtained from their earlier removal, as a prophylactic measure before the actual development of the disease.

HISTORIES OF SURVIVING PATIENTS

Case 1 (A 150807).—*Mr. W. E. B., aged 41, had had pallor, numbness of the hands and legs, and weakness for nine months before examination, Jan. 26, 1916. The erythrocytes numbered 890,000. Splenectomy was performed, Feb. 2, 1916; the spleen weighed 586 gm. No severe relapses have occurred since operation. The patient works regularly. He last reported, Sept. 24, 1920, four years and seven months following operation. The total duration of his history is more than five and one-half years.*

The patient presented himself for examination, Jan. 26, 1916; his family history and previous medical history were unimportant with the exception of an attack suggestive of renal colic three years before. He stated that his complexion had been somewhat sallow for three years, but that there had been no marked pallor until nine months preceding the examination. Since then he had had slight numbness of the hands, and his legs had become weak so that it was difficult to control them. Enlargement of the spleen had not been noted previously, and there had been no history of stomatitis or diarrhea.

The patient was in fairly good nutrition, weighing 150 pounds, although he was markedly anemic. The spleen was easily palpable, approximately two finger breadths from the costal region. The urinalysis and the examination of the ureter, kidneys and bladder were negative. The blood count at the time of the first examination was: hemoglobin, 25 per cent.; erythrocytes, 890,000; a color index of 1.2 +; leukocytes, 6,200, of which 62.3 per cent. were polymorphonuclear neutrophils, 26.7 per cent. small lymphocytes, 3 per cent. large lymphocytes, 7.7 per cent. eosinophils and 0.3 per cent. basophils; an occasional normoblast; marked anisocytosis; poikilocytosis, and polychromatophilia of slight degree. The blood picture both at this time and later was typical of pernicious anemia. A transfusion was given, Feb. 2, 1916. February 9, the hemoglobin was 30 per cent., and the erythrocyte count, 1,390,000.

Splenectomy was performed, February 12. The operation was not especially difficult; the spleen was definitely enlarged, weighing 530 gm. Postoperative convalescence was uneventful. An examination of the duodenal contents was not made preceding operation. March 10, however, about four weeks after splenectomy, an examination of the duodenal contents revealed the absence of urobilinogen and the presence of 700 units of urobilin. As has been noted, the absence of urobilinogen after splenectomy and the reduction of urobilin to normal is common.

March 20, the erythrocytes had risen to 1,990,000 and the leukocytes to 9,400, of which 68 per cent. were polymorphonuclears; six normoblasts were found in the count of 300 cells. April 19, 1916, the hemoglobin was 75 per cent. In April, 1917, a report by the patient's physician stated that he was in good condition and working regularly. In May, 1919, his weight was reported to be normal, his color and strength good. There had been no relapses. In April, 1920, the erythrocyte count was reported to be 3,500,000. Feb. 24, 1920, the hemoglobin was reported to be 80 per cent., and the erythrocytes, 3,000,000. The patient stated that his teeth had been in rather poor condition for the last six months, but they had not yet been attended to. Sept. 24, 1920, he reported that he was working regularly, although his occupation does not necessitate heavy labor.

CASE 2 (A 151088).—*Miss M. R. S., aged 29, had had weakness, pallor and stomatitis for ten months prior to examination, Jan. 31, 1916. The erythrocytes numbered 1,530,000. Splenectomy was performed, Feb. 14, 1916; the spleen weighed 530 gm. A cholecystostomy, with removal of gallstones, was performed elsewhere in August, 1919. The patient has had no relapses since splenectomy. She was married in June, 1919, and is able to do her housework. The total duration of her history is five years and nine months.*

The patient came under observation, Jan. 31, 1916. Her family history was negative with the exception that her mother had died with jaundice and an enlarged liver, but there was no indication that it was hemolytic jaundice. The patient had had smallpox and several attacks of tonsillitis. She stated that seven years before examination she had had stomatitis, but unaccompanied by any superficial eruption on the body. The history dated from one year preceding examination; the condition that she described might have been due to a more or less generalized myositis followed by the formation of small furuncles on the scalp and legs. Ten months previous to examination, pallor, slight icterus, shortness of breath, a definite weakness, sore mouth, and numbness and tingling of the

CONDITION OF PATIENTS IN THREE MONTH PERIODS AFTER SPLENECTOMY FOR PERNICIOUS ANEMIA *

Case	Date of Operation	Operative Death	3 Mos.	6 Mos.	9 Mos.	1 Yr.	15 Mos.	18 Mos.	21 Mos.	2 Yrs.	27 Mos.	30 Mos.	33 Mos.	3 Yrs.	39 Mos.	42 Mos.	45 Mos.	4 Yrs.	51 Mos.	54 Mos.	57 Mos.
7040 E. P. F.	2/10/10	..	—	?	..	..	?	—	..	?	?	—	—	D	..	..	..	..	..	..	..
112160 D. M.	8/11/14	..	+	+	—D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
98744 M. S.	12/ 2/14	..	—D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
122468 J. B. M.	1/23/15	.	—D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
124257 M. S.	3/10/15	..	+	+	—T	+	—T	+	+	—	TT	±	±	±	±	±	D	..	..	..	..
127677 C. H.	4/17/15	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
129678 O. D. B.	6/ 4/15	..	+	+	+	+	—	..	..	..	..	..	..	..	..	D	..	..	..	..	..
128367 J. H. D.	6/ 5/15	..	+	+	+	R	—	—	+T*	+	—	D	..	..	..	..	..	..	..	..	..
131876 E. S.	6/24/15	..	+	+	—R	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
131901 R. C.	7/ 3/15	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
136882 M. J. F.	8/ 2/15	..	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
134484 W. G.	8/ 3/15	..	+	—	+	—	..	—	R	—	—	+	—	+	—	—	—	D	..	..	..
139695 F. L.	9/ 8/15	..	+	—	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
140045 G. L.	9/30/15	..	+	+	+	+	+	+	RT	+	+	—	D	..	..	..	..	..	..	..	..
142349 E. O.	10/ 1/15	..	+	+	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..
141771 H. F.	10/12/15	..	+	+	+	+	+	+	+	+	—	D	..	..	..	..	..	..	..	..	..
142587 H. W. L.	10/15/15	..	—	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
140970 W. A. S.	10/19/15	..	+	+	—	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..
133078 C. A.	10/25/15	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
134232 J. N.	10/26/15	..	—	—	—	—	+	+	+	D	..	..	..	..	..	..	..	..	..	..	..
147503 E. F.	12/31/15	..	+	+	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
150807 W. E. B.	2/ 2/16	..	+	+	..	+	+	+	..	+	+	..	+	..	+	+	..	+	+	+	+
151088 M. R. S.	2/14/16	..	+	R	T*	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
150229 E. S.	2/23/16	..	+	+	+	+	—T	+	+	+	+	—	T+	+	+	—	—T	D	..	..	..
151665 F. W. N.	2/24/16	..	+	—	—T	±	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
152922 W. H.	3/10/16	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..
136512 C. G. T.	3/17/16	..	±D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
154493 D. D. H.	3/25/16	..	+	+	..	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
153395 L. C. H.	3/29/16	..	+	+	+	+	+	..	..	+	+	—	+	+	+	—	T+	—D	..	..	..
151646 B. N.	3/31/16	..	+	+	+	+	+	+	—	—	D	..	..	..	..	..	..	..	..	..	..
148891 W. H. C.	4/18/16	..	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
157146 J. E. I.	4/20/16	..	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
155439 W. P.	5/ 1/16	..	±	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
151021 H. H. M.	5/ 4/16	..	T^2	+	+	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..
154299 W. V.	4/ 8/16	..	+	—T	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
158217 C. E. L.	5/25/16	..	+	R	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
157663 C. U. H.	6/ 2/16	..	+	+	T+	+	+	+	—	—	—	D	..	..	..	..	..	..	..	..	..
157290 C. A.	6/ 5/16	..	+	+	+	+	—	+	—	—D	..	..	..	..	..	..	..	..	..	..	..
161677 L. G. W.	6/15/16	..	+	+	+	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..
129968 A. W.	6/21/16	..	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
159385 W. J. M.	6/22/16	..	+	—	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
162242 D. F. W.	6/24/16	..	—	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
160970 N. E. R.	6/27/16	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	..	..	..	..	..
158136 J. H. F.	6/28/16	..	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
114066 S. N.	7/13/16	..	+	+	+	+	+	+	—	—	—	+	+	—	D	..	..	..	..	..	..
166337 J. F. M.	8/11/16	..	+	+	+	—T	+	+	+	+	+	∓	+	+	+	+	..	..	..	..	..
168182 F. F. S.	8/29/16	..	+	+	+	+	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..
170115 P. H. W.	10/ 3/16	..	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..
153922 T. T.	11/ 3/16	..	—	—T*	D	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
184784 C. B.	3/ 2/17	..	+	+	+	+	—	D	..	..	..	..	..	..	..	..	..	..	..	..	..

* In the table, + indicates gain; —, loss; R, relapse; T, transfusion; *, radium over liver; D, death; TT, repeated transfusions until death from influenzal pneumonia; T^2, two transfusions.

extremities were noted. Enlargement of the spleen had not been recognized previously. Stomatitis had evidently been present at intervals for several years, but was much less troublesome than formerly.

On physical examination the patient was found to be well nourished; she weighed 162 pounds. The spleen was easily palpable two finger breadths from the costal margin. The patient was definitely icteric and pale. Examination of the blood revealed a hemoglobin of 35 per cent.; erythrocytes, 1,580,000; a color index of 1.1; leukocytes, 4,600, of which 45.3 per cent. were polymorphonuclear neutrophils, 55 per cent. small lymphocytes, 6.7 per cent. large lymphocytes, and 0.3 per cent. basophils; 18 normoblasts and 2 megaloblasts were observed in a count of 300 cells. Anisocytosis and poikilocytosis were marked. The resistance of the erythrocytes to hypisotonic salt solution was not decreased. The Wassermann test was negative. The examination of the stools was negative for parasites. Examination of the eye grounds revealed an interesting condition: There was a fresh retinal hemorrhage in the right eye, while one area in the left eye was suggestive of an old retinal hemorrhage, and the optic nerves were pale; the veins were tortuous, engorged, and similar in appearance to those not uncommonly found in leukemia.

Transfusion was performed, Feb. 8, 1916, and splenectomy was performed, February 14. The spleen was definitely enlarged; it weighed 530 gm. The hospital convalescence was uneventful. Postoperative improvement occurred very slowly. March 3, about three weeks after the operation, the erythrocytes numbered 1,360,000. A most interesting finding at this time was the presence of 636 normoblasts and of 19 megaloblasts in a count of 300 cells. Aug. 11, 1916, the erythrocytes numbered 2,000,000, the leukocytes 11,800, of which 75 per cent. were polymorphonuclears; 330 normoblasts and 11 megaloblasts were seen.

Preoperative examination of the duodenal contents had not been made. A postoperative estimation, June 8, 1916, showed urobilinogen, 2,400 units, and urobilin, 600 units. Another estimation, Aug. 5, 1916, showed urobilinogen, 1,000, and urobilin, 600. The clinical characteristics of the case and the postoperative finding of very high values for urobilinogen seem to indicate the probable presence of extremely high values for urobilinogen before splenectomy. From August to October, 1916, the patient's general condition did not improve. Oct. 2, 1916, the erythrocytes numbered 2,030,000; 912 normoblasts and 11 megaloblasts were observed in a count of 300 cells. Transfusions were performed, Sept. 28 and Oct. 12, 1916, without definite improvement. The liver had become markedly enlarged, and a twenty-four hour exposure of radium over the liver was given, a 50 mg. tube being employed and successive areas being exposed for three-hour periods each. Surprising improvement followed this treatment, in the patient's strength and color, while the size of the liver decreased to almost normal limits. In April, 1917, the patient's erythrocytes were reported as 4,500,000, and her general condition as excellent. In November, 1917, her weight was 206 pounds and her strength fairly good. In June, 1919, her hemoglobin was reported as 80 per cent., her weight 182 pounds, and she was able to do her own housework. She had had several abdominal attacks, however, which were suggestive of gallstones.

Aug. 15, 1919, cholecystostomy with removal of gallstones was performed elsewhere. Following the operation the patient was confined to her bed with phlebitis of the left leg; otherwise her convalescence was uneventful.

In March, 1920, the patient reported that she was in very good condition, her weight was 178 pounds, and she was able to do her own work. She had been married in June, 1919; she had not become pregnant. Her last letter in November, 1920, stated that she was still in good condition, and reported incidentally that she was still subject to attacks of glossitis similar to those experienced before her operation. This is an interesting observation, common to many of our patients who have been operated on.

Case 3 (A 152922).—*Mr. W. H., aged 53, had had pallor, weakness, numbness of fingers, and gastric symptoms for one year prior to examination, Feb. 23, 1916. The erythrocytes numbered 2,110,000. Splenectomy was performed, March 10, 1916; the spleen weighed 150 gm. The patient has been able to do light farm work most of the time since operation. The total duration of his history is more than five and one-half years.*

The patient was examined in the clinic, Feb. 23, 1916. His mother had died probably of Addison's disease. His three children were still-born at the sixth, seventh and ninth months. The patient had had several attacks of grip during the last ten years. Twelve years before, at the time of an attack of diarrhea, a physician had told him that he was anemic; four or five years before, numbness and tingling of the hands had been noticed. For one year before, pallor, weakness, gastric distress, nausea and vomiting had been definitely noticeable, and were more marked the last two months. The bowels were constipated. No note was made of sore mouth or tongue.

On examination, a lemon yellow pallor was noted. A tender area was present above the umbilicus and a little to the right of the median line. The spleen was easily palpable and the liver edge could be felt. A blood count, April 26, revealed a hemoglobin of 45 per cent.; erythrocytes, 2,110,000; a color index of 1.0 +; leukocytes, 6,400, of which 50 per cent. were polymorphonuclear neutrophils and 4 per cent. eosinophils; moderate anisocytosis, and slight poikilocytosis. Normoblasts and megaloblasts were not observed. A blood Wassermann test was negative. Gastric analysis revealed achlorhydria. Roentgen-ray examinations of the stomach, chest and teeth were negative. Six hundred units of urobilinogen and 2,000 units of urobilin were present in the duodenal contents.

Splenectomy was performed, March 10, 1916 (W. J. Mayo). The spleen weighed only 150 gm. The hospital convalescence was uneventful. By April 4 the patient's slight jaundice had disappeared and he felt stronger, although there was a slight fall in the blood count. The hemoglobin was 35 per cent., the erythrocytes 1,840,000, and the leukocytes 13,200, of which 64 per cent. were polymorphonuclear neutrophils. Ten normoblasts were noted in a count of 300 cells, and marked anisocytosis and poikilocytosis were present. April 1, an examination of the duodenal contents disclosed an absence of urobilinogen, and 1,400 units of urobilin. April 26, a blood count was made elsewhere which showed the hemoglobin to be 63 per cent. and the erythrocytes 3,200,000. During the winter the patient had a series of colds which caused him to lose color, weight and strength, until March, 1917, when his erythrocytes were 3,610,000 and slight jaundice was present. There was neither improvement nor exacerbation of the nervous symptoms. He had been able to do light work. During the summer his weight remained quite constant at about 160 pounds, and he was able to do farm work. In May, 1919, he weighed 163, and his endurance was good. The erythrocytes were 4,510,000. March 10, 1920, he stated that his strength during the preceding year had been better than ever and he was able to do hard farm work. Sept. 29, 1920, four and one-half years after splenectomy, his blood and general condition were still at the same good level.

Case 4 (A 160970).—*Mr. N. E. R., aged 35, complained of weakness, pallor, numbness and gastric symptoms for one year before examination, May 29, 1916. Splenectomy was performed, June 27, 1916; the spleen weighed 300 gm. The patient has had no severe recurrences since operation. He works regularly. The total duration of his history is a little more than five years.*

The patient was admitted to the clinic for examination, May 29, 1916. His previous medical history seemed to be negative except for scarlet fever at the age of 5. The present illness had begun one year before examination and was manifested by weakness, pallor, nausea and vomiting, constipation, considerable epigastric pain, and slight coldness and numbness of the legs. Marked improvement had taken place under medical care about six months before, following which the patient was able to work until the last six weeks, when the previous symptoms had recurred. The patient had recently lost 16 pounds in weight.

Physical examination revealed the patient to be thin, and with skin of lemon yellow color. He had several infected teeth. The spleen was palpable about one finger's breadth below the left costal margin. May 29, the blood contained hemoglobin 37 per cent.; the erythrocytes were 2,280,000, and the leukocytes 9,800, of which 63 per cent. were polymorphonuclear neutrophils and 0.3 per cent. neutrophilic myelocytes. Moderate anisocytosis and moderate polychromatophilia were present. A test meal gave a total acidity of 10, and no free hydrochloric acid. Roentgen-ray examinations of the stomach were indeterminate, and of the chest negative. The blood Wassermann test was negative and there was no increase in the fragility of the red cells. The duodenal contents contained bilirubin + + +, urobilin 800 units, and urobilinogen 200 units. A neurologic examination was not made.

Splenectomy was performed, June 27, 1916 (Balfour). The spleen was about twice its normal size and was abnormally adherent; it weighed 300 gm. A small ulcer of the duodenum one-half inch below the pylorus was supected, and the gallbladder was buried in adhesions. Following the operation the patient felt stronger, and his appetite improved, but his legs continued to be somewhat weak and numb. July 25, four weeks after operation, the duodenal contents were examined; urobilinogen was absent; there was a trace of urobilin. The postoperative progress of this patient has been satisfactory. He has had no relapses and has been able to do hard work quite regularly. He was last heard from March 12, 1920, at which time the erythrocytes were 4,500,000 and the hemoglobin 90 per cent.

While the clinical picture at the time of examination was indicative of pernicious anemia, the postoperative course was so satisfactory that the diagnosis remains somewhat questionable in the light of the findings at operation and the absence of showers of nucleated erythrocytes after splenecomy.

Case 5 (A 166337).—*Mr. J. F. M., aged 34, had had pallor, weakness and gastric symptoms one year before examination, July 17, 1916. The erythrocytes numbered 1,350,000. Splenectomy was performed, Aug. 11, 1916; the spleen weighed 430 gm.. The patient is working regularly as a bookkeeper in a bank almost four years following operation. The total duration of his history is five years.*

The patient was admitted for examination, July 17, 1916. His family history was unimportant. His previous medical history was negative save for "grip" and sciatica. His illness seems to have dated from one year previous to examination and was associated with weakness, loss of appetite, gastric disturbances, slight diarrhea and pallor. Slight numbness of the fingers and a mild glossitis which was aggravated by tobacco had been noted. The patient had had infected teeth for three or four years. From December, 1915, to March, 1916, the patient improved markedly under medical management, and then began to fail.

On examination, he was found to be weak and with a rapid pulse. He had a greenish icteroid pallor. The spleen could be felt about two finger breadths below the costal margin. An examination of the fundi revealed retinal hemorrhages. July, 1916, the blood contained hemoglobin 26 per cent; the erythrocytes were 1,350,000; the color index 0.9 +; leukocytes, 5,000, of which 73 per cent. were polymorphonuclear neutrophils, and 3.7 per cent. neutrophilic myelocytes. In the blood smear, 9 normoblasts and 2 megaloblasts for each 300 cells were found, with marked anisocytosis, moderate poikilocytosis, and slight granular degeneration of the erythrocytes. A blood Wassermann test was negative. The duodenal values in a somewhat unsatisfactory test were: bilirubin, a trace; urobilinogen, 200 units; urobilin, 400 units; total, 600 units. A roentgen-ray examination of the chest gave evidence of small healed areas of tuberculosis in the upper left lobe of the lung.

After two transfusions, July 24 and Aug. 2, 1916, splenectomy was performed, August 10. The spleen was enlarged, very adherent, and weighed 430 gm. The hospital convalescence was uneventful. Two blood counts made shortly after operation showed 40 normoblasts at one time and 460 normoblasts and 15 megaloblasts to each 300 cells at another. September 19, the hemoglobin was 60 per cent.; the erythrocytes, 3,870,000; the leukocytes, 13,500, of which 27 per cent. were polymorphonuclear neutrophils and 58 per cent. small lymphocytes. The blood smears showed 4 normoblasts for each 300 cells, with moderate changes in the size and shape of the erythrocytes. The patient's improvement after operation was rather delayed, with no marked improvement until after three weeks. Nov. 14, 1916, the hemoglobin was 74 per cent. and the erythrocytes 3,440,000. Nucleated erythrocytes were not observed. The patient's general condition continued to improve and in April, 1917, was good. Aug. 8, 1917, a telegram stated that the patient had suffered an acute relapse associated with high fever, nausea and anemia. This may have been due to some type of acute infection. Two transfusions given elsewhere were followed by improvement. Following this the patient was apparently in fairly good health until January, 1919, when a less severe relapse of short duration occurred. The last communication was dated Feb. 21, 1920. For six months the patient had been working eight and ten hours a day as a bookkeeper in a bank. He was heard of indirectly in November, 1920.

SUMMARY

1. This review concerns fifty patients with pernicious anemia for whom splenectomy was performed. All were operated on more than three years ago.

2. The operative mortality was 6 per cent.

3. Ten patients (21.3 per cent.) of those who recovered from operation survived splenectomy three years or longer.

4. Five patients (10.6 per cent.) of those who recovered from operation have survived splenectomy more than four and one-half years, and are still living. The total length of history of these five patients averages almost six years.

5. It may be stated with reasonable accuracy that, in addition to the immediate remission which occurred constantly following splenectomy, splenectomy prolonged life in at least 20 per cent. of our cases.

6. We cannot satisfy ourselves that any particular preoperative characteristics of the disease are indicative of favorable results following splenectomy. However, in the type of case in which there is evidence of active hemolysis, the patient shows a more marked immediate improvement.

7. Splenectomy may be recommended in pernicious anemia when, in view of all the circumstances, personal as well as medical, the possibility of the prolongation of life appeals to the family and to the patient. Occasionally the operation may be performed in order to bring about an immediate remission.

THE RELATIONSHIP OF HIGH BLOOD SUGAR TO FURUNCULOSIS

REPORT OF A CASE *

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This case is considered sufficiently important to report because (1) the original complaint was of "attacks of multiple furuncles," and in investigating this condition it was discovered that the patient had a high blood sugar, and (2) the clue given by the high blood sugar was investigated further, and it is believed that the data indicate that this is a case in either the prediabetic stage, or else an unusually early stage of diabetes.

REPORT OF CASE

History.—S. G., schoolboy, aged 15, Jew, admitted to the hospital, Feb. 18, 1920, whose mother, father and one sister were living and well, who had one sister who died in infancy, of unknown cause, and in whose family there was no history of diabetes, had had all the common diseases of infancy and childhood. The history otherwise was negative. He was at a boy's summer camp eight months before, where his mother thought he did not secure proper food. She had noted that he ate a large amount of sugar and bread. For the last five months the patient had had one crop of furuncles following another on the back of the neck, hands, and soles of the feet. An autogenous vaccine had been administered, but without benefit.

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* From the Laboratories of Columbia Hospital.

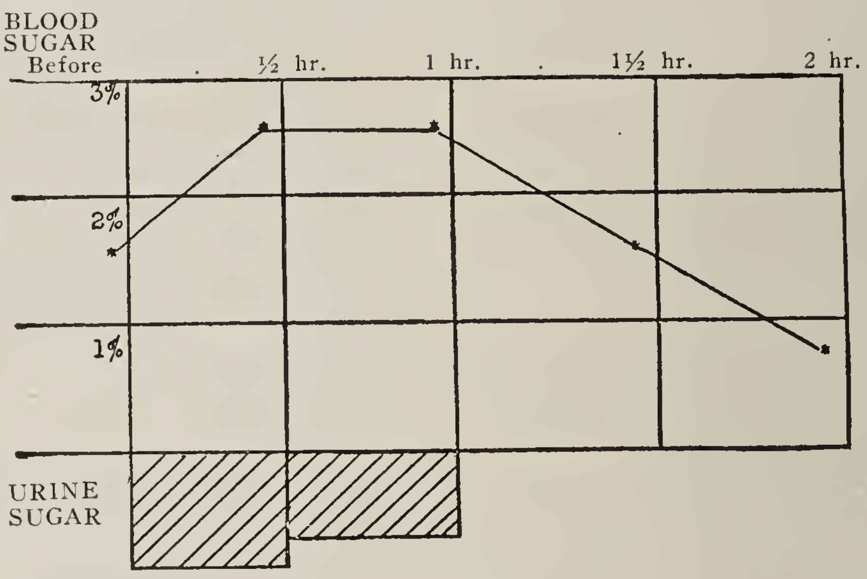
Physical Examination.—The general physical examination was entirely negative. On the back of the neck were seven large furuncles. Over the neck and chin were the remains of a large number of recently healed furuncles.

Treatment.—The furuncles were opened and dressed in the usual manner. They did not improve until a reduced carbohydrate diet, described later, was instituted.

The urine, during the patient's stay in the hospital, was examined repeatedly. Sometimes it showed albumin, sometimes not; casts were never present. Once it gave a pea-green reaction, and once reduction with Fehling's solution. The blood Wassermann test was negative.

February 28, the blood sugar was 0.148 per cent.[1] This blood sugar finding was interpreted to mean either a blood sugar at the upper limit of normal or else an abnormal condition. During this time the patient had no restriction of his diet and was eating large amounts of carbohydrate. A carbohydrate utilization test was next given the patient. February 29, 100 gm. of glucose were given in 300 c.c. of water at 8 a. m. The accompanying curve gives the result of this test.

It is to be noted that the blood sugar finding before the test was 0.155 per cent., even higher than the previous one. The curve shows that the peak was not reached until one hour after the glucose was taken. In normal individuals, according to Strouse,[2] the peak is reached at one half hour; the curve then descends rather rapidly toward the base line, and the urine does not contain sugar. When the peak is reached at a later period than half an hour, and when the curve tends to stay up, it signifies an abnormal carbohydrate metabolism. The appearance of sugar in the urine is also abnormal.



Result of test.

It was then considered that the high blood sugar finding did not indicate simply a high normal, but was definitely abnormal. The patient then left the hospital and for three weeks was put on a diet with carbohydrates much reduced. Following this the diet was further restricted to 5 and 10 per cent. vegetables, fruits, nuts, liver, fish and bacon. He ate a large amount of bacon, as much as five or six slices at each meal. Two days later acetone appeared in his urine, and the next day diacetic acid as well. Both of these substances appeared in increasing amount in the urine during the few days he was on this diet. Albumin also was present, but no reduction of Fehling's solution was obtained. The amount of sugar present in the urine, however, was determined by the Benedict method for determining sugar in normal urine. The results of the urinalysis are given in Table 1. At the end of the six day period of reduced carbohydrate in the diet the blood sugar was found unchanged, namely, 0.146 per cent. During this time, however, the furuncles disappeared and no new ones developed. The patient was then readmitted to the hospital, because of the acidosis, and put on a liberal diet, except that the fat was kept down to 25 gm. His diet for four days consisted of protein, 100 gm.; carbohydrate, 200 gm., and fat, 25 gm., at the end of which time the blood sugar was 0.140 per cent., and the acetone had completely disappeared. After this increase in carbohydrates, furuncles again developed. On the fifth day the fat was increased to 50 gm., and the urine findings remained the same. The sugar determination with the Benedict method for sugar in normal urine showed normal figures. On the sixth day the diet was increased to 75 gm. of fat and 250 gm. of carbohydrate, in addition to which the boy ate, without permission, two figs. The diet was kept at this level for three days, on the second day of which the urine gave a reduction with Fehling's solution and showed 2.28 gm. of sugar, which was 0.38 per cent. The blood sugar the next day was 0.198 per cent. This was the only day when the urine sugar was above normal, even though the blood sugar was always from 0.140 to 0.155 per cent.

Following this, the diet was changed to 125 gm. of protein, 90 gm. of fat and 200 gm. of carbohydrate. (The fat and protein were increased in order to keep up the caloric intake, and the carbohydrate was gradually reduced.) The first day of this diet the urine gave no reduction with Fehling's solution, but the next day it gave a pea-green reaction, which might be without significance since Benedict's method showed a normal amount of urine sugar. Five days after the patient was on a diet of 125 gm. of protein, 90 gm. of fat and 200 gm. of carbohydrate, the blood sugar was found to be 0.185 per cent. The carbohydrate was then reduced to 150 gm., the other elements remaining the same, and after six days of this diet the blood sugar was found to be 0.15 per cent. The blood sugar varied consistently with the carbohydrate intake. It seemed impossible to reduce the blood sugar below about 0.15 per cent. without reducing the caloric intake below the amount essential for a growing boy. It is peculiar that when the patient first entered the hospital with a crop of furuncles the blood sugar was from 0.145 to 0.155 per cent. Carbohydrate intake was reduced, and the furuncles cleared up. The patient did not adhere to this restricted diet, and furuncles again occurred. Carbohydrates were then greatly reduced, and the furuncles again disappeared. On a liberal diet, including 250 gm. of carbohydrate, the blood sugar reached 0.198 per cent. On a fairly liberal diet (Table 1), but one much poorer in carbohydrates than the patient's appetite dictated, the furuncles did not recur, although the blood sugar did not fall below the original level—between 0.145 and 0.150 per cent.

The results of the phenolsulphonephthalein test are given in Table 2.

The results of the Mosenthal kidney function test are given in Table 3. This test probably does not give a true indication of the kidney function, as it had to be performed while the patient was at home and two possible factors of error entered into the test: It was an extremely hot day in summer so that the patient perspired very freely, and the patient could not be absolutely relied on to bring all of the specimens of urine voided by him. Bearing this in mind, it would appear that the Mosenthal test shows no apparent deviation from the normal: that there is sufficient variation of the specific gravity of the different specimens to correspond to normal, and that the apparent retention of chlorids and fluid should be explained on the basis that incomplete specimens were brought to the laboratory by the patient. The phenolsulphonephthalein test, however, would indicate a kidney function somewhat below normal.

COMMENT

It would appear that this patient has certainly an abnormal carbohydrate metabolism. In all probability the attacks of furunculosis were due to this abnormality in the carbohydrate metabolism, the clinical expression of which was the high blood sugar found originally. Although the blood sugar has never been reduced to within the usual normal limits, nevertheless, when it was kept down, and when the carbohydrate intake was also kept down, the patient was temporarily free of furuncles. Strouse was the first one to call attention to the presence of a high blood sugar in a simple case of multiple furunculosis. For thirty days the furuncles showed no tendency to clear up, in spite of active surgical treatment. When, however, the patient was put on a carbohydrate-free diet, the furuncles promptly began to heal and at the end of a few days were completely healed. This case was evidently not one of diabetes, but simply a condition of furunculosis superinduced by an abnormally high blood sugar. Since the report of this case, the correlation of furunculosis and high blood sugar has become more generally recognized, and reports of a number of such cases are now scattered in the literature.

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[1] All blood sugar examinations were made with the blood drawn early in the morning before breakfast, the patient having had nothing by mouth since 8 o'clock the night before. Benedict's modification of the Lewis-Benedict blood sugar method was used: Benedict, S. R.: A Modification of the Lewis-Benedict Method for The Determination of Sugar in The Blood, J. Biol. Chem. **34**: 203 (April) 1918. Benedict, S. R., and Osterberg, Emil: A Method for the Determination of Sugar in Normal Urine, ibid. **34**: 195 (April) 1918.

[2] Strouse, Solomon: The Accurate Clinical Study of Blood Sugar, Bull. Johns Hopkins Hosp. **26**: 211, 1915; Observations on Alimentary Hyperglycemia, Arch. Int. Med. **26**: 759 (Dec.) 1920.

A further indication of abnormal carbohydrate metabolism is the abnormal curve of the carbohydrate utilization test. Also, the appearance of sugar in the urine the day when the carbohydrate intake was 250 gm., and the blood sugar, 0.198 per cent., is certainly abnormal.

TABLE 1.—DIET, URINALYSIS AND BLOOD SUGAR

Date	Protein, Gm.	Fat, Gm.	Carbohydrate, Gm.	Volume of Urine, C.c.	Specific Gravity	Reaction	Albumin	Fehling's Solution	Sugar		Acetic Acid	Diacetic Acid	Blood Sugar, per Cent.
									Per Cent.	Gm.			
2/18/20	...	..	...	.....	1.024	Acid	Negative	Negative	.....	.....	....	....	.....
2/24/20	...	..	...	890	1.029	Acid	Negative	Negative	0.059	0.521	Negative	Negative	.....
2/25/20	...	..	...	320	1.023	Acid	Negative	Negative	.....	.....	Negative	Negative	.....
2/26/20	...	..	...	.....	.....	.....	....	....	.....	.....	....	....	0.148
2/27/20	...	..	...	530	1.030	Acid	Trace	Pea green	.....	.....	....	....	.....
3/ 1/20	...	..	...	370	1.024	.....	Ft. tr.	Negative	.....	.....	....	....	0.155
3/ 2/20	...	..	...	240	1.027	Acid	Trace	....	.....	.....	....	....	.....
4/24/20	...	..	...	1,115	1.031	Acid	Negative	Negative	0.047	0.523	+	Negative	.....
4/25/20	...	..	...	910	1.029	Acid	....	Negative	0.042	0.380	+	Negative	.....
4/26/20	...	..	...	890	1.029	Acid	Trace	Negative	0.051	0.454	+	Negative	0.148
4/27/20	...	..	...	1,025	1.029	Acid	+	Negative	0.044	0.454	++	Trace	.....
4/28/20	...	..	...	750	1.032	Acid	+	Negative	0.053	0.394	+++	+	.....
4/29/20	...	..	...	800	1.025	Acid	Negative	Negative	0.063	0.500	+++	++	0.146
4/30/20	100	25	200	1,038	1.026	Acid	Trace	Negative	0.069	0.711	Trace	Negative	.....
5/ 1/20	100	25	200	650	1.024	Acid	Negative	Negative	0.057	0.368	Negative	Negative	.....
5/ 2/20	100	50	200	355+	1.032	Acid	Ft. tr.	Negative	.....	.....	Ex. ft. tr.	Negative	0.140
5/ 3/20	100	50	200	500	1.037	Acid	Negative	Negative	0.134	0.670	Negative	Negative	(no casts)
5/ 4/20	100	50	200	685	1.032	Acid	Negative	Negative	0.084	0.572	Negative	Negative	.....
5/ 5/20	100	75	250	600	1.035	Neutral	Negative	Negative	.....	0.550	Negative	Negative	.....
5/ 6/20	100	75	250	600	1.038	Acid	Negative	Positive	0.38	2.28	Negative	Negative	.....
5/ 7/20	100	75	250	700	1.033	Acid	Ft. tr.	Positive	.....	.....	Negative	Negative	0.198
5/ 8/20	125	90	200	640	1.032	Acid	Ft. tr.	Negative	.....	0.510	Negative	Negative	.....
5/ 9/20	125	90	200	310	1.030	Acid	Ex. ft. tr.	Pea green	.....	0.250	Negative	Negative	.....
5/10/20	125	90	200	530	1.033	Acid	Ex. ft. tr.	Negative	.....	0.404	Negative	Negative	.....
5/11/20	125	90	200	600	1.033	Acid	Ex. ft. tr.	Negative	.....	0.409	Negative	Negative	.....
5/12/20	125	90	200	830	1.026	Neutral	Negative	Negative	.....	.....	Negative	Negative	0.185
5/13/20	125	90	150	440	1.034	Acid	Negative	Negative	.....	.....	Negative	Negative	.....
5/14/20	125	90	150	620	1.028	Neutral	Negative	Negative	.....	.....	Negative	Negative	.....
5/15/20	125	90	150	460	1.027	Neutral	Negative	Negative	.....	.....	Negative	Negative	.....
5/16/20	125	90	150	.....	.....	.....	....	....	.....	.....	....	....	0.15
6/16/20	125	90	150	600	1.030	Acid	Negative	Negative	0.079	0.473	Negative	Negative	.....
6/26/20	125	90	150	.....	.....	.....	....	....	.....	.....	....	....	0.145

At present the boy is at home and is given the same diet which he last had at the hospital, namely: protein, 125 gm.; fat, 90 gm., and carbohydrate, 150 gm. This diet is carefully supervised by an expert dietitian.

TABLE 2.—RESULTS OF PHENOLSULPHONEPHTHALEIN TEST

Time	Amount, C.c.	Per Cent.
11 a.m.	395	35.0
12 m.	150	9.5
1 p.m.	60	4.5

It must be borne in mind that albumin has been present in the patient's urine frequently, and although no formed elements are present, there is probably a mild degree of nephropathy. This condition of the kidneys in all probability has had some influence in both the raising of the blood sugar, and also the sugar threshold as far as glycosuria is concerned.

SUMMARY

It has been impossible to reach a definite conclusion as to just what is the underlying condition in this case. One of the main points of interest is the apparent relationship between the high blood sugar and furunculosis in a case which is not one of outspoken diabetes. The most conservative opinion would be that this case shows an abnormal carbohydrate metabolism, which is so nearly the same as that in diabetes that it may be called a prediabetic stage of this disease. It may be, however, that the case is an extremely early one of diabetes.

TABLE 3.—MOSENTHAL TEST, JUNE 27 AND 28, 1920 *

No.	Time	Specific Gravity	Total Volume, C.c.	Total N		Sodium Chlorid	
				Gm.	%	Gm.	%
1	Sunday 11 a.m.	1.030	31.0	0.53	1.72	0.41	1.31
2	12 noon	1.022	106.0	1.07	1.01	1.51	1.42
3	2 p.m.	1.033	35.0	0.61	1.74	0.50	1.42
4	4 p.m.	1.030	8.5	0.07	0.78	0.02	0.23
5	6 p.m.	1.032	52.5	0.88	1.68	0.62	1.17
6	8 p.m.	1.024	12.5	0.16	1.30	0.08	0.64
7	Monday 8 a.m.	1.032	152.0	3.26	2.14	0.53	0.35
	Totals...........................		397.5	6.58		3.66	
	Per cent. of intake...........		22.59	50.60		33.3	
	Balance........................		+1,362.5	+6.42		+7.34	

Diet not eaten: 5 gm. of lettuce; ¾ teaspoon of olive oil, at dinner.

* Intake: fluid, 1,760 c.c.; protein, 81.25 gm.; salt, 11 gm.

Attention has recently been directed [3] to the possible injurious effect of high carbohydrate diets on patients in the prediabetic stage of diabetes.

It was noted by the boy's parents that before the attacks of furunculosis appeared he was in the habit of eating tremendous quantities of carbohydrates. This indulgence in large amounts of carbohydrates might signify that the diabetic condition or tendency of the boy caused this appetite for carbohydrates. It is possible that he simply indulged excessively in carbohydrates and that this precipitated the furunculosis and the abnormality in carbohydrate metabolism.

The patient will be carefully observed, and if further important developments occur to clear up the case they will be reported. The possibility must also be entertained that this might be a temporary abnormality of carbohydrate metabolism associated with adolescence, perhaps a temporary polyglandular disturbance, and that it will disappear later. This point also will be followed.

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[3] Michael, J. C.: A Menace in the Low Protein Diet, Arch. Dermat. & Syph. **2**: 455 (Oct.) 1920. An Unsuspected Occasional Menace in Low Protein Diets, editorial, J. A. M. A. **75**: 1426 (Nov. 20) 1920.

THE UREA CONCENTRATION TEST FOR KIDNEY FUNCTION

PRELIMINARY REPORT

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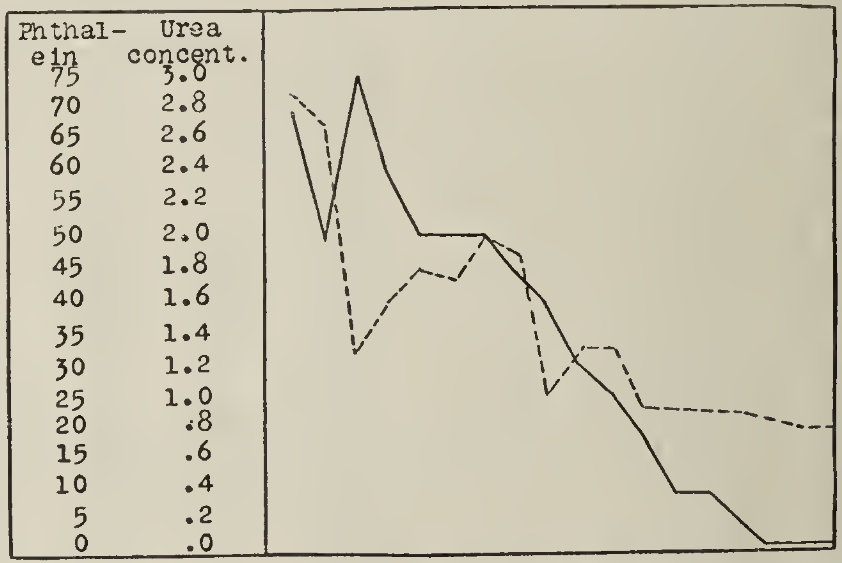
The question of kidney function is by no means a settled one. It is becoming more generally recognized that the presence of albumin in the urine, and even occasional casts, do not necessarily mean organic kidney disease. MacLean,[1] in a study of 50,000 healthy soldiers, found albumin in the morning urine in nearly 6 per cent., and casts of various kinds as well in nearly 2 per cent. On the other hand, the absence of albumin and casts in the urine does not absolutely exclude the possibility of a kidney lesion. Furthermore, as has been shown by MacNider[2] in his work on experimental nephritis, the amount of albumin in the urine is no index to the severity of the disease or the degree of functional disturbance.



Parallelism of urea concentration and phenolsulphonephthalein elimination: solid line, phenolsulphonephthalein; broken line, urea concentration.

So, too, other well known methods of estimating kidney function fail in their purposes at times. The widely used phenolsulphonephthalein test is open to certain objections. Christian,[3] speaking of the earlier stages of chronic nephritis, says: "In these earlier cases the phthalein excretion is so nearly normal as to be of no diagnostic aid." Hill,[4] working with mild chronic nephritis in children, found it possible for severe kidney damage to exist with phenolsulphonephthalein outputs of from 60 to 70 per cent. Fitz,[5] in his work on renal function, says: "The phthalein and nonprotein nitrogen concentration of the blood are not of any significant value in the diagnosis of early chronic nephritis before the characteristic physical signs and symptoms have developed. When either test is sufficiently abnormal to be positive, it is usually accompanied by a fairly definite train of physical signs. When both tests are negative in the presence of outspoken symptoms of chronic nephritis, it is not justifiable to assume that no kidney lesion exists." MacLean and Russel[6] believe that only in cases in which kidney tissue is reduced to one quarter do the nitrogen constituents increase in the blood, and MacNider[2] states that even with a phenolsulphonephthalein output as low as 48 per cent. there may be no marked retention of either blood urea or creatinin. Thus, it is seen that many observers agree that the determination of the nonprotein constituents of the blood is of little value in the diagnosis of early chronic nephritis.

UREA AS A TEST SUBSTANCE FOR KIDNEY FUNCTION

Addis[7] believes that urea possesses many advantages as a test substance for renal function: First, urea is a true end-product, incapable of chemical alteration within the body. Second, the urea concentration of blood and tissues may be markedly increased without disturbing any essential physical equilibrium of the body. Third, urea is actively excreted only by the kidneys. Fourth, the exact portion of the kidney that is directly involved in concentrating the urea from the blood is known, i. e., the cells of the proximal convoluted tubules. Fifth, administered urea throws a strain on the kidneys and so brings to light any latent deficiencies. In another communication by Addis and Watanabe,[8] the statement last made is used as an objection to the phenolsulphonephthalein test, concerning which they bring forth the argument that function may be entirely normal under ordinary circumstances, but show itself defective under strain. Thus, they hold that the lesion in the earlier stages of chronic disease is not diffuse but patchy, and that the uninvolved, or slightly involved sections of kidney may have no difficulty in excreting a minute amount of dye substance but will show functional incapacity when subjected to the strain of a larger dose of urea. Therefore, they conclude that a test in which urea is administered would seem to be better adapted for the diagnosis of such conditions.

THE UREA CONCENTRATION TEST

Addis,[7] in one of his many contributions to the urea excreting function of the kidney, brings out the fact that the special characteristic of decreased functional capacity is a low rate of excretion during the first few hours after urea administration. McCaskey,[9] in an attempt to use administered urea as a test of kidney function, determined the amount excreted in bihourly periods following the administration of 30 gm. He determined the range in health to be a total excretion during the first twelve hours of from 20 to 30 gm., and from 5 to 10 gm. as the highest excretion in any bihourly period. He concluded that a limited function for urea excretion existed if there was a total excretion much below 20 gm., and 10 or below represents serious or even dangerous impairment of function. He found no parallelism between the phenolsulphonephthalein and urea outputs.

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[1] MacLean, H.: Albuminuria and War Nephritis Among British Troops in France, Med. Research Committee, Special Rep. Series 43, London, 1919.

[2] MacNider, W. de B.: Study of Renal Function in Experimental Nephritis, Arch. Int. Med. **26**: 1 (July) 1920.

[3] Christian, H. A.: Some Phases of the Nephritis Problem, Am. J. M. Sc. **151**: 625 (May) 1916.

[4] Hill, L. W.: Mild Chronic Nephritis in Children, J. A. M. A. **75**: 596 (Aug. 28) 1920.

[5] Fitz, Reginald: The Phenolsulphonephthalein Test and the Nonprotein Nitrogen of the Blood in Chronic Nephritis, Boston M. & S. J. **183**: 247 (Aug. 26) 1920.

[6] MacLean, H., and Russel, A. E.: Some Observations on the Investigation and Treatment of Nephritis, Lancet **1**: 1305 (June 19) 1920.

[7] Addis, Thomas: Ratio Between the Urea Content of Urine and Blood After Administration of Large Quantities of Urea, J. Urol. **1**: 263 (June) 1917.

[8] Addis, Thomas, and Watanabe, C. K.: A Method for the Measurement of the Urea-Excreting Function of the Kidneys, J. Biol. Chem. **28**: 251 (Dec.) 1916.

[9] McCaskey, G. W.: A New Method for Estimating the Functional Capacity of the Kidney by Forced Elimination of Preformed Urea, Med. Rec. **85**: 507 (March 21) 1914.

MacLean and DeWesselow[10] have formulated a kidney function test along much the same lines, their test depending on the decreased concentrating power of a diseased kidney. The test is thus made:

> The patient voids, and then takes by mouth 15 gm. of urea dissolved in 100 c.c. of water (flavored with tincture of orange). The patient passes urine at the end of one hour and at the end of two hours, both specimens being measured and saved for analysis. The administration of urea induces a diuresis in a few individuals, and should the hourly specimen measure more than 150 c.c., a third hour urine is collected and preserved for the determination. Urea is estimated by the ordinary hypobromite method, a modified apparatus standardized by the more accurate urease method being utilized. Their conclusions, drawn from a study of 1,200 cases of war nephritis, indicate that a urea concentration exceeding 2 per cent. means a fairly efficient kidney, and less than 2 per cent. a diseased kidney—the lower the concentration, the more serious the kidney damage.

THE "UREA CONCENTRATION TEST" COMPARED WITH OTHER FUNCTIONAL METHODS IN THE STUDY OF RENAL DISEASE

Case	Age	Clinical Diagnosis	Blood Pressure	Eye Grounds	Urinalysis			Blood Urea, Mg.		Phthalein 2 Hr., per Cent.	Urine		Urea Concentration 2d Hour		Comment
					Specific Gravity	Albumin	Casts	Before	After		Concentration Before	Amount Excreted 2 Hr., Gm.	Urease	Hypo.	
24	24	Normal	120	....	1.020	—	—	15	23	68	3.2	4.15	2.9	2.05	
26	25	Normal	108	....	1.018	—	—	17	25	50	2.7	4.36	2.7	2.15	
10	50	Chronic interstitial nephritis	160	Negative	1.012	++	—	18	29	75	2.0	4.49	1.3	1.2	
22	42	Chronic interstitial nephritis	200	Pale disk; cont. vessels	1.015	++	Hyaline	26	40	60	2.4	4.01	1.6	1.5	
20	35	Chronic nephritis	130	Negative	1.015	+++	Granular	17	33	50	...	2.99	1.8	1.7	
15	40	Mild chronic nephritis	140	Negative	1.020	+	Hyaline	13	21	50	2.0	3.77	1.75	1.4	
19	45	Cardiovascular	230	Negative	1.010	++	Hyaline; granular	14	29	50	1.15	3.43	2.0	1.95	
13	34	Chronic interstitial nephritis	110	Negative	1.010	+	Hyaline	16	32	45	1.04	1.16	1.9	1.5	Death; uremia*
11	42	Chronic interstitial nephritis	208	Retinitis	1.015	+++	Hyaline; granular	18	30	40	1.0	2.5	1.0	0.9	Death; apoplexy
9	63	Chronic interstitial nephritis	160	—	1.010	++	Hyaline	27	40	30	0.8	1.77	1.3	1.2	
25	58	Chronic interstitial nephritis	170	—	1.006	+	—	17	32	25	0.7	2.07	1.3	1.05	
23	49	Chronic interstitial nephritis	230	—	1.004	++	Hyaline; granular	38	60	17	...	1.6	0.9	0.7	Death; uremia
14	29	Chronic interstitial nephritis	220	Retinal hemorrhage	1.009	++	Hyaline; granular	76	90	10	1.0	1.3	0.9	0.7	
8	54	Chronic interstitial nephritis	210	Retinitis	1.014	+	Hyaline; granular	76	86	10	1.0	1.85	0.9	0.5	
21	53	Chronic diffuse nephritis	200	Retinitis	1.002	+	Hyaline	40	60	5	...	1.59	0.9	0.85	
18	53	Mercuric chlorid poisoning	140	Negative	1.012	++	Granular	156	171	traces	1.1	0.767	0.85	0.7	
16	40	Chronic nephritis	236	..	1.010	+	Hyaline	97	106	traces	...	6.71†	0.8	0.8	Death; uremia
7	30	Chronic diffuse nephritis	160	Negative	1.010	++	Hyaline; granular	124	132	traces	0.78	0.63	0.8	0.8	

* Necropsy. † Diuresis, first hour.

In a later study by MacLean and Russel,[6] only the second hour specimen was saved for the determination, the first being measured, however, to note any diuretic effects. They maintain that in cases showing an excretion of from 350 to 600 c.c. or more in the two hours, any tendency to a low concentration may be put down to excessive fluid—not to kidney disease.

In the work described herewith, the urea concentration for the two hour period preceding the test and the concentration of the second hour specimen was determined by both the urease and the hypobromite methods. The amount of urea excreted in the two hour period following the administration of urea was calculated, the urease method being employed. In addition the blood urea nitrogen was determined both before administration of urea and two hours afterward. A phenolsulphonephthalein test was performed at the same time, half the urine being used for the phenolsulphonephthalein measurement, and half for the urea determination.

In a series of thirty-five such determinations, those recorded in the accompanying table are selected as representative of the various types of renal and cardiovascular disease encountered.

It will be noted that in general the urea concentration for the second hour (column headed urease) closely approximates the phenolsulphonephthalein elimination. (The same figures are represented graphically in the chart.) A normal person (Case 24) excreting 68 per cent. phenolsulphonephthalein concentrates to 2.9 per cent. A second normal person (Case 26) who was able to eliminate only 50 per cent. phenolsulphonephthalein concentrates to 2.7 per cent. In mild chronic nephritis (Case 15) with an elimination of 50 per cent. phenolsulphonephthalein and a normal blood urea nitrogen, the concentration of urea falls to 1.75 per cent. Moderately severe chronic nephritis (Case 25), with a phenolsulphonephthalein elimination of 25 per cent. and a blood urea nitrogen of 17, concentrates to but 1.3 per cent.; and severe chronic nephritis (Case 7), with only traces of phenolsulphonephthalein and a blood urea nitrogen of 124, concentrates to only 0.8 per cent.

The exceptions to this parallelism are noted in Cases 10 and 22 (shown graphically in the chart) recorded clinically as mild chronic nephritis, with phenolsulphonephthalein eliminations within normal limits but failure to concentrate to the normal figure of 2 per cent. It is hoped that in just such cases the new urea concentration test will be found of decided value in diagnosis.

VALUE IN PROGNOSIS

In those cases showing a progressive lesion, the test demonstrated the downward course of the disease. Thus, Case 13, a chronic nephritis with an acute exacerbation following ether anesthesia, showed an initial concentration of 1.9 per cent. Ten days later—

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[10] MacLean, H., and DeWesselow, O. L. V.: On the Testing of Renal Efficiency, with Observations on the "Urea Coefficient," Brit. J. Exper. Path. 1: 1 (Feb.) 1920.

one week before the death of the patient—she concentrated to but 1.5 per cent. A partial necropsy was obtained, at which the kidney was found to show a recently engrafted glomerulotubular lesion on a chronic interstitial nephritis.

Case 18, mercuric chlorid poisoning, which will be reported with more detail in connection with the clinical data later, showed a progressive rise of urea concentration from 0.85 per cent. (July 27, 1920) to 1.85 per cent. (September 15), the date of the patient's discharge, clinically cured. This progressive rise of concentrating power closely paralleled the phenolsulphonephthalein excretion and curve of blood urea.

Case 19, representing one of the several similar cases of cardiovascular disease, showed, in spite of positive urinary evidence, a normal urea concentrating power. It is suggested that the urea concentration test may be of value in aiding to differentiate renal congestion and true nephritis.

It will be noted that the columns headed urease and hypo (hypobromite), although closely approximate, do not absolutely agree, so that in the performance of the test the urease method of urea determination rather than the hypobromite method is advised, when possible.

While in general it may be said that the urea concentration for the two hour period preceding the test, and the amount of urea excreted in two hours after urea administration, follow the urea concentration, they are not rigidly parallel, and no importance can be attached to their estimation.

The blood urea nitrogen, before administration of urea, fairly closely follows the urea concentration: the lower the concentration, the higher the blood urea. No conclusions could be drawn from the blood urea figure at the end of the second hour; some mild or moderately severe cases showed a higher rise than the most severe cases, in which, because of the deficient elimination, it would be expected.

SUMMARY

In this series of determinations the urea concentration appears as a reliable test for kidney function. In accordance with Christian's views, however, it is recommended that, as there is no ideal test for kidney function, the urea concentration test be performed together with other well known methods, the whole being weighed with the clinical data before conclusions are drawn.

The urea should be estimated by the urease method when possible, although it is believed that even the ordinary hypobromite method willl give an approximate index of kidney function. We sincerely trust that the test will be adopted by other observers in the hope that it will justify our belief as to its value in the early recognition of chronic renal disease.

Youthful Blood in Treatment of Cancer.—Rollin reported at a meeting of the Hamburg Medical Society, June 1, 1920, that two persons with extensive and advanced gastric cancer were treated by intragluteal injection of 2 c.c. of blood, twice a week, from their grown-up children. Both improved visibly, the hemoglobin percentage rose and the weight increased as appetite returned, and the earning capacity was restored. Rollin had reasoned that there must be something in the blood of the young that prevents the development of cancer, and hence that there would be advantage in injecting it in cases of cancer. The *Medizinische Klinik* of November 28 relates that Kümmel gave this method a trial in three cases of cancer, injecting the blood of young relatives. The general health improved, but this benefit was transient. The malignant disease itself was not influenced.

PROTEIN AND CARBOHYDRATE EQUIVALENTS IN THE DIABETIC DIETARY

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How to make the diabetic layman, often uneducated and with little or no real knowledge of arithmetic, the equal of or better than the average physician in a special field of practical dietetics is the problem that is familiar to any physician who treats this class of patients.

It is no longer permissible for the physician to direct that certain foods which are rich in carbohydrate be gradually eliminated from the diet until the urine becomes sugar-free, leaving the daily intake of protein and fat to the whim and appetite of the patient, for it is now well known that such practice is often responsible for the maintenance of high blood sugar (though there is no glycosuria) as well as acidosis. In other words, one must reckon the daily quota of protein and fat, as well as of carbohydrate. To do this it is necessary for the patient to use scales until he is so well acquainted with the size of the portions of food which he may take that the weighing is dispensed with; and since scales must be bought, he should buy the ones which are best—those graduated in grams, with which it is easiest to use the standard tables giving the percentage composition of foodstuffs.[1]

Joslin's classification of vegetables and fruit according to their carbohydrate content, and his little table showing the composition of one ounce portions of the more important foods, have done much to popularize the accurate determination of a patient's tolerance by physicians; but, unfortunately, the patient is often discharged from the hospital, after two or three weeks of painstaking laboratory analyses and dietetic calculations, with only the knowledge of how to test his urine for sugar, and the same general instructions that were given under the old method of treatment. Why ascertain that the blood sugar is 0.14 per cent. and the carbohydrate tolerance is 67 gm., unless the patient is to be equipped with scales and a practical dietary in order that he himself may obtain the benefit from his sojourn in the hospital?

In reckoning the daily intake of protein, fat, carbohydrate and calories, Joslin has advised the physician "not to take his figures too seriously," and Allen[2] has struck "fictitious decimals" out of his diet lists, recognizing that absolute accuracy is impossible in practical dietetics. Cornwall[3] recently presented an excellent diabetic dietary made up along these lines, with the sole disadvantage that the substitution of one food for another has not beeen made as easy for the layman as is possible.

In the present diet list each portion in the protein table contains approximately 6 gm. of protein, this quantity being chosen because it is the protein content of eggs, certain diabetic muffins, rolls, etc. Each of the carbohydrate portions contains approximately 5 gm. of carbohydrate, for with the average case of diabetes it is hardly practical to give orders for variations in the patient's diet of less than 5 gm. The portions of fat have not been made equivalent because the standard quantities of butter, oil, cream, etc., can soon be learned, and the high fat quota does not make substitution as necessary as in the case of protein and carbohydrate. The patient's attention must be directed to the protein content of certain carbohydrate portions, and in case of severe diabetes he should be cautioned concerning the carbohydrate content of milk and nuts—or these may be struck from the list. In calculating the total number of calories it is easier to multiply the total grams of protein, fat and carbohydrate by 4, 9 and 4, respectively, so the caloric values of the individual portions are not given.

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[1] Allen recommends such a scale as that manufactured by John Chatillon & Sons, New York.

[2] Allen, F. M.: Diabetes Mellitus, Nelson Loose Leaf Medicine, New York, 1920, Volume III.

[3] Cornwall, E. E.: A Diabetic Dietary, J. A. M. A. **75**: 1642 (Dec. 11) 1920.

DIABETIC DIETARY

	Weight of Portion, Gm.	Protein	Fat	Carbohydrate
A. Protein equivalents (6 gm. each):				
Lean meat, poultry, cooked	22	6	3	0
Roast, medium fat	22	6	6	0
Fish, lean (cod, haddock, etc.)	30	6	0	0
fat (salmon, shad, etc.)	30	6	3	0
Oysters, six average	..	6	1	3
Ham, boiled, sliced	30	6	7	0
Bacon	36	6	18	0
Pork sausage	30	6	10	0
Beef soup (not greasy)	150	6	1	1.5
Egg, one	60	6	6	0
Egg white, two	..	6	0	0
yolk, two	..	6	.12	0
Cheese, American	20	6	7	0
cottage	30	6	0	1
Casein flour muffin (Joslin), one	..	6	6	0
Calf's foot jelly (with saccharin)	45	6	0	0
Milk, three-fifths glass	150	6	6	7
Almonds, walnuts	30	6	18	5
Brazil nuts	35	6	24	2
Peanuts	25	6	9	5
Pecans	45	6	31	6
B. Carbohydrate equivalents (5 gm. each):				
Asparagus, cabbage, celery, chard, cauliflower, cucumber, eggplant, grapefruit, greens, leeks, lettuce, okra, radishes, rhubarb, stringbeans, spinach, sprouts, tomato	150	2	0	5
Beets, carrots, mushrooms, onions, squash, turnips	75	1	0	5
Canned lima beans, green peas, parsnips	35	1	0	5
Green lima beans, green corn	25	1	0	5
Orange, one half small	75	0	0	5
Lemon juice	50	0	0	5
Blackberries, cranberries, muskmelon, peach, pineapple, strawberries	75	0	0	5
Alligator pear	75	1	15	5
Apricots, cherries, huckleberries, pear, raspberries	30	0	0	5
Apple, banana, grapes, plums, prunes	25	0	0	5
Oatmeal, boiled	45	1	0	5
dry	8	1	0	5
Wheat cereal porridge	30	1	0	5
Macaroni, hominy, boiled, potato, baked, boiled, rice, boiled	25	0.5	0	5
Baked beans, canned	25	2	0.5	5
Bread	9	1	0	5
Cracker	7	0.5	0	5
Olives, green	60	0.5	10	5
Cream, 20 per cent.	150	5	30	5
40 per cent.	150	5	60	5
Milk, one half glass	120	4	5	5
Wheat flour, 75 per cent. carbohydrate	.			
Molasses, 70 per cent. carbohydrate				
Sugar, 100 per cent. carbohydrate				
C. Portions by which fat may easily be added:				
Butter, 85 per cent. fat (3 pats)	30	0	25	0
Olive oil, lard, etc., 95 to 100 per cent. fat (1 level tablespoonful)	15	0	15	0
Mayonnaise, home-made (1 level tablespoonful)	15	0	15	0
Bacon, cooked	36	6	18	0
Cream, 20 per cent. (1 level tablespoonful)	15	0.5	6	0.5
Cream, 40 per cent. (1 level tablespoonful)	15	0.5	12	0.5
Alligator pear	100	2	20	7
Nuts, olives, etc. (see above)				
D. Miscellaneous (to be added at the physician's discretion):				
These articles may be added to the dietary without allowing for their food value: coffee, tea, washed bran, agar agar, cellulose flour, saccharin, liquid petrolatum (instead of lard), etc. To obtain the total number of calories multiply the total grams of protein by 4, of fat by 9, and of carbohydrate by 4, and add the results. The average daily requirement is 10 to 15 calories per pound (25 to 35 per kilogram).				

It is believed that these advantages are offered by the present arrangement:

1. Substitution of one food for another requires no arithmetic, so variety, one of the diabetic's chief desires, is made as easily attainable as possible.

2. With such a dietary, scales and knowledge of simple addition, it is easy for even the uneducated person to limit himself to the prescribed number of grams of protein, fat and carbohydrate. For instance, if a patient's prescription reads: protein, 65 gm., carbohydrate, 35 gm., and fat, 150 gm., he may be told to weigh on his scales nine or ten protein portions, and seven carbohydrate portions (which also contain some protein), marking down the protein, fat and carbohydrate content in each case. After these figures have been added, the required amount of fat is weighed or measured.

3. Less arithmetic is necessary than when each portion weighs the same but has a different composition, so it is easier to acquire such a knowledge of the individual portions that the use of the scales may at times be discontinued.

REACTION OF NORMAL SKIN TO DESTRUCTIVE DOSES OF ROENTGEN RAY

ITS DECREASE BY PHARMACOLOGIC MEANS, AND THE MECHANISM INVOLVED *

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AND
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While testing a certain hypothesis [1] from another angle, an observation was made which seemed to indicate that the resistance of the skin to massive, destructive doses of the roentgen ray could be considerably increased. The original plan was therefore temporarily abandoned and the new lead followed. The outcome of the investigation was that the resistance of the skin to the roentgen ray could be raised experimentally to a noteworthy degree.

METHOD EMPLOYED

Ten rabbits were sensitized by four spaced, subcutaneous and intramuscular injections of horse serum, each 1 c.c. Ten days after the last sensitizing dose these rabbits and five additional normal ones were irradiated locally with thirty skin units of unfiltered roentgen rays (Remer-Witherbee formula [2]) : Coolidge tube, 3 inch spark gap, 10 milliamperes, 6 inch distance from target, twenty minute exposure. The site of exposure was the right ear, and the area irradiated was 4 square centimeters. The rest of the ear and body was protected by a sheathing of lead. It should be emphasized that the procedure exposes two skin surfaces to the action of the rays; the external ear surface is affected on entry, and the internal skin surface on exit of the rays.

Thirteen days after this local irradiation and twenty-three days after the last sensitizing dose of serum, five rabbits of the sensitized group and the five normal controls were injected intraperitoneally with 10 c.c. of horse serum. There are thus three groups of rabbits (as in the accompanying chart) all of which had been irradiated with the same dose on the same day: five were normal rabbits injected once with horse serum (horse serum controls) ; five were sensitized but *not* reinjected (sensitized group), and five were sensitized and reinjected with serum (sensitized-reinjected group). These three groups of animals were now kept under observation for months. It should be added that during the preparation of these groups one out of each died; each group, therefore, consisted finally of four animals.

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* From the Laboratories of the Rockefeller Institute.

* Read before the Society for Pharmacology and Experimental Therapeutics, Dec. 29, 1920.

1. Auer, John: J. Exper. Med. **32**: 427 (Oct.) 1920.

2. Witherbee, W. D., and Remer, John: A Practical Method of Roentgen-Ray Dosage Without the Aid of a Radiometer, Arch. Dermat. & Syph. **1**: 558 (May) 1920; Unfiltered and Filtered X-Ray Dosage, Am. J. Roentgenol. **7**: 485 (Oct.) 1920.

The results were interesting, but only the main points can be reported here.

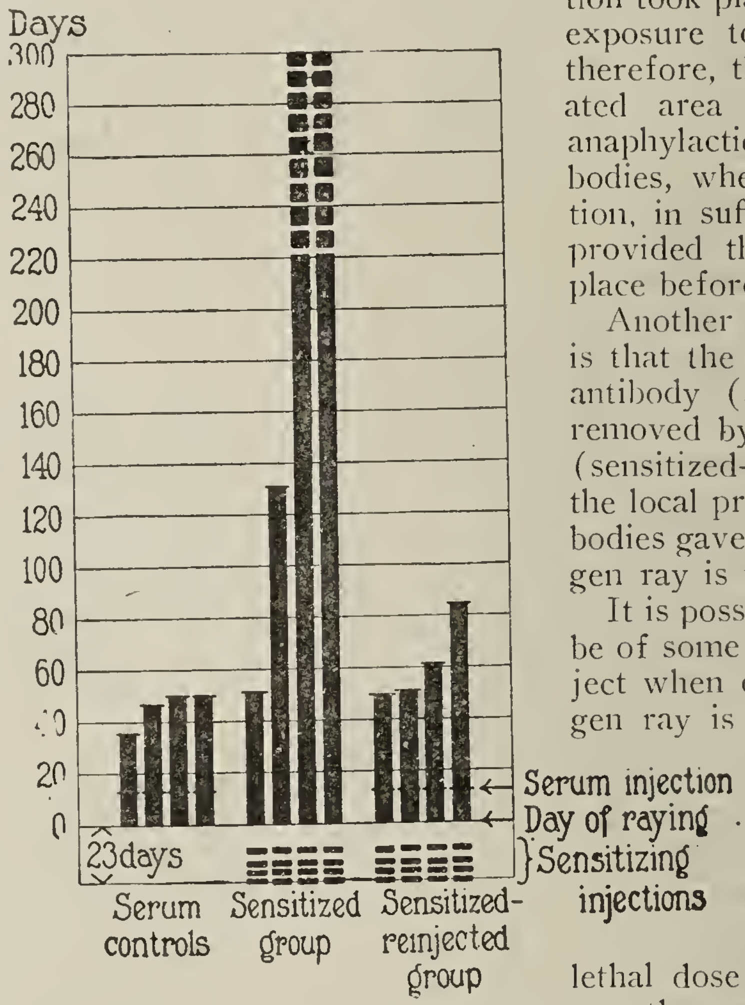
The horse serum controls showed dry gangrene and fenestration in the rayed area of the ears in thirty-six, forty-seven, fifty and fifty days, respectively.

The sensitized and reinjected groups developed dry gangrene and fenestration in fifty, fifty-two, sixty-two and eighty-five days, respectively.

The sensitized group, however, responded differently, on the whole. One rabbit developed gangrene and fenestration in forty-six days. A second rabbit showed a similar result only after 131 days. The two remaining rabbits have shown no gangrene up to date, more than 214 days so far. These ears are not thickened, there is permanent local alopecia, and the bald surfaces are covered with a thinner skin than normal; the vessels of the irradiated area show some changes: dilated, tortuous, fine vessels appear about the neighborhood of the central artery, and the artery itself is slightly narrowed; there is some periarterial thickening apparently.

COMMENT

In the serum controls, fenestration of the irradiated ear occurred in all rabbits within fifty days; in the sensitized-reinjected group, it occurred in all within eighty-five days; in the sensitized group, however, one rabbit showed fenestration within forty-six days; a second rabbit only after 131 days, while the remaining two rabbits have so far developed no gangrene even after the lapse of more than 214 days. The accompanying chart shows these facts graphically.



Day of appearance of dry gangrene after irradiation.

It is thus seen that under the conditions of the investigation, mere sensitization of rabbits with a foreign protein, previous to irradiation, powerfully increases the resistance of the skin and tissues to the destructive action of heavy doses of the roentgen ray. The experiments also demonstrate that this protection is largely, though not entirely, abolished when the sensitized animals are reinjected with the same protein.

From these experiments some inferences may be drawn which have theoretical as well as practical interest. Examination of the text and the accompanying chart shows that there is only one difference between the sensitized group and the sensitized-reinjected group: the sensitized-reinjected group was subjected to a serum injection thirteen days after the date of irradiation, while this was omitted in the sensitized group. Only in the sensitized-reinjected group, therefore, could an anaphylactic reaction appear.[3] Now it is generally accepted that an anaphylactic reaction is initiated when the anaphylactic antibody in the sensitized organism comes into contact with the antigen which produced this reaction body. Moreover, it is a matter of experimental knowledge that the anaphylactic antibody disappears during the anaphylactic reaction (Anderson and Frost). Therefore, the practical abolition of protection against a heavy dose of roentgen rays which the sensitized-reinjected group shows, when compared to the sensitized group, may perhaps be the result of the loss of the anaphylactic antibody which occurred during the anaphylactic reaction.

Another inference may be derived from the experiments described above. It follows, if the anaphylactic antibody is responsible for the protection to the roentgen ray observed in the sensitized group, that this protection must be due to the antibodies which are anchored to the tissue cells exposed to the ray, and not to the circulating antibodies. This is shown by the animals of the horse serum control group. In this group only one injection of serum was given, and this was administered thirteen days after the local irradiation of the ear. An abundance of antibodies therefore surely appeared in the circulation within seven days, and these necessarily must also have passed through the capillaries of the irradiated area of the ear. Yet no protection whatsoever was given, for in this group of serum control rabbits, gangrene in the irradiated portion took place within fifty days after exposure to the rays. It appears, therefore, that the cells of an irradiated area are unable to produce anaphylactic antibodies or to fix these bodies, when present in the circulation, in sufficient amount to protect, provided the local irradiation takes place before the injection of antigen.

Another consequence of this view is that the locally fixed anaphylactic antibody (sensitized group) can be removed by an anaphylactic reaction (sensitized-reinjected group), and the local protection which these fixed bodies gave to the action of the roentgen ray is then abolished.

It is possible that these results may be of some benefit in the human subject when employment of the roentgen ray is indicated. For example, in more or less deeply seated cancers the dose of roentgen ray applicable is definitely limited by the tolerance of the overlying skin, and a lethal dose for the cancer cells frequently cannot be given because it would also destroy the integument. This suggestion presupposes that the sensitization does not increase the resistance of the cancer cells to the same degree as that of the skin cells.

AGREEMENT WITH OTHER WORK

The only reference in the literature bearing directly on our work is an incidental observation made by Hektoen,[4] who studied the effect of the roentgen ray under various conditions on the production of antibodies in the white rat, rabbit and dog. The observations which concern us most were as follows: When young dogs a few weeks old were subjected in toto to strong doses of the roentgen ray before they were injected with antigen (10 per cent. rat or goat blood suspensions) they may develop severe burns;[5] if, however they were irradiated about seven days after the antigen injection,[6] Hektoen apparently saw no burns, for he states only that now many dogs showed no marked disturbances of the general health. If we are correct in this interpretation of Hektoen's work, our observations are in gratifying accord in this respect.

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[3] This was very mild, judging from the general symptoms that were observed.

[4] Hektoen, Ludvig: J. Infect. Dis. **22**: 28 (Jan.) 1918, in which references to his earlier work are given; ibid. **27**: 23 (July) 1920.

[5] Hektoen, Ludvig: J. Infect. Dis. **22**: 29 (Jan.) 1918.

[6] Hektoen, Ludvig: J. Infect. Dis. **22**: 31 (Jan.) 1918.

MENTHOL AND PEPPERMINT IN ACUTE CATARRHAL CONDITIONS OF THE RESPIRATORY TRACT *

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The explanation of the action of menthol and peppermint in common colds is unsatisfactory and apparently avoided. Most books on pharmacology and therapeutics simply state that these drugs are used in various neuralgias, in sciatica, pleurodynia and toothache, locally against headache, itching, etc., and omit their more common use. By far the greatest use is in colds, and especially those in which mucous exudation blocks the respiratory passages. The relief in many of these cases, so remarkable and so well known to the laity, accounts for the numerous brands of menthol cough lozenges on the market.

The pathology of the catarrhal conditions in which these drugs are used is well known. During some stage of the condition there is an increase of relatively thick mucous material poured into the respiratory passages, and the walls of the passages are swollen and tend to adhere, thus preventing the entrance of air. Relief can be gained only in two ways: either by removing the material or by changing its form so as to allow air to enter. When menthol is used the offending material is often not expelled, so that its physical state must be changed. One knows from experience that menthol apparently opens respiratory passages and that one can breathe through passages which before were occluded. Since it is not an astringent, the most obvious explanation is that much of the mucous material is in a foamlike consistency. One view or theory of the physical structure of protoplasm is that it is a foam (Bütchli, 1898) and this alveolar or foamlike structure may also be demonstrated in exudates such as mucus. It is also known to physiologists that if a normal lung collapses there is considerable tendency for the walls of the alveoli to adhere; so much so, that if a sufficiently high pressure to tear them apart is applied too quickly, there is great danger of rupturing the walls. This is why in surgery of the chest, when the chest wall is opened, a continuous insufflation of the lung is advised. These facts all sustain the view that the effect of menthol may be due to a change in surface viscosity.

To test the effect of menthol or oil of peppermint on surface viscosity, with a suction filter pump I drew a current of air through solutions of soap, blood, saliva and saponin. Each of these, especially the soap, saponin and blood, foam readily. The merest trace of menthol or spirit of peppermint added to these solutions rapidly destroys the foam. Crystals of menthol may be added of these excessive conditions apparently without much effect. The foam in such conditions is so strong that it readily supports the crystals, and to be effective the drug must be in solution or in a condition in which volatility can act. Menthol, however, dissolved in saliva has a noticeable effect, and in alcohol the effect is still stronger, because of greater solubility. In another experiment in which we had a tracheal cannula in a dog anesthetized with ether through the trachea, marked tracheal râles developed. Râles develop frequently in such cases. A few drops of the spirit of peppermint in the trachael cannula immediately broke the foam and noticeably relieved respiration. We have therefore a reasonable basis for the statement that the efficacy of menthol and peppermint in the respiratory passages is due to changes in the surface viscosity of the mucus and on the membranes producing the exudate.

The most important investigation of menthol was that of Pellacani in 1883,[1] and in that work he does not discuss the action on the respiratory passages. We have thought it worth while, therefore, to call attention to the surface tension and surface viscosity effect of menthol. Surface viscosity holds the foam or bubblelike structure together, while surface tension tends to break them. Soapy water and saponin solutions make good bubbles because surface tension is small and surface viscosity large. Ordinary respiration in catarrhal conditions in a measure simulates the experiments in which we passed a current of air through a soapy solution, and menthol inhaled in such conditions lessens the viscosity and, by changing the surface tension, aids in breaking the foam and clearing the passage way.

An important and well established fact in viscosity is that the viscosity of a liquid is increased about 2 per cent. for each degree that the temperature is lowered. This is of great importance in the treatment of all respiratory cases in which the expulsion of mucus is desired. Warm, moist, respired air will greatly aid the expulsion, while cold air, if respired, will increase the difficulty. What I have said of menthol and peppermint undoubtedly can be extended to other substances of this general class.

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[1] Pellacani: Arch. f. exper. Path. u. Pharmakol. **17**: 376, 1883.

THE ALKALI RESERVE IN ABDOMINAL INFECTION

AND ITS RELATION TO THE LEUKOCYTE COUNT

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The significance of "acidosis" is not clearly understood. Some accord it the importance of a clinical entity, viewing the reduction of the reserve alkali as being, in itself, sufficient to cause the various pathologic manifestations associated with it. This has been by no means proved, however, for there is evidence that the so-called acidosis is merely one of the results of a common cause. Of course, this is well recognized in the acidosis of diabetes and nephritis; but even under these conditions, many hold that good may be accomplished by the administration of sodium bicarbonate in order to give relief to the distressing symptoms of air hunger and coma. Apparently, favorable results do not always follow the use of alkali therapy even in the presence of a marked reduction of the reserve alkali, for such an authority as Joslin disapproves of this procedure in diabetic acidosis, and it has proved unsuccessful in decreasing the toxic action of methyl alcohol for dogs,[1] though its use may keep the reserve alkali at a high level. Indeed, a number of authors have called attention to the dangers that attend the intravenous injection of sodium bicarbonate, so that its administration in this way to patients suffering from acidosis may not only fail to do good but may actually work serious harm or cause death. With these facts in mind, it behooves us to be certain that an acidosis exists before considering the advisability of administering sodium bicarbonate; for some experiments at the Medical College of Virginia indicate that even the cautious injection of large amounts into normal dogs is not devoid of danger.[2] The recent developments in regard to our knowledge of surgical shock serve to emphasize this point. As the result of rather overhasty generalization, it was assumed that the reduction in the reserve alkali in patients suffering from shock was responsible for the condition, and the use of sodium bicarbonate was recommended as a therapeutic measure. This procedure was found disappointing clinically, and now it is held not only that the acidosis is not the cause of shock, but also that it is not uniformly present.

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[1] Haskell, C. C.; Hileman, S. P., and Gardner, W. R.: The Significance of the Acidosis of Methyl Alcohol Poisoning, Arch. Int. Med. **27**: 71 (Jan.) 1921.

The existence of an acidosis in infectious conditions has been assumed by some of the foremost surgeons. To illustrate, Crile [3] has stated that "the general symptoms—accelerated pulse and respiration, raised blood pressure, increased temperature and rapid loss of strength and weight—indicate the presence of some acid-forming activation. . . . The prime problem of abdominal infection, therefore, is the same as the prime problem of abdominal surgery in general—the reduced resistance and mounting acidosis of the patient." To combat the acidosis, he recommends the employment of 5 per cent. solution of sodium bicarbonate by rectum.

It is not surprising to find, therefore, that many of the rank and file have followed such distinguished leadership, and that sodium bicarbonate is extensively used in the treatment of abdominal infections. Fortunately, the soda is usually administered by rectum, a method much less dangerous than the injection into a vein, but not, I believe, entirely devoid of the possibility of doing harm when used carelessly. From clinical observation, I have failed to observe any benefits that I could attribute to the action of the soda. During the course of some experiments that I have recently carried out in producing peritonitis in dogs, I was struck by the fact that in fatal cases, a considerable number of the animals manifested convulsive seizures shortly before death. Knowing that an excess of alkali in the blood also might cause convulsions, the question was suggested whether there might not be an actual increase in the reserve alkali of the blood instead of the reduction that was formerly suspected.

In order to answer this question, the blood of seven dogs that succumbed to peritonitis was studied, as well as the blood of one dog that was critically ill with peritonitis but recovered eventually. The peritonitis was produced either by incising the colon or by injecting intraperitoneally the exudate that had been secured from animals succumbing to a perforative peritonitis. The method of Van Slyke and Cullen for determining the carbon dioxid combining power of the plasma was used to estimate the reserve alkali of the blood. Samples were obtained from the external jugular vein and placed in centrifuge tubes containing a small amount of oxalate and sufficient liquid petrolatum to cover the blood. The samples were centrifuged within a few hours, and the carbon dioxid combining power determined within eight hours in every instance.

The dogs used in these experiments were apparently all healthy, though no exhaustive study was made to determine this point. They were usually kept forty-eight hours on a diet of wheat bread and meat scraps, the proportions varying considerably. The carbon dioxid combining powers of the seven animals succumbing to the peritonitis varied from 43.8 to 53.6 volumes per cent. before any operative procedures. Three of these seven dogs showed a reduction of the reserve alkali at the last determination, which was made a short time before death. The amount of the reduction may be seen in Table 1.

TABLE 1.—REDUCTION OF ALKALI RESERVE IN THREE DOGS

	Carbon Dioxid Combining Power of Plasma in Percentage by Volume	
No. of Dog	Normal	Last Determination
177	44.7	42.8
186	53.6	51.3
188	51.3	41.9

The remaining four dogs all showed an increase in the alkali reserve as death approached, as shown by Table 2.

TABLE 2.—INCREASE OF ALKALI RESERVE IN FOUR DOGS

	Carbon Dioxid Combining Power of Plasma in Percentage by Volume	
No. of Dog	Normal	Last Determination
178	51.3	59.8
179	43.8	57
182	50.4	53.2
187	50.4	51.3

It seems improbable that the reduction that occurred in Dogs 177 and 186 was of any importance; but that seen in Dog 188 was much more considerable. This dog received an intraperitoneal injection of 50 c.c. per kilogram of physiologic sodium chlorid solution, which may have been responsible for the apparent reduction of the reserve alkali. On the other hand, none of the dogs showed an increase in the carbon dioxid combining power of the blood sufficient in amount to give rise to an "alkalosis," so it is improbable that the convulsions had any connection with the changes in the alkali of the blood.

The opportunity occurred also to examine the blood of three patients who were under my care.

REPORT OF CASES

Case 1.—H. C., a negro man, aged 19, single, farmer, whose family and past history was negative, admitted, Aug. 21, 1920, had been seized four days before with severe abdominal pain, accompanied by nausea and vomiting. He was well developed, and apparently ill and toxic. There was generalized abdominal rigidity, most marked in the right iliac fossa. The patient was slightly irrational at times.

August 22, the temperature was 102; pulse, 110; leukocytes, 19,200; carbon dioxid combining power of the plasma, 50 volumes per cent. Saline solution was given by rectum and subcutaneously. Three days after admission, an appendical abscess was opened and drained. September 1, the patient was discharged, well.

Case 2.—T. E. K., a white man, aged 49, married, whose family and past history was negative, admitted, Sept. 18, 1920, had been seized, two days before admission, with severe generalized abdominal pain. He was nauseated and vomited twice during the night. He was given castor oil. On the way to the hospital he had a chill, lasting several minutes. He was rather fat, very ill and uncomfortable. There was marked rigidity and tenderness in the right iliac fossa. At 8:50 p. m., the temperature was 100.5; pulse, 106; leukocytes, 13,600; carbon dioxid combining power of the plasma, 54.1 volumes per cent.

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[2] Personal communication to the author from Dr. Haskell.

[3] Crile, G. W.: The Treatment of Peritonitis, J. A. M. A. 73: 1655 (Nov. 29) 1919.

Operation revealed a gangrenous appendix with considerable free fluid in the cavity. Convalescence was rather protracted. He was discharged, September 30.

Case 3.—J. M. P., a white schoolboy aged 18, whose family and past history was unimportant, admitted, Nov. 25, 1920, had had some indigestion for the last three weeks. Seven and a half hours before operation, he was seized with agonizing epigastric pain, necessitating the use of morphin. The boy was well developed. There was boardlike rigidity of the abdominal muscles. The temperature was 99.5; pulse, 95; leukocytes, 14,000; carbon dioxid combining power of the plasma, 74.8 volumes per cent. A right rectus incision allowed the escape of gas and purulent material. A punched out perforation of a duodenal ulcer was disclosed and repaired.

COMMENT

These results would seem to indicate clearly that acidosis is not an important factor in the course of peritoneal involvement. The paper of Hirsch,[4] which appeared after the completion of my experiments is, in a measure, confirmatory. This author finds that "infection" in rabbits is followed by an initial drop in the alkali reserve of the blood and a subsequent return to or above normal. He does not say what form of infection was produced, or report the fate of the rabbits. Coincident with the initial drop in the alkali reserve, there is, he states, a decrease in the number of leukocytes, while the increase in the alkali reserve that occurs later is accompanied by an increase in the number of white cells. In dogs, when peritonitis has been produced and counts are taken at two hour intervals, there is seen in fatal case almost invariably a steady decline in the number of the leukocytes. This reduction in the numbers of the leukocytes is out of all proportion to the reduction in the reserve alkali, the latter being, as pointed out already, insignificant as a rule. In Table 3 is given the relation that existed between the leukocyte count and the alkali reserve in the seven fatal cases and the one case that recovered from the peritonitis produced in the dogs.

TABLE 3.—RELATION BETWEEN LEUKOCYTE COUNT AND ALKALI RESERVE

			Carbon Dioxid Combining Power
No. of Dog	Hour	Leukocytes	Alkali Reserve
188	0	8,900	51.3
	2	5,800	....
	4	2,800	....
	6	2,600	41.9
187	0	5,600	50.4
	2	6,000	....
	4	4,200	51.3
186	0	9.300	53.6
	2	4,200	....
	4	2,800	51.3
182	0	7,200	50.4
	4	4,600	48
	8	3,800	53.2
179	0	22,800	43.8
	4	35,200	....
	8	24,000	57
178	0	22,800	51.3
	4	23,000	54.1
	24	16,000	....
	48	3,300	59.8
177	0	14,900	44.7
	4	5,900	....
	8	4,600	42.8
185*	0	12,500	47
	2	20,400	....
	4	19,500	51.3
	8	30,600	49
	22	29,800	53.2
	52	14,800	52.7

* Recovered.

It would seem, therefore, that there is no indication for the use of sodium bicarbonate in patients suffering from peritoneal infection, if one is permitted to draw conclusions from this small number of experimental and clinical observations. Certainly, there is no justification for the routine use of alkalin therapy, and it should be limited to those cases in which appropriate tests have demonstrated a reduction in the reserve alkali to a point at which it may cause harm. Even here, the results to be obtained are problematical.

AMEBIC DYSENTERY IN SIAM

R. W. MENDELSON, M.D.
BANGKOK, SIAM

During the last twelve months, I have had occasion to examine more than 13,000 patients at the Central Hospital in Bangkok. This hospital is a charitable institution and conducts a large outpatient department, the average number of patients applying for treatment being about 1,000 a month. When necessary, patients are admitted to beds and treated as inpatients. Of the large number seen, 367 complained of intestinal troubles, of this number 135 were diagnosed and treated for amebic dysentery. It may be stated here that the clinical diagnosis in the cases so treated was supported in the majority of cases by laboratory findings, and that the differential diagnosis between *Endameba histolytica* and *Endameba coli* is not always the simple matter that many textbooks would lead one to believe. Not only have I many times experienced difficulty, but experienced men to whom material has been submitted for examination have reported a negative diagnosis on the endameba found in the stools; yet from the history of the case, its progress and the happy results from the specific treatment, one could not but help doubting the correctness of the laboratory findings.

Lambl, in 1859, discovered a rhizopod in the intestinal mucus taken from a Jewish child who died in the Kinder Spitale in Prague. His findings were at the time associated with concomitant pathologic processes in the intestinal canal, and it was his opinion at the time that there existed a very close relationship between the infantile diarrheas and the above mentioned rhizopod. Lambl's original discovery and his opinion regarding the etiologic importance of it have both been fully confirmed. More recent workers have proved beyond a doubt that *Endameba histolytica* is the exact cause of the disease now termed amebic dysentery.

In the tropics, and especially in dealing with the natives, a pure and uncomplicated case of dysentery is the exception. In the great majority of cases malaria in one form or another causes added trouble and, unless early recognized and treated, will postpone indefinitely the end-results to be desired.

The blood count in this type of case shows an increase of leukocytes up to 30,000, and the differential count shows the polymorphonuclears greatly increased. The red count does not show evidence of severe loss of fluids.

If the patient is to recover, a slight improvement will be noticed about the end of the second week. The stools become more fecal in character, the blood first gradually lessens in amount, and the last foreign element to disappear is the mucus. It is seldom that this type of disease begins convalescence before the beginning of the fifth week and often it is delayed for several weeks, because the patient has to overcome not only the primary infection, but also a very severe secondary infection.

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[4] Hirsch, E. F.: The Blood Alkali Reserve with Experimental Infections, J. A. M. A. **75**: 1204 (Oct. 30) 1920.

If the patient is not to recover, instead of the expected improvement a stationary period of from several days to two weeks or more passes, and then a weakened circulatory system gradually fails under the pressure of a severe toxemia and the patient dies.

MIXED TYPES OF DYSENTERY

As stated before, pure uncomplicated dysentery is very uncommon, especially in the native. The most common complication is malaria. In the Chinese the disease is often associated with a pulmonary tuberculosis. Following is the short history of an interesting case.

A girl, aged 15, who had had several attacks of diarrhea, and who denied any other illness, present or past, had been ill ten days when I was called in consultation. The temperature was 104 in the afternoon and 100 in the morning. It had been virtually the same from the onset, which had been acute and without chill. Physical examination revealed a fairly well preserved body. The head and neck were normal. Examination of the thorax revealed a few fine râles in back on both sides. The abdomen was tender over the colonic area, and very tender over the left tubal area. It was scaphoid and not rigid. The liver and spleen were perfectly normal. The extremities were normal. The circulatory system organically was normal. The patient was very nervous. She complained of some pain while at stool. The stools numbered from eight to ten in twenty-four hours, contained blood and mucus, and the laboratory diagnosis confirmed the bedside diagnosis of "dysentery, probably amebic." She was taken to the hospital and had a typical septic temperature for three weeks. Blood examination revealed 25,000 leukocytes and chronic subtertian malaria. The patient constantly expectorated thin, frothy material, but no blood microscopically or macroscopically. The lungs were normal except for the usual râles, thought at first to be hypostatic. Examination of the sputum was negative for tubercle bacilli, but contained thousands of spirochetes. Active treatment was maintained all the time. The patient gradually declined until the end of the third week in the hospital, when the circulatory system gave out and she died.

This patient suffered no hemorrhage; the stools numbered never more than ten daily and often not more than three or four. She received excellent nursing and every possible medical attention, yet the dysentery in combination with the malaria, the bronchopulmonary spirochetosis and a possible tubal complication were more than the patient could combat.

PROGNOSIS

It is advisable always to make a guarded prognosis, especially in complicated cases. During the last year, 115 cases of diagnosed amebic dysentery have been treated in the outpatient department of the Central Hospital. It is impossible to state how many were cured. The patients stop treatment as soon as their symptoms disappear, a characteristic of all patients, but they were all symptomatically relieved to such an extent that they thought themselves cured. In these cases we had no amebic complications, such as liver abscess, gangrene of the bowel, or stenosis of the bowel.

During the same period of time we treated as bed patients, diagnosed dysentery—this means, of course, laboratory diagnosis—twenty cases, and had two deaths. More than 50 per cent. of these cases were complicated with some other disease.

Natives stand the disease much better than Europeans, who rapidly lose ground unless sent away for a change of climate. Children of both races suffer a high death rate. Almost all of our hospital patients are adults.

TREATMENT

It is my opinion that dysentery that does not respond to emetin in one form or another will not be cured by any other treatment. It is true that symptoms may be temporarily relieved by other methods; but as a rule the result is only temporary and disappointing. Every new treatment that is suggested gets a trial at the hospital only to end in being supplanted by the hypodermic injection of emetin. I have never used a single irrigation in the bed patients in the Central Hospital.

In private cases, when the patient can afford it, I think the best method is to give a hypodermic injection of emetin, one-half grain, once a day, and 1 grain of emetin bismuth iodid by mouth three times a day.

The symptomatic and dietary treatments are, of course, added.

A CASE OF TUBERCULOSIS, PRIMARY IN THE THYROID

WILLIAM H. RENDLEMAN, M.D.
AND
JOHN I. MARKER, M.D.
DAVENPORT, IOWA

In reporting this case as tuberculosis, primary in the thyroid, we are aware that doubt is aroused of its being such. Tuberculosis had never before been diagnosed in the patient, although the early history is suspicious. Careful examination of the patient to this time has failed to show any active foci of tuberculosis elsewhere in the body. The frequency of this diagnosis has increased with the surgical removal of goiter and its subsequent pathologic study. Many of the older textbooks of pathology do not mention the condition, while the more recent give it short descriptions. Osler's "Modern Medicine" refers to the miliary form of tuberculosis occurring in general miliary tuberculosis, and to a nodular form which in some cases appeared to be primary. These cases are often considered malignant till histologic study shows the tissues in various stages of tuberculosis. Johnson's "Surgical Diagnosis" mentions only one case of the nodular type. In this case, a young woman showed other evidence of tuberculosis. The most complete American article that has come to our attention is that of Mosiman.[1] After careful review of reported cases and experimental work, he takes up nine cases from the clinic of Dr. Crile.

The case that we report is of interest because of the rarity of the condition and the close similarity to malignancy. Study of the basal metabolism in goiter cases will in the future point to the possibility of a diagnosis of tuberculosis in all those cases showing tumor and a markedly lowered basal rate when only colloid goiter is considered.

REPORT OF CASE

History.—Miss G. B., aged 22, white, engaged in housework, came to us first, Jan. 19, 1920, because of enlargement of the neck. There was no history of goiter in the family or of contact with tuberculosis. The history was negative, except for several attacks of tonsillitis and a discharging sinus over the thyroid in earlier life. This showed first at 10 years of age and healed after draining for a year. At about 12 years of age it again discharged and continued till she was 15, when it finally healed and gave no further trouble. The present illness began about nine months before we saw her with gradual enlargement of the thyroid. There were no symptoms of hypothyroidism or hyperthyroidism, and the condition appeared to be a simple goiter. The patient consulted her physician because of the size of the neck and to have the goiter removed. Her weight and strength were as usual. There was slight difficulty in swallowing on account of the pressure of the tumor. She was troubled with frequency of urination in the daytime, and urinated a couple of times each night. Her menstrual functions were regular and showed no change. There was no periodic change in the thyroid with the menstrual period.

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[1] Mosiman: Tuberculosis of the Thyroid, Surg., Gynec. & Obst. **24**: 680 (June) 1917.

Physical Examination.—The patient appeared anemic. She weighed 130 pounds. The pulse was 72 per minute. There were no tremors, exophthalmos or other eye signs of hyperthyroid function. There were two slightly pigmented scars over the thyroid gland. The heart, lungs and abdomen were normal. Examination of the urine was negative for sugar, albumin and urobilinogen. Blood examination gave: hemoglobin, 90 per cent; red blood cells, 5,000,000; white blood cells, 5,600. The serum Wassermann test was negative. The patient was anxious for operation because of the size of the tumor, and soon after the first examination she went to the Mayo Clinic, where a basal metabolism test was made and found on two different occasions to be — 18 and — 24 per cent.

Treatment and Results.—In February, Dr. D. B. Phemister of Chicago removed the gland, which grossly was considered malignant. Microscopic examination by Dr. Phemister and later at the Mayo Clinic by Dr. Broders revealed a diffuse tuberculosis. Dr. Broders reported: "The sections throughout show fibrous tissue, diffuse dense lymphocytic infiltration, and rather numerous ill-defined to well-defined tubercles. Some of the tubercles contain giant cells, but the majority do not. A few thyroid acini lined with flat and cuboidal cells can be seen completely obliterated. Pathologic diagnosis: diffuse noncaseating tuberculosis of the thyroid."

After operation the neck again increased in size till the circumference was as great as the preoperative measurement. From March 23 to June 1 the patient was given four massive doses of deep roentgen-ray treatment, and the size of the neck became normal.

After the patient came under observation she developed gradually the clinical signs of myxedema, which the first basal metabolism test showed should appear. The patient became dull mentally and answered questions slowly. The weight, which was 130 pounds on the first examination, increased to 142 pounds before thyroid extract was given. The skin became thick and dry and the hair thinned on the scalp, over the pubes and in the axillae. The blood pressure gradually decreased and gave the readings, systolic and diastolic: January, 110/80; May, 98/80; July, 92/80 mm. of mercury. The patient appeared markedly anemic, but the hemoglobin was 86 per cent. The pulse was as low as 60 per minute.

Although the diagnosis of myxedema was definite, we felt justified in withholding thyroid extract till the basal metabolism could be again studied and the dosage controlled by oxygen consumption readings. In September the basal metabolism was — 23 per cent., and the patient was given 1 grain of thyroid extract three times daily. This was given four days, when the metabolism was — 6.3 per cent. and — 8.4 per cent. on successive days, and the pulse was 74 per minute. The dosage a week later was increased slightly, when the pulse became rapid and the patient was troubled with insomnia. The basal metabolism reading at this time was + 10 per cent. The patient was then sent out to report again in one month. During this time she was to take 2 grains of the thyroid extract each morning after breakfast. This, however, proved to be too much, and by letter she was advised to drop the dose to one tablet every other morning. At the end of the month's time the basal metabolism was + 6 per cent. and the pulse was 66 per minute. She was feeling good and seemed more normal to her people than she had for the last nine months. The weight dropped to 123½ pounds. With the idea of giving her rather too little thyroid than too much, she has been taking the extract every third morning in grain doses. She feels well and will be kept on this dose unless symptoms of deficiency should appear.

This case was of interest to us, first, because of the comparative rarity of tuberculosis primary in the thyroid. The observation that basal metabolism was lowered before any signs of myxedema developed gives an added interest to metabolism readings in all cases of thyroid involvement, even though the case seems to be only simple goiter. The lowering of approximately 20 per cent. in the basal metabolic rate both before and after operation and treatment we interpret as showing the practically entire lack of thyroid tissue in the gland at the time of the first examination.

404 Lane Building.

Clinical Notes, Suggestions, and New Instruments

MOTOR SUCTION OR VACUUM APPARATUS FOR REMOVAL OF BLOOD FROM THROAT IN TONSILLECTOMY

Louis N. West, M.D., Raleigh, N. C.

A large number of men are doing nose and throat work, and there is a rapid increase in the use of some form of motor suction or vacuum apparatus for the removal of blood from the throat in tonsillectomies. It is evident that better work can be done with the assistance of such a machine than without one. At home I never operate without one, but it happens at times that some of these operations have to be performed in the country where there is no electricity.

Last month I drove 100 miles to operate on several persons and carried with me my "Mueller vacuum," but found when I arrived that the current was direct, while my machine was operated by alternating current.

I drove my automobile up to the room that I was to use as an operating room, disconnected the suction to the vacuum feed, and connected this to a rubber tube which I ran through the window (most places in the country are on the first floor) and connected this to one of the bottles. The tube coming out of the other side of the bottle was connected to the tip that goes into the patient's mouth. I started the engine, using the gas in the vacuum feed, and I had a complete suction machine which worked as well as any driven by electricity. As I had to perform several operations, to keep the vacuum feed filled I had to take off the little plug at the top, and into this I inserted the tip of a fountain syringe. The bag was filled with gasoline, and was let in as needed.

In view of the number of tonsils that are being removed in the country, this suggestion should be of help to a good many men.

A RAPID METHOD FOR THE DETERMINATION OF WATER-SOLUBLE VITAMIN B

Louis Berman, M.D., New York

On reading the description by R. J. Williams [1] of a method for the gravimetric determination of water-soluble vitamin B in solutions, it occurred to me that by applying the same principles to a volumetric method a more practicable clinical method could be evolved.

DESCRIPTION OF METHOD

The synthetic growth medium, in which yeast cells are to be grown with and without the water-soluble vitamin B, is prepared. Saccharose, 20 gm., ammonium sulphate, 3 gm., potassium acid phosphate, 3 gm., asparagin, 3 gm., calcium chlorid, 0.25 gm., and magnesium sulphate, 0.25 gm., are dissolved in distilled water and made up to 1 liter. The whole is then sterilized at 10 pounds pressure, and stored in the refrigerator.

To 30 cm. of this synthetic medium in a graduate is added 1 c.c. of a Fleischmann yeast cake measured and cut as

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[1] Williams, R. J.: J. Biol. Chem. 42: 259 (June) 1920.

1 by 1 by 1 cm., and the whole is rubbed up with a glass rod until a complete and uniform suspension has been obtained. One half of the suspension is then placed in a centrifuge tube graduated in tenths of a cubic centimeter, and the other half is poured into a second 15 c.c. centrifuge tube similarly graduated. To one is added a portion of the vitamin-containing solution, measured out in amounts of from 0.1 to 0.5 c.c. The tubes are then stoppered with nonabsorbent cotton and incubated at body temperature. After twenty-four hours the cotton stoppers are withdrawn and the yeast cells thrown down in an ordinary centrifuge for a few minutes. An excess of growth will be found in the tube containing vitamin, and the reading can be compared with the control tube. As the amount of excess growth varies directly with the amount of vitamin, a relative determination of this substance in solutions or permanent uniform suspensions becomes practicable clinically. The term "vitamin B" index seems most convenient for this relative value so determinable. It may be thus arrived at:

$$\frac{1}{\text{amount of vitamin solution}} \times \frac{\text{reading of vitamin tube}}{\text{reading of control tube}}$$

gives the water-soluble B vitamin index per cubic centimeter of solution.

APPLICATION

I have been specially interested in applying the method to breast milk and cow's milk in the everyday problems of infant feeding. The milks were made protein free according to the method of Osborne and Mendel. It was found that milks vary exceedingly in their content of this yeast growth stimulating substance. In general, cow's milk contains more of it than breast milk.

EFFECT OF MILK ON GROWTH OF YEAST

Milk	Yeast Growth Stimulus Index
Breast milk, A. M.	20
” ” T. G.	12
” ” R. M.	15
” ” R. H.	6
” ” O. L.	10
Cow's milk, W. K. 1	30
” ” B. 4	26
” ” SH. 2	20
” ” W. K. 2	20
” ” B. 6	15

It is interesting to note that in the case of breast milk R. H., in which the yeast growth stimulus index was 6, the infant was not gaining, although the fat content was about 3 per cent., and the protein about 1.75 per cent. An attempt is being made to change the composition of this milk, and the results will be reported.

144 West Seventy-Seventh Street.

REPORT OF A FATAL CASE OF MALIGNANT EDEMA

Philip B. Hoffman, M.D., Marysville, Calif.

This case presents clearly the difficulty of diagnosis, especially in cases that are sporadic and of a fulminating character. No diagnosis was made before the death of the patient.

REPORT OF CASE

History.—E. M., a Finn, aged 65, sheep herder, on the day before he became ill had eaten "Osage oranges," which are considered poisonous. Severe diarrhea, vomiting and diffuse abdominal pain continued through the night. He had made several attempts to go to camp to see that the herd was all right, but had fallen, only to rise again and struggle forward. He was finally placed in bed by a neighbor, who summoned me twelve hours after onset. I found the patient in a semi-knee-chest position, groaning, fairly rational, with subnormal temperature and a rapid pulse. He appeared toxic, the heart tones were weak and distant, there was no abdominal tenderness or distention, and the patient stated that he urinated normally.

I advised him to go to the hospital, but he refused. At 8 a. m. I gave strychnin by mouth and directed that it be administered every four hours. At 7 p. m. he was brought to the hospital, and 8 o'clock I saw him for the second time. He stated that he felt better; he had not vomited, his bowels had not moved, and he hoped that he could sleep well. He complained of soreness in the upper part of the left thigh, but I was unable to discern anything of a pathologic nature; there was no edema or discoloration of the ankles.

At 3 a. m. I was informed that he was in a noisy delirium, his pulse weak and rapid. I ordered one-quarter grain of morphin hypodermically. At 7 a. m., exactly thirty-six hours after the onset of his symptoms, he died.

Necropsy.—Inspection was negative, except for blood oozing from the urethra and for an area of bluish black about the size of a dollar over Scarpa's triangle, left thigh, that looked like an ordinary contusion. The abdomen was opened. The bladder was distended, but contained no free blood. Otherwise, examination was negative. The left thigh was then incised, and we were greeted with an outburst of odorless gas and bubbles. On further examination we found the thigh crepitant to the knee, and moderately enlarged over the right. Only the underlying quadratus femoris muscle was involved; this was black, easily friable and gangrenous, and resembled pitch rather than muscle. Gas continued to bubble for one hour through the incision, and bubbled forth freely when the leg was massaged from the knee up.

Diagnosis was now made of malignant edema, and several smears were taken from this muscle. The diagnosis was confirmed by the United States Bureau of Public Health at Berkeley, Calif. Twenty-four hours later the entire leg was black and gangrenous.

Special Articles

BIOLOGIC THERAPY *

(Concluded from page 245)

XVII. FOREIGN PROTEIN THERAPY IN THE ACUTE INFECTIONS

JOSEPH L. MILLER, M.D.
CHICAGO

During the last six years there has developed a very extensive literature on foreign protein therapy. Previous to this time there were a few references, both clinical and experimental, on the curative or protective action of nonspecific vaccines.

The real stimulus to this investigation was the report of Ichikawa and Kraus and Mazza that a certain percentage of typhoids would terminate by crisis following the intravenous injection of colon bacillus vaccine. It was soon demonstrated that the same results could be obtained with nonbacterial proteins as normal serums, proteoses, sodium nucleinate, milk and the colloidal metals. With the exception of milk, all of these agents were given intravenously.

Following the administration of any one of these substances, a febrile reaction occurs which is thought to be essential if beneficial results are to follow. As a rule, this rise in temperature is preceded by a well marked chill. In case the dosage is excessive, nausea and vomiting may occur.

Following the injection and preceding the rigor, there is usually a leukopenia followed by a polymorphonuclear leukocytosis which reaches its maximum in from two to twelve hours after the chill. The degree of leukocytosis varies, but not infrequently reaches 40,000. Apparently there is no special relation between the degree of leukocytosis and the beneficial results following the treatment.

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* This is the fifth instalment of a series of articles dealing with serums, vaccines and nonspecific therapy.

Foreign protein therapy has been used in practically all of the infections, with reported beneficial results in some cases. The various forms of arthritis and typhoid fever have received the greatest degree of attention. Other conditions in which less extensive reports are available are gonorrheal complications, pneumonia, certain dermatologic diseases, iritis, trachoma, diphtheria, anthrax, acute sepsis, tuberculosis and syphilis. However, many of the reports are so fragmentary and so lacking in controls that it is impossible to draw any conclusions; in others the results are at least suggestive, and in still others the curative value of this method of treatment seems to have been definitely established. In those diseases, however, in which good results have been obtained, only a certain percentage of cases can be said to be cured or even improved. In the remainder the course of the disease is not modified.

As gonorrheal complications, dermatologic conditions and arthritis are to be discussed by others, the present discussion will be confined to a brief review of our present knowledge of the value of this method of treatment in other infections.

The results in the treatment of typhoid are quite uniform, regardless of what particular form of foreign protein is used. About 20 per cent. terminate by crisis following one or, at most, two or three injections. Rapid lysis occurs on an average in an additional 20 per cent. A change in the form of the fever curve with probable slight shortening of the course of the disease occurs in, roughly, 20 per cent. The course of the disease is apparently not noticeably modified in the remaining 40 per cent. (Ichikawa,[1] Kraus and Mazza,[2] Gay [3]). The most striking results have been reported by Holler [4] in 350 cases treated by intravenous injection of deutero-albumose, with only two fatalities and without hemorrhage or perforations or carriers. His method of procedure was different from that ordinarily employed in protein therapy, as he gave a small daily dose until the temperature reached normal. The temperature reaction was very slight. The termination by crisis did not occur, but the patient became less toxic and the course of the disease was shortened. As these patients were all soldiers, it is presumed that they had previously received antityphoid inoculation. This might be somewhat of a factor in the low mortality. The fear of hemorrhage, formerly suggested, is apparently not warranted. Further clinical observations are, however, necessary before it can be definitely determined that this method of treatment should be generally adopted.

This form of therapy has been used by a number of investigators in the treatment of typhus fever. Tagle [5] reports fifty-nine cases with three deaths, the fifteen controls having a mortality of 40 per cent. Reports from other sources indicate that this method of treatment lowers mortality in typhus fever.

The treatment of sepsis by foreign protein has been reported from various sources. Kraus [2] and Wilmette [6] have each reported short series of cases of puerperal sepsis. They are both quite enthusiastic, stating that the majority of cases terminated by crisis after a few injections. Kinsella [7] has shown that in septic endocarditis the blood becomes sterile for twenty-four hours after the febrile reaction, and then the micro-organisms again appear. I have tried this method of treatment in several cases of septic endocarditis, but without either permanent or temporary benefit. At present it can be said only that there is some suggestive, but no convincing evidence that certain forms of sepsis may be benefited by this treatment. Further carefully controlled observations should decide this question.

Pneumonia of the pneumococcus and influenzal types has received considerable attention, and the results obtained merit consideration. Favorable results have been reported by Wells,[8] Roberts and Cary,[9] Cowie and Beaven,[10] and others. Cowie's series includes only nine cases, all influenzal pneumonia. Two of these patients had a crisis the first day; one the second day, and one the third day following the injection. The other five cases ran the usual course. Cowie believes that the crisis in the four cases was at least in part due to the treatment. Wells treated eleven cases of influenzal pneumonia. In three of these there was a crisis following a single injection, with no subsequent rise in temperature. Roberts and Cary report a series of eighty-three cases of influenzal pneumonia treated by intravenous vaccine, with a mortality of 11.3 per cent. In sixty-seven satisfactory controls the mortality was 31 per cent.

I have used typhoid vaccine in selected cases of pneumonia during the last four years. There is little doubt that in a limited number of cases termination by crisis or rapid lysis has followed a single treatment. More frequently, however, the patient is only temporarily detoxicated, the disappearance of pleural pain and decreased temperature with return of the pulse and respiration to normal continuing for only a few hours, when the previous symptoms again recur.

The question must be raised whether the beneficial action of specific pneumococcus serum may not, in part at least, be due to nonspecific elements. This is a field in which further carefully controlled observations will be awaited with interest.

It has been reported by Baldwin and L'Esperance that guinea-pigs inoculated with tubercle bacilli and then given a dose of typhoid vaccine outlive the controls. This method of treatment has been used in pulmonary and bone tuberculosis in man. None of the reports consulted, however, present convincing evidence. Its application to this class of patients should be carried out only when the results can be carefully recorded, and then only in conjunction with and never to replace other recognized methods of treatment.

The literature contains a number of reports on the beneficial results of this method of treatment in syphilitic iritis. It has been used in secondary syphilis, but the results are not conclusive.[11] I have observed a gumma on the leg disappear promptly after a few intravenous injections of typhoid vaccine, but the Wassermann test was still unmodified after the vaccine had been given every third day for one month. With other well recognized methods of treatment available there is no place for foreign proteins in the treatment of syphilis.

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[1] Ichikawa: Abortive Treatment of Typhoid and Paratyphoid, Sei-i-Kwai M. J. **33**: 73, 1913.

[2] Kraus and Mazza: Zur Frage der Vaccinetherapie des Typhus abdominalis, München med. Wchnschr. **61**: 1967, 1919.

[3] Gay, F. P.: Abortive Treatment of Typhoid by Sensitized Typhoid Vaccine Sediment, J. A. M. A. **65**: 322 (July 24) 1915.

[4] Holler, G.: Beiträge zur Klinik der Infections-Krankheiten, **6**: 92, 1917.

[5] Tagle, Prado: Rev. méd. de Chile, August, 1919; abstr. J. Trop. Med. **23**: 22 (Jan. 15) 1920.

[6] Wilmette, R. G.: Injections intraveineuses de métaux colloïdaux traitement de l'infection puerpérale, J. méd. de Paris **35**: 117, 1916.

[7] Kinsella, R. A.: Bacteriologic Studies in Subacute Streptococcus Endocarditis, Arch. Int. Med. **19**: 367 (March) 1917.

[8] Wells, C. W.: Intravenous Injection of Foreign Protein in Influenzal Pneumonia, J. A. M. A. **72**: 1813 (June 21) 1919.

[9] Roberts, Dudley, and Cary, E. G.: Bacterial Protein Injections in Influenzal Pneumonia, J. A. M. A. **72**: 922 (March 29) 1919.

[10] Cowie, D. M., and Beaven, P. W.: Nonspecific Protein Therapy in Influenzal Pneumonia, J. A. M. A. **72**: 1117 (April 19) 1919.

[11] Biach, A.: Wien. klin. Wchnschr., 1915, No. 49.

Many favorable reports are available on the good results in rheumatic iritis (Muller and Thanner[12]). In eleven cases of rheumatic iritis the photophobia and pain disappeared within twenty-four hours. Muller and Thanner also report marked benefit in nine cases of opacity of the cornea with or without choroiditis. Friedlander[13] reported forty-two cases of trachoma treated by this method with most satisfactory results. Apparently the reports on iritis and trachoma warrant further application of this method of treatment.

Of especial interest are certain reported results obtained with normal serum, which brings into question the specificity of certain immune serums. Most striking are observations made by Kraus and Penna[14] in the treatment of anthrax in man with normal beef serum given either subcutaneously or intravenously in dose of from 30 to 50 c.c. They report 146 cases so treated with one death, results better than have been reported from the use of immune serum.

Bingel[15] has recently created considerable discussion in Germany by reporting a series of 466 cases of diphtheria treated with normal serum in which he claims that the results were as satisfactory as in 471 controls receiving antitoxin serum. His paper has called forth a number of reports both laboratory and clinical. The clinical reports fail to support his claim, although suggesting some benefit derived from the nomal serums. The laboratory experiments, however, show that at least certain normal serums possess considerable antitoxic properties. Meyer[16] reports 33⅓ per cent. of guinea-pigs saved after receiving a lethal dose of diphtheria bacilli, as compared with 100 per cent. saved after antitoxic serum. Kastenmeyer[17] states that three animals receiving 100 times the fatal dose of diphtheria toxin were saved with normal serum. This is a problem for laboratory study. Meanwhile, no physician would care to assume the responsibility of administering a foreign protein in diphtheria in lieu of antitoxic serum.

Is foreign protein therapy attended with danger? Experience has shown that when the dosage is carefully determined, i. e., just a sufficient amount to excite a chill, it is practically free from danger. We have given at Cook County Hospital at least 2,000 intravenous injections of typhoid vaccine in the treatment of various acute infections without serious consequences. The only untoward results observed have been the development of delirium tremens in confirmed alcoholics. However, the treatment was not administered to enfeebled individuals or those with disturbed heart action. Whether there is an advantage in the use of a larger dose of protein than that necessary to excite a chill is undetermined. The use of such large doses probably increases the danger attendant on the treatment.

The permanent value of this method of treatment is still to be determined. The immediate disappearance of all evidence of infection in a certain rather small percentage of cases following protein therapy is established, and this should serve as a stimulus to future well controlled investigation.

XVIII. NONSPECIFIC PROTEIN THERAPY IN ARTHRITIS

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ANN ARBOR, MICH.

It cannot be questioned that very remarkable beneficial effects have followed the intravenous injection of foreign protein in the arthritides. There is seldom a case of acute arthritis or periarthritis which does not respond to a certain degree, but this improvement is often of only a few hours' duration. Taking cases at random, including all varieties, there will be found a large percentage in which no permanent beneficial effect can be secured by this method of treatment. One should not expect permanent beneficial effects in cases of periarthritis of a less chronic nature, unless great care has been taken to rid the body of all foci of infection that can possibly be found. Accordingly, therapeutic intravenous injections of foreign protein should follow failure to secure successful results by the removal of such foci of infection, or they should be used in conjunction with an attempt to remove the focus.

Unquestioned relief from pain will often follow protein therapy, even though the focus of infection is not removed and, in some cases, in addition to improvement in the joint condition, the focus itself may cease to be active.

So far as we know at present, foreign protein acts by combating infection. If we regard, as many clinicians do, the large majority of joint diseases as due to infection and only comparatively few as due to metabolic disturbances, it may be said that foreign protein therapy is not contraindicated in any form of this large group, provided no other forbidding features, such as serious heart disease, are present. It may be argued that, while we may not cure the structural defects or the consequences of the defects, such as muscle atrophy and ankylosis, we may stop the exciting cause and thus arrest the process from further development. But, as a matter of fact, we have not enough trustworthy data at hand to prove that this is so, plausible as it may seem.

Thus far, experience has taught us that acute or subacute processes that have not progressed beyond the first year are the ones that give the best results, particularly those that have not gone on to marked structural change of the articular or periarticular tissue; next to these, cases which have progressed longer and which may show structural change, but which have not produced definite ankylosis and its consequential results.

I believe that the work that has been done justifies the statements that acute and subacute arthritis and periarthritis are the forms which respond more promptly and more surely to this method of treatment. A few cases of chronic arthritis of as long as three years' standing have been recorded in which, apparently, complete cure has followed this method of treatment; and in still more chronic forms, unquestioned benefit has occasionally resulted. However, at present there are not enough properly classified cases recorded to enable us to say what percentage of each class is benefited by this method of treatment.

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[12] Muller and Thanner: Ueber parenterale Eiweiss-Injection, Med. Klin. **12**: 171, 1916.

[13] Friedlander, W.: Therapeutische Erfahrungen bei parenteraler Injection von Proteinkoerpern in der Augenheilkunde, Wien. klin. Wchnschr. **29**: 132, 1916.

[14] Kraus, R.; Penna, J., and Bonorino Cuenca, J.: Rev. méd. de Chile **47**: 333 (July) 1919; abstr. J. A. M. A. **73**: 1318 (Oct. 25) 1919.

[15] Bingel, A.: Ueber Behandlung der Diphtherie mit gewöhnlichem Pferdeserum, Deutsch. Arch. f. klin. Med. **125**: 284, 1918.

[16] Meyer, S.: Experimentelle Untersuchungen über den Einfluss normalen Pferdeserums und die Infection der Meerschweinchen mit lebenden Diphtheriebazillen, München med. Wchnschr. **66**: 873, 1919.

[17] Kastenmeyer, B.: Ueber den Einfluss normalen antitoxinfreien Pferdeserum auf experimentell erzeugte Diphtherie, Deutsch. med. Wchnschr. **45**: 1338, 1919.

FREQUENCY OF INJECTION

It seems to have been shown that no negative phase, so far as the antibody content of the blood is concerned, follows the injection of foreign protein. For this reason we may feel justified in giving daily injections. On the other hand, if we take into consideration the severity of the reaction and the condition of the patient, it is good practice to let a day intervene between the injections. If any benefit is to be secured by this method of treatment, from one to ten injections will suffice. No anaphylactic shock phenomena accompany these injections, even though a second course of treatment may be instituted after several months.

CHOICE OF FOREIGN PROTEIN

It has been shown that sterile albumose solutions,[1] horse serum and bacterial proteins bring about similar results At present, bacterial protein seems the protein of choice. Typhoid vaccine is most generally used. A typhoid vaccine can be made up according to well known rules and preserved in 0.5 per cent. phenol, or a standard stock vaccine may be used.

The severity of the reaction is in a measure proportional to the size of the dose. There is a general impression that the maximum benefit will be derived from a dose just sufficient to give rise to a chill.

CONTRAINDICATIONS

Uncompensated cardiac lesions, acute endocarditis or pericarditis should be considered as contraindications. A word of caution may not be out of place. It should be distinctly borne in mind that we are far from an explanation of the manner in which the foreign protein acts, and that only a certain percentage of any form of joint infection is improved. For this reason, we must approach a given case with definite conservatism.

XIX. INTRAVENOUS PROTEIN INJECTIONS IN UROLOGY AND DERMATOLOGY

HARRY CULVER, M.D.
CHICAGO

Since 1913, when Bruck and Sommer[1] used intravenous injections of killed gonococci in the treatment of complications of gonorrhea, there has accumulated a considerable literature on the subject. They used special care in securing highly polyvalent gonococcal vaccines, and by so doing believed they were able to influence all such gonococcal infections specifically; this idea and method of treatment, though not generally adopted, had many adherents for three years.

Toward the end of this period, the nonspecific factors in the treatment of infections were being recognized. Müller and Weiss,[2] by the intragluteal injection of milk, secured results in gonorrheal complications that compared favorably with those of Bruck and Sommer, while Miller and Lusk[3] secured encouraging results in gonorrheal arthritis by the use of intravenous typhoid vaccine. In their series were four instances of acute gonorrheal arthritis, all of which received less benefit by this treatment than acute cases of other origin, although slow improvement was noted; one subacute gonococcal arthritis, and four of the five cases of chronic gonococcal arthritis were cured.

It has since been established[4] that gonococci, meningococci, colon bacilli and proteose preparations intravenously administered, all produce equally good results in gonococcal arthritis and epididymitis. In my first series of twenty-four patients with gonococcal arthritis, complete recovery or marked rapid improvement was observed in all but two instances. Eleven patients were treated with gonococci with one failure, and eleven patients with meningococci with one failure, while but two were treated with colon bacilli, and both recovered. In the epididymitis series were twelve patients, and all were apparently completely and permanently cured within a week, there being no difference in results produced with the gonococcus, meningococcus and colon bacillus.

Many clinicians familiar with the therapeutic results of this method are convinced that the improvement or cure of the infection depends, in great measure, on the intensity of the reaction and on the processes associated therewith. Since any bacterial suspension is capable of producing the reaction, the readily accessible typhoid vaccine is frequently used for that purpose. On the other hand, I have used gonococcal protein almost exclusively, not that it is believed to have any greater curative value, but because its reaction characteristics have been more carefully studied.

Cecil[5] noted little improvement after intravenous proteins in seven patients with gonorrheal arthritis. Two of these patients received typhoid and five gonococci; and while all showed slow improvement while in the hospital, there is doubt in this author's mind as to the permanent benefit secured in gonorrheal arthritis by injections of protein intravenously. There are, without doubt, certain refractory instances of gonococcal joint infection, especially the severe acute cases; but even here I believe the incidence is not high. The best results are now being obtained by the simultaneous treating of the primary focus together with the intravenous protein injections.

In one military cantonment where intravenous injections of gonococcal protein were used in gonococcal epididymitis, the results were most gratifying. The cessation of pain was nearly always complete within twenty-four hours after a properly reacting protein injection, and the average stay in the hospital was from five to six days, at the end of which time there was usually a marked reduction of the local swelling, which reduction started with the subsidence of the pain. In some instances of gonorrheal epididymitis it is necessary to give a second injection to obtain the desired results. There are two distinct groups of such individuals: One apparently derives no subjective or objective benefit from the first injection, but may respond nicely to the second injection from twenty-four to forty-eight hours later; the other group obtains relief after the first injection, but it is only temporary. These patients also sometimes obtain complete and permanent relief after a second injection. If benefit is not secured in these cases after a second injection, it is not best to continue with this treatment.

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[1] Merck's albumose, 4 per cent. solution, from 1 to 2 c.c.

[1] Bruck and Sommer: München med. Wchnschr. **60**: 1185, 1913.

[2] Müller and Weiss: Wien. klin. Wchnschr. **29**: 249, 1916.

[3] Miller, J. L., and Lusk, F. B.: The Use of Foreign Protein in the Treatment of Arthritis, J. A. M. A. **68**: 2010 (Dec. 30) 1916.

[4] Culver, Harry: The Treatment of Gonorrheal Infections, J. A. M. A. **68**: 362 (Feb. 3) 1917.

[5] Cecil, R. L.: A Report of Forty Cases of Acute Arthritis Treated by the Intravenous Injection of Foreign Protein, Arch. Int. Med. **20**: 951 (Dec.) 1917.

The primary infection, as the urethritis, prostatitis and seminal vesiculitis, while still present after this cure of the epididymitis, responds more readily, in most instances, to local treatment than other similar infections not so treated.

As this method was introduced with the opening of the aforementioned military camp, it was not found necessary to perform epididymotomy in a single instance of gonorrheal epididymitis, a most unique record for a military post where epididymitis is relatively common.

Very little, if any, effect is noted in orchitis of mumps or in nonspecific epididymitis after intravenous injections of protein, a fact that may prove to be of some diagnostic value.

In dermatologic practice, encouraging results have been noted in certain chronic skin lesions by the use of the protein reaction. Engmann and McGarry[6] obtained satisfactory results by the intravenous injection of typhoid bacilli in one case of psoriasis; marked improvement in six instances of lupus erythematosus, in one of exfoliative dermatitis, and in one of parapsoriasis; and slight improvement in one instance of dermatitis herpetiformis. A case of Darier's disease was made worse with the appearance of new lesions.

Scully[7] has reported success in the treatment of psoriasis by combining intravenous typhoid injections with proper local treatment. Eight cases of chronic psoriasis were thus treated, and following the first or second injections the lesions became less inflammatory and less indurated, although there was no retrogression in the extent of the lesions and no new lesions appeared. When this was followed by the application of chrysarobin, the lesions entirely disappeared in from eight to sixteen days.

In studying the reaction following the injection of various bacterial suspensions in gonorrheal patients, I used, as controls, nongonorrheal patients suffering from chronic skin lesions, as psoriasis, chronic eczema and recurrent pyogenic infections of the skin. Apparent temporary cures were obtained in three cases of psoriasis and two of chronic eczema, while permanent recovery was obtained in three instances of chronic pyogenic skin infection. Although all cases of chronic eczema and psoriasis had recurrences, the lesions were of a much milder type.

There have been no recent reports either to condemn or to sustain this method of treatment in chronic skin diseases. It would seem to be worthy of a trial in certain instances.

7 West Madison Street.

XX. THE NONSPECIFIC REACTION *

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During the course of the last six years a method of therapy has been developed that seems of interest not primarily because of the clinical results achieved, but rather because this method of therapy promises to exert a far-reaching influence on medical thought and theory concerning the factors that are active in recovery from disease. Since the general profession is still to some extent unfamiliar with the clinical results and the experimental work in this particular field, it may be permissible to discuss briefly two misapprehensions that are commonly current in regard to nonspecific therapy: the first, that it represents a new and heretofore unknown and unused method of treatment; the second, that, immunologically illogical, it is purely empiric in character.

As a matter of fact, this form of therapy, call it as we will—nonspecific therapy, protein therapy, ergotropie, omnicellular plasma-activation or heterotherapy—formed in all probability the basis of the very earliest and most primitive methods of practice that we encounter historically. In one form or another—the cautery, counterirritation or the fontanel—it held sway for long periods of time. Under a variety of more modern terms we meet it again and again in recent practice—autoserotherapy, tuberculin injection, nuclein injection, etc. That the method in its general form runs counter to the current conception of immunity is perhaps true, but by no means justifies the conclusion that the method is therefore illogical or purely empiric in character.

At first glance, after thirty years or more of satisfactory effort to perfect specific therapy it might, indeed, seem illogical or even a step backward to study nonspecific methods of therapy; but if we analyze the subject for a moment we will see that this is by no means true. Let us consider inflammation. We find this reaction fundamentally similar, no matter what the cause of the injury, whether it is bacterial, toxic, chemical or traumatic. While there may be minor differences in the amount or the composition of the exudate, in the degree of the vascular alteration or the type of cellular reaction, the fundamental alterations are always alike. We deal with the effort of the organism to dilute the noxious agent, to neutralize it, to remove it by extracellular or intracellular digestion, and, that failing, to wall it off, to put it outside the current of organ activity. If, now, we seek to alter this process therapeutically, we have two means of approach: The one is interested solely in the cause of the inflammatory reaction: if a bacterium, to produce a bactericidal substance; if a toxin, to produce an antitoxin; if a chemical, to neutralize the chemical agent. We see at once that so far as the causes of inflammation and of tissue injury may be unlimited, our specific agents will have to be unlimited. Our only other possibility will lie in the endeavor to alter the reaction of the body, that is, to alter the inflammatory reaction—accelerating or retarding it as may be desirable—rather than trying to alter the agent that has caused the injury. It is at once apparent that we must deal with substances that have a general effect on cellular activity, with nonspecific rather than with specific substances. And from this point of view we are finding that a long list of therapeutic agents, some of which have been in use for many years, have in all probability a common and pharmacologically a simple mode of effect.

These agents include a great many organic (biologic) substances as well as chemicals and drugs; a complete list is not essential for the present purpose. Thus we find that bacterial vaccines came first into prominence for nonspecific use—typhoid vaccine, colon vaccine or staphylococcus vaccine in the treatment of arthritis, acute infectious diseases of all kinds, venereal diseases and their complications. Then followed protein split products—proteoses, bee toxin, pollen toxin, etc., milk injections (intramuscularly) and extracts from tissues. Then came the recognition that older therapeutic agents belonged to the same category—serums, nuclein injections, the use of yeast, tuberculin, Beard's use of trypsin in carcinomas, or the use of Coley's fluid in sarcoma. To these a large number of drugs have been added which seem therapeutically active (iodids, formaldehyd, etc.) in a similar nonspecific way. Even hypertonic and hypotonic salt solution and distilled water may be used to induce a reaction when injected intravenously. More recently the intramuscular injection of minute amounts of turpentine has been introduced for treatment when a long continued effect is desired. The reaction these agents induce in the organism finds expression in various ways that range from severe shock effects to mere transient alterations in leukocyte count. Following the more powerful and active ones there is usually a severe chill, sweating, a febrile rise of 4 or 5 degrees Fahrenheit, a leukopenia followed by a leukocytosis, occasionally gastro-intestinal hypermotility, lowering of the blood pressure, and a number of changes in the serum, such as increase in fibrinogen, enzymes, thrombokinase, blood sugar or antibodies. A general increase in malaise usually goes over into a pronounced euphoria. With the less active substances, as milk, colloidal metals, serum or nucleins, the effect may be manifest in some temperature rise, a slight chill or feeling of malaise, or a leukocytosis of a few thousand over that observed before the injection.

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[6] Engmann, M. F., and McGarry, R. A.: The Treatment of Certain Diseases of the Skin, J. A. M. A. **67**: 1741 (Dec. 9) 1916.

[7] Scully, F. J.: The Reaction After Intravenous Injections of Foreign Proteins, J. A. M. A. **69**: 1684 (July 7) 1917.

* From the Department of Pathology, University of Illinois, College of Medicine.

On local inflammatory processes the injections are followed by distinct focal effects, first apparent as an intensification of the inflammatory reaction, later followed by a diminution until the preinjection stage is again reached or surpassed. All inflammatory processes present in the organism, whether acute, chronic or latent, respond to the injections in this manner.

How can such injections bring about an abortive cure of an acute infection, such as typhoid fever, or terminate an acute arthritis or an iritis or any of the other inflammatory processes in which nonspecific therapy has been successfully used at times?

We have to consider a number of theories that have been suggested. Weichardt[1] regards the therapeutic effect in the nature of a plasma-activation. This idea emphasizes the fact that with the injection the organism is stimulated, and that the resulting reaction represents a summation of all the forces of resistance with which it is equipped. The leukocytes become more active, their number is increased by the stimulation of production in the bone marrow, antibodies heretofore fixed to the cell are shed (the exfoliative stimulation that Larson has suggested), enzymes are mobilized, glands of internal secretion are stimulated. Naturally, such a conception involves the recognition that when once the organism is fatigued beyond the point of reaction no amount of injections or nonspecific therapy will avail. This coincides with the general clinical experience that nonspecific therapy, if it is to be used successfully, must be used early in disease.

Apart from this active phase of increased resistance which brings into play definitely dynamic but previously latent powers, there is to be observed a second method of defense that finds its expression in an increased tolerance to intoxication. This condition is closely associated with the state that has been observed after anaphylactic shock—antianaphylaxis, or desensitization, as one may wish to term it. Starkenstein[2] has carried out a series of experiments in which he has determined that after nonspecific injections of various kinds—milk, proteoses as well as calcium chlorid, cinchophen (atophan), etc.—the organism becomes more resistant to a variety of poisons, such as strychnin, phenol and protein split products. Von den Velden,[3] Luithlen[4] and Starkenstein[2] have all observed the decided alterations that take place in the permeability of the capillaries after nonspecific injections. These studies have justified the conclusion that the various agents injected are all followed by marked changes in the permeability of the cell membranes, and that it is this fundamental change that is probably at the basis of the therapeutic effect observed in nonspecific therapy. At first the cell membrane seems more permeable. This corresponds with the fact that there is an increase in the lymph flow, the irritability of the nerve cell is increased, and that there is a freer exchange between blood plasma and cell content, that is, sensitized cells give up their antibodies, enzymes are mobilized, thrombokinase and fibrinogen increased, and the sugar level altered. This period of increased cellular permeability corresponds with the clinical period of increased general malaise and the increase of the inflammatory reaction at local foci. This phase is followed by one of diminished permeability. It is in this stage that we find the cellular resistance to intoxication increased, the threshhold for nerve stimuli raised and evidences of intoxication and inflammation subsiding while the patient experiences euphoria.

Clinically and experimentally the nonspecific reaction is a diphasic reaction. The first phase (negative) associated clinically with an intensification of disease manifestations, the second phase (positive) associated with clinical improvement, with reconstruction, with general euphoria. It seems probable from clinical observation that the second, or positive, phase is in a measure a function of the negative in that within certain limits the greater the irritation, the greater the tendency to complete restitution to the normal when the balance once swings in that direction. And it is equally apparent that in dealing with such a reaction the physician must keep in mind that he may at times do decided harm instead of good. If a patient is given too large a dose (particularly of such toxic substances as typhoid vaccine or colon vaccine), or injected when no longer capable of reacting to stimulation, or if a latent inflammatory focus is activated, the fault will lie in the judgment of the physician and not with the fundamental principle that underlies the method.

Nonspecific therapy is a new method of therapy so far as it represents the clear-cut recognition that certain clinical results heretofore obtained in a variety of ways and by a number of different substances were in reality due to a similar biologic alteration on the part of the organism. Some of the results that we had previously accepted on the basis of specificity we now know to have been due to this nonspecific effect. In differentiating between the specific and the nonspecific phases of resistance and in developing them in an unbiased manner, very definite therapeutic advances seem possible. But it must be kept in mind that nonspecific therapy is still to some extent in an experimental stage and that we are not yet fully competent to judge the ultimate range of its usefulness.

NOTE.—This instalment closes the series of articles dealing with serums, vaccines and nonspecific therapy. These papers are reprinted in pamphlet form at twenty-five cents per copy

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[1] Weichardt, W.: München. med. Wchnschr. **65**: 581, 1918; **67**: 91, 1920.

[2] Starkenstein, E.: München. med. Wchnschr. **66**: 205, 1919.

[3] Von den Velden, R.: Berl. klin. Wchnschr. **56**: 481, 1919.

[4] Luithlen, F.: Wien. klin. Wchnschr. **26**: 653, 1836, 1913.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, JANUARY 29, 1921

THE CAUSE OF CANCER

To any one who is familiar with the long years of research in the domain of the etiology of neoplasms and who is conversant with the literally enormous literature to which the subject has given rise, the headline of these comments will not awaken any undue enthusiasm. The fundamental problem of the cause of cancer, a theme of undisputed medical importance, has not yet been solved, nor is the "facile triumph" in sight. One may measure the gradual gains of knowledge on this subject in the course of years; but there is great danger that the innumerable failures and disappointments encountered in cancer research thus far may overbalance the successes to the extent of discouraging the continuance of the attack on the unknown with renewed vigor and persistence.

There are many significant, though seemingly isolated facts about cancer. Its ubiquitous occurrence is admitted; its possible relation to tissue injuries and irritations has often been indicated; its problematic association with a sort of senescence of cells has been discussed. There are indications that a variety of chemical substances may either stimulate or check growth, as well as regulate it; yet, as Wells [1] has lately pointed out, our biologic chemistry has not yet given us any very substantial facts on these problems. So, likewise, the microbiology of the subject and the search for a cancer parasite are largely dominated by analogies from other fields of observation.

Every worker who has persisted year after year in the attack on the cancer problem deserves a hearing. His experience and conclusions are likely to help dispel illusions, even if nothing positive is added to our knowledge. Hence we may well listen to the tentative convictions of Paine,[2] who has long been engaged in investigations at the Cancer Hospital Research Institute in London. He points out that the clinical features of cancer in man are distinctive and strikingly unlike those of the inflammatory disorders of infective origin, for it is neither contagious nor infectious in the ordinary sense of the terms, nor does it show seasonal prevalence. Pointing out how often cancer arises under circumstances closely associated with the process of inflammation, the response of the tissues to injury which may be either physical or chemical, Paine feels justified in emphasizing the significance of this relationship. He believes that he has observed all stages and sequences from chronic inflammation of the breast, for example, to malignant mammary cancer. The process begins with inflammation and ends in malignant degeneration. Through the degeneration of the "nobler parts of the cell" whereby its function has been impaired, food brought to it is no longer used in the normal manner. A surplus may accumulate and may perhaps be "equilibrated by growth." In other words, the damaged cell, physiologically altered in its metabolism, starts to grow when its former specialized function is lost. "Nothing to do but grow" might paraphrase the behavior tendency of the damaged cells. The disturbance in cell metabolism may, of course, be due to toxins of micro-organisms as well as to other noxious agents; but, in the words of Paine, the result of the damage is to disturb the balance of metabolism by impairing the special functions of the cell, and thereby causing persistent overgrowth. As the *Lancet* [3] has pointed out, Paine's conclusions are based on observed variations in the morphology of cells which many persons may be unwilling to accept as conclusive; nevertheless, the deductions are entitled to a careful hearing.

ARTIFICIAL IMMUNIZATION AGAINST TUBERCULOSIS

Calmette and Guérin have recently reported striking results on acquired immunity to tuberculosis in cattle, produced by vaccination with tubercle bacilli of the bovine type reduced in virulence by prolonged cultivation in mediums containing bile. A number of papers on this subject by these authors [4] appeared some years ago in which they stated that guinea-pigs, monkeys and cattle could tolerate large doses of tubercle bacilli attenuated by this method without acquiring generalized disease, at the same time developing a pronounced immunity to subsequent virulent infection by the intravenous route. In the series just reported,[5] vaccinated cattle, together with a number of nonvaccinated controls, were exposed to severe "natural" conditions. Ten heifers were tied behind cattle suffering from advanced tuberculosis under such conditions that their food was constantly contaminated by the droppings of the tuberculous cattle. Six of the ten were vaccinated at the outset by injection of 20 mg. of live tubercle bacilli of the bovine type which had been cultivated twelve years through seventy transfers on glycerolated potato treated with bile. The other four served as controls. One of the six animals was reinoculated after one year, and two others at the end of both the first and second year. All the controls except one developed tuberculosis, as shown by tuberculin test and necropsy. Of the vaccinated animals, the three that had received only one inoculation showed infection after two years. The others remained completely free from tuberculosis through the experiment: The authors believe that their method of vaccination conferred an immunity of eighteen months' duration to the most intense exposure.

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[1] Wells H. G.: Chemical Pathology, Ed. 4, Philadelphia, W. B. Saunders Company, 1920, p. 499.

[2] Paine, Alexander: The Origin of Cancer, Lancet **2**: 693 (Oct. 2) 1920.

[3] The Cause of Cancer, editorial, Lancet **2**: 705 (Oct. 2) 1920

[4] Calmette and Guérin: Ann. de l'inst. Pasteur, 1911.

[5] Calmette and Guérin: Am. de l'inst. Pasteur **34**: 553, 1920.

This paper brings up a number of interesting points. The first is obvious: the immeasurable value of a method that would prevent the tremendous annual loss in cattle showing a positive tuberculin test. Results on ten heifers are insufficient to clinch a matter of such gigantic importance, as the authors themselves admit. But a new way has been pointed out, which must attract the attention of veterinarians and experiment stations the world over. Beyond question, the start will be followed by much empiric experimentation.

The theory of vaccination by attenuated organisms is of especial interest. The idea of deliberate attenuation is, of course, as old as Pasteur; and, so far as tuberculosis itself is concerned, observations on resistance to second infection go back to Robert Koch, who noted the difficulty or impossibility of obtaining skin infection on inoculation of virulent organisms into an animal already tuberculous. Among the notable contributions on tuberculosis immunology were Behring's vaccination of cattle with tubercle bacilli of the human type, to which cattle are relatively resistant, and Römer's similar treatment of sheep. Friedmann, by methods that savored strongly of quackery, in a spectacular manner and under claims that were wholly unwarranted by the results he was obtaining, undertook to accomplish a very different thing, the cure, rather than the prevention of the disease. This he did by attempting to heighten immunity through the introduction of a supposed tubercle bacillus, namely, one from a turtle, that, biologically considered, was vastly farther removed from the human bacillus than either the bovine or avian type. A series of investigators at Saranac Lake, including Trudeau, Nichols, Paterson and Soper, were successful in producing an artificial immunity even in the highly susceptible guinea-pig, by infection with a strain of bacilli of the human type which had spontaneously lost its virulence, and in rabbits by inoculation with the human bacillus, to which the rabbit is characteristically resistant, immunity in this case being conferred against the highly virulent bovine organism. The idea of deliberate attenuation by chemical means is by no means new; numerous attempts have been made to reduce virulence of tubercle bacilli by soap, glycerol and other substances, but the use of such organisms has failed to produce immunity.

Calmette and Guérin feel that they have found a method of controlling the virulence of tubercle bacilli, a belief that can be received only with caution by pathologists. The subject has much underlying complexity. Will an attenuated organism "stay put" when introduced into the animal organism? Certainly the spontaneously attenuated human strain isolated by Trudeau thirty years ago and considered virtually avirulent for the last twenty-five, occasionally attacks a guinea-pig with considerable force, and numerous other similar cases are described.

Why is bile effective in reducing virulence? The ability of bile to restrain other organisms in the cultivation of the typhoid bacillus and to dissolve the capsules of pneumococci is well known. Probably many conditions that make growth difficult, when prolonged, lower virulence. A specific factor is perhaps introduced in the use of bile. Bile salts have the property of dissolving or at least holding in colloidal suspension lipoids like cholesterol. A high percentage of the weight of the tubercle bacillus is in the form of an alcohol chemically and physically somewhat similar to cholesterol. The great resistance of the tubercle bacillus to corporeal lysis is thought to be in large measure due to this substance. Bile may rob the bacillus of some of its armor. Chemical studies of bile-attenuated bacilli would check on this.

At any rate, the investigation is unquestionably pointed in the right direction. There is abundant evidence for the dictum of Krause that infection is a sine qua non of immunity in tuberculosis: "No resistance without tubercle." The injection of dead tubercle bacilli and their products long ago proved valueless. Injection of small doses of virulent bacilli has more than once proved dangerous. Injection of attenuated organisms is the logical alternative. Artificial immunity has unquestionably been thus conferred in animals. The chemical reduction of virulence and its maintenance at a low level thus become of immeasurable importance. The problem consists in so modifying a bacillus that it will cause the minimal amount of morphologic tubercle capable of stimulating resistance.

FOREIGN PROTEIN THERAPY

The intravenous injection of bacterial vaccines, proteoses or certain solutions, such as hypertonic or hypotonic salt solutions, elicits a response in the animal body characterized by chill, sweating, fever, leukopenia followed by leukocytosis, and other changes in the blood demonstrable by appropriate methods. These effects are observable in the healthy as well as in those suffering from disease. When these symptoms are produced in infections associated with localized lesions, such as arthritis, the local lesion is temporarily made worse and then frequently improves so that in the following days the tissues involved may approach normal, at least for a time. In certain febrile states a critical drop in temperature results which, in some instances, has been permanent.

It is essential to distinguish between the scientific investigation of the little understood phenomenon of protein shock—which may have an important bearing on our future conceptions of immunity and the mechanism of recovery from disease—and the propriety of at once introducing the procedure as an accepted method of treatment of the sick. As Petersen [1] points out, the subject of foreign protein therapy is by no means new, although it now appears under a new name. Nuclein injections, Coley's fluid in sarcoma, trypsin injections in carcinoma, and other similar procedures produced reactions similar to those observable after intravenous injections of proteins. Various theories, including the activation of leukocytes, the stimulation of antibody formation, the mobilization of enzymes or the increase in permeability of cell membranes, have been advanced to explain the reaction, but thus far no satisfying explanation has been established.

The lack of a scientific explanation of the effects produced by the injection of foreign protein, however, has not deterred its widespread employment in the treatment of disease, and reports have been made of the results of its use in almost all infectious diseases. These reports have been sometimes favorable, sometimes unfavorable; but, as Miller says [2] in his survey of clinical results, "In those diseases in which the best results have been obtained, only a certain percentage of cases can be said to be cured or even improved." Later in discussing typhoid fever he says, "Further clinical observations are necessary before it can be definitely determined that this method of treatment should be generally adopted." And concerning the use of foreign protein injections in sepsis, "At present it can be said only that there is some suggestive but no convincing evidence that certain forms of sepsis may be benefited by this treatment."

It is thus evident that while striking clinical changes, sometimes to the apparent profit of the patient—but sometimes decidedly otherwise—may follow the injection of foreign proteins, favorable results cannot be expected to occur regularly. It is generally agreed that the method still lacks the requisite amount of carefully controlled observations which would entitle it to acceptance as an approved procedure for general use. However, any procedure which offers even a limited possibility of usefulness either for laboratory investigation or therapy deserves a hearing. For this reason the Council on Pharmacy and Chemistry arranged for the series of articles appearing in this issue of The Journal [3] to summarize what has been learned in the treatment of disease by nonspecific methods. A careful reading will convince the reader of the incompleteness of our knowledge. It should, indeed, leave him in doubt as to the propriety of using foreign proteins in infectious disease, except under experimental conditions, until it can be shown that their effects are more than temporary, and that their use is unattended by injury, either immediate or remote, to the patient.

Considering the subject in all its aspects, most serious of all is the attempt of commercial pharmaceutical houses, to push the use of alleged specific methods of treatment, which, the thinking physician will at once realize, are actually methods of inducing protein shock. Research with such products in laboratories and hospitals under suitable control is a far different matter from indiscriminate use in general practice.

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[1] Petersen, W. F.: The Nonspecific Reaction, this issue, p. 312.

[2] Miller, J. L.: Foreign Protein Therapy in the Acute Infections, this issue, p. 308.

[3] Biologic Therapy, special articles, this issue, p. 308.

Current Comment

IN AN AGE OF SPECIALIZATION

Huxley once said that what people call applied science is nothing but the application of pure science to a particular class of problems. This statement will bear frequent reiteration at a time when many students of medicine are seeking some short cut to the post of "expert" or "specialist" in a branch of the healing art. The history of science and of medicine shows many instances of the far reaching importance of pure science in giving the impulse to developments that have opened up new fields of diagnosis or practice. We are at present in danger in many cases of too great haste toward the practical goal of so-called expert knowledge, overlooking the long path of fundamental training that ought to be traversed by those who desire to apply themselves to highly specialized pursuits. Lord Moulton has remarked, in emphasizing the importance of the fundamental sciences and experimental research for the problems of the industrial arts, that nowadays the game has to be stalked from long distances and often by circuitous routes. It is no longer possible to walk directly up to it. The same allusion may be made in the domain of medicine. Occasionally, new specialties may arise by chance discoveries. As Cushing [1] has pointed out in a recent lecture, the diseases incidental to a novel occupation like aviation; the introduction into the clinic of a new discovery like Wassermann's reaction, or Roentgen's ray; a new instrument of precision like the calorimeter—such things as these will make a succession for all time of unlooked for opportunities for us and our followers in medicine to engage in new endeavors under novel conditions. For the most part, however, one can rarely be better informed or more skilful in some special field without the willingness, consciously or unconsciously, to build upon the foundation of fundamentally stable, tested scientific fact. Short cuts, Cushing truly warns, to specialization, without thorough preparation in the fundamentals, make incompetent if not dangerous practitioners, and so long as this is permitted within the profession itself we should be less intolerant of those who have smuggled themselves into the tree with no medical preparation whatsoever—the osteopath perched insecurely on a limb propped by massage, and the Christian scientist tip-toe on another feebly supported by psychotherapy. Medicine is daily coming into danger of being mired in a mess of disconnected specialties. At a time when the physician is liable to lose his way in a fog of specialized diagnostic data, he may well pause to reflect on Cushing's sane admonition:

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[1] Cushing, Harvey: The Special Field of Neurological Surgery After Another Interval, Arch. Neurol. & Psychiat. 4: 603 (Dec.) 1920.

> Those who can best take advantage of existing opportunities or can originate others, not only must have had a good general training in clinical medicine and surgery, but must have been thoroughly schooled in the fundamental subjects—in the anatomy, physiology and chemistry of morbid as well as of normal tissues and organs—for without this knowledge any special branch is supported by a root lodged in sand which does not long survive overloading. There is only one way to get a secure seat on any outlying branch and that is by approaching it from the main stem, no matter how wearisome, laborious and time-consuming this process may be.

PSYCHANALYSIS

Recently the minister of a prominent church in Chicago was asked by the head of the social work department to put his approval on the establishment of a lecture course on psychanalysis. Being in doubt, he conferred with several medical men of his congregation. Finally a neurologist settled the matter by saying: "By all means have it. It should prove very popular. Half the congregation is already crazy and the other half is en route to the asylum." The jest was not wholly a jest. People are paying too much attention nowadays to their MINDS. An abnormal interest in the workings of one's own mind produces either an introspective philosopher or a "common nut." When the interest is related more or less distinctly to a concealed but nevertheless obvious fascination for cogitation on things sexual, it has elements of danger. Physicians are beginning to wonder where the normal interest of the layman in these subjects ends and the scope of the psychiatrist commences. We are flooded with books on the subject by lay psychanalysts; the "movies" picture it; the theaters dramatize it; the churches have lectures on it. In the not too distant future this psychanalytic craze, if it continues, will make the medical psychiatrist a very busy man.

THE PRACTICAL, ACCURATE DIAGNOSIS OF CHANCROID

The types of genital ulcers, descriptions of which may be found among the publications of the earliest medical writers, are more varied than is commonly realized. Chancre, an initial lesion of syphilis, is known to have a well defined exciting cause in *Spirochaeta pallida.* In erosive and gangrenous balanitis, a symbiotic occurrence of a vibrio and a spirochete offers an explanation of its etiology. In the simple ulcer most frequently designated as chancroid, the Ducrey-Unna bacillus, a micro-organism stainable with difficulty, and usually contaminated by the presence of other bacteria as the result of secondary infection, is responsible for the epithelial erosion and its immediate consequences. A recent writer[1] has remarked that there is no single condition which receives such careless attention as do simple ulcers that occur on the genitalia. Few observers, he adds, realize the importance of an exact diagnosis, especially if the infection is syphilitic. Microscopic examination is called for in every instance. Heretofore the diagnosis of chancroid has usually been reached by exclusion because the Ducrey bacillus is difficult to find and urologists have learned to search for the spirochetes. Recently, however, Teague and Diebert[2] have succeeded in devising a simple cultural procedure for the Ducrey bacillus so that the diagnosis of chancroid can be made in somewhat the same way as has become universal for diphtheria. Suitably prepared tubes of clotted blood are inoculated with pus from the suspected ulcers. The organism responsible for chancroid presently appears, sometimes apparently in pure culture, as characteristic chains of small, gram-negative bacilli. The method is admittedly not entirely new, but as now demonstrated seems to be practicable without interfering in any way with the procedures for the diagnosis of syphilis or with the treatment of the chancroid.

MERITED RECOGNITION OF MEDICAL JOURNALISM IN GREAT BRITAIN

As noted elsewhere in this issue of THE JOURNAL,[3] the list of those on whom New Year honors were conferred by King George includes the names of six physicians, four from Great Britain, one from Ireland and one from Australia. Knighthood for physicians is no new thing; neither is knighthood, or even greater honor, a new thing for journalists. But so far as we know the present list, containing the names of Drs. Squire Sprigge and Dawson Williams, editors, respectively, of the *Lancet* and the *British Medical Journal,* is the first recognition of this kind given to medical journalism. Direct service to the royal family, to the army or navy, to the government, even altruistic scientific investigations, have often been thus rewarded. The service of the medical journalist is of a different kind. The *Lancet* and the *British Medical Journal* have done much to place British medical science in the high position it occupies today. The recognition given to these men, while primarily honoring their work as medical journalists, is also a recognition of the medical profession which these journals represent. We tender to Sir Squire Sprigge and to Sir Dawson Williams our hearty congratulations.

A DIVERSITY OF INTERESTS

Regularly there come to the editorial office of THE JOURNAL about a thousand periodicals a month. There are the purely technical medical journals; the official publications of national medical associations abroad and of state associations at home; the bulletins of district, county and city medical societies; the house organs of pharmaceutical manufacturers; hospital publications, and what not, medical or near medical. The whole reveals a remarkable diversity of interests, not only among different nations and different states, but peculiarly also among different county societies. Here a county society is building its own home; there a society is considering legislation affecting medical cults; here a group is discussing health insurance—perhaps logically and dispassionately; another opposes any social medical legislation, while still another is urging consideration of legislation in behalf of maternity and child welfare; many confine their activities exclusively to scientific programs. Here a lone voice shrieks that the doctors are not sufficiently commercial. And so it goes! How many of these societies—how many of us individually—see beyond our own limited circle? How many of us have sufficiently broad and open minds to subordinate our own interests in order to consider what is best for mankind as a whole? We wonder.

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[1] Corbus, B. C., in Cabot, Hugh: Modern Urology, Philadelphia, Lea & Febiger 1: 281, 1918.

[2] Teague, O., and Deibert, O.: The Value of the Cultural Method in the Diagnosis of Chancroid, J. Urol. 4: 543 (Dec.) 1920.

[3] Foreign News, p. 322.

"BIOLOGIC THERAPY"

In this issue appears the closing instalment of the series of articles on biologic therapy. The various problems, the contradictory opinions and the commercialization of this form of therapy induced the Council on Pharmacy and Chemistry to appoint a committee to prepare and publish an authoritative review of the subject. The object of the series has been to present to physicians concise, authoritative statements concerning indications and contraindications, methods of administration, dosage, value and possible dangers of serums, vaccines and nonspecific proteins in the treatment of infectious diseases. It represents an inventory of what our stock on hand really is worth. Like any other good inventory, the data will be worth looking over from time to time during the coming year. They will also furnish a basis for comparison with future inventories. For this reason, the series is made available in pamphlet form.

Association News

THE BOSTON SESSION

Arrangements for Reunions and Similar Social Groups

The Local Committee on Arrangements for the annual session of the American Medical Association to be held in Boston, June 6-10, announces that it will gladly cooperate with those who want to arrange for meetings of special groups of physicians during the coming annual session.

Any who may be interested in arranging for reunions of medical officers who served during the World War, for class meetings, for alumni reunions or for other similar social functions, are requested to write to Dr. Beth Vincent, chairman of the Subcommittee on Reunions, addressing him at the central office of the Local Committee on Arrangements, Boston Medical Library, 8 The Fenway, Boston 17, Mass.

Test of Functional Capacity of the Liver.—Widal, Abrami and Iancovesco recently reported that abnormal conditions in the liver can be detected by the *crise hémoclasique* which develops after a protein-rich meal when the liver is incapable of transforming the proteins which reach it from the food. As the liver is unable to prevent the passage into the circulation of the more or less unmodified proteins, the latter entering the blood stream cause at once destruction of erythrocytes. This transient attack of digestive hemoclasis is easily recognized, and it testifies to impairment of liver functioning of which it may be possibly the first and for a time the only sign. It was described in full detail on page 275.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Public Hospital at Sheffield.—The county commissioners of Colbert County have appropriated $2,000 annually, and the Sheffield city commissioners $1,000 annually, for the support of a joint city and county hospital.

Health Department Laboratory Reopened.—The joint city and county laboratory at Anniston city hall has been reopened after a lapse of more than six months, and Dr. B. F. Alexander has been named bacteriologist.

CALIFORNIA

Popular Medical Lectures.—A course of popular medical lectures, under the auspices of the Stanford University Medical School, was initiated, January 14, at Lane Hall, San Francisco, by Dr. William Palmer Lucas, who spoke on the "Relation of the Doctor to Social Work." The lectures will be given on alternate Friday evenings.

Tuberculosis Sanatorium Opened.—The Olive View Sanitarium, 4 miles north of San Fernando, which will be operated as a ward of the Los Angeles County Hospital, is ready for the reception of patients. Only adult tuberculous patients in the early stages of the disease and ambulatory cases which are considered amenable to arrest will be accepted.

Hospital News.—The California Hospital at Los Angeles has been transferred to the Lutheran Hospital Society.——The Oroville Hospital, which has been under construction for some months, was opened to the public early in January.——The board of supervisors of Weimar Hospital, a tuberculosis institution maintained by eleven counties, has requested the state legislature to take over and operate the institution as a state hospital.——Plans are under way for the construction of an additional building for the tuberculosis hospital maintained in Springville by Tulane and Kings counties.——Dr. Adelbert C. Mathews has been named superintendent of the Napa State Hospital to succeed Dr. Andrew W. Hoisholt, deceased.

COLORADO

Tuberculosis Lecture.—Dr. Harry J. Corper, Denver, delivered a lecture, January 25, before the Solly Tuberculosis Society of Colorado Springs on the history and experimental therapy of tuberculosis.

Medical Chautauqua.—During the month of January a public medical chautauqua has been given at Pueblo, under the auspices of the Seventh Day Adventists. Physicians of Pueblo, Colorado Springs and contiguous places delivered lectures on popular medical subjects and health topics, while graduate nurses gave practical demonstrations of the principles of home nursing.

Honor to Dr. Hubert Work.—The Medical Society of the City and County of Denver has appointed a committee to plan a meeting in appreciation of Dr. Hubert Work, Pueblo, the president-elect of the American Medical Association. The tentative program proposes that a meeting be held during the spring months to which each component county society shall be asked to send delegates, including in the delegation when practicable the secretary of the society. This will make it possible to arrange at the same time and place a conference of the county society secretaries.

CONNECTICUT

New Hospital.—A new hospital with accommodations for thirty-five patients has been established at 669 Farmington Avenue, West Hartford. The institution is known as the Prospect Hospital.

University Changes.—Prof. Russell H. Chittenden has resigned his position as chairman of the department of physiology, physiologic chemistry and bacteriology of Yale University Medical School and has been succeeded by Prof. Lafayette B. Mendel.

Yale Alumni Celebration.—Special exercises, including exhibits and demonstrations in the laboratories, medical and surgical clinics, and a clinicopathologic conference, will mark the celebration of alumni day at the Yale Medical School, February 22. A luncheon will be given at the New Haven Hospital and this will be followed by a meeting of the executive committee of the alumni association with the alumni. Graduates of the medical department and other departments of the university and physicians interested in the school work are invited to attend the exercises.

DISTRICT OF COLUMBIA

Headquarters of Medical Society.—The new home of the Medical Society of the District of Columbia, located at 1718 M Street N.W., constructed of Indiana limestone, is one of the most artistic structures in the city. Its architecture is Italian Romanesque, in accord with the architectural type of federal buildings. The auditorium seats nearly 500. On the second floor there will be a library. As previously noted in these pages, the building was dedicated, January 12. The two formal addresses on that occasion were delivered by Dr. William Gerry Morgan, the retiring president of the society, and Dr. Charles W. Richardson, a member of the Board of Trustees of the American Medical Association. Since it was chartered in 1817, excepting for a short period during the Civil War and a short time during the World War, the society has held a meeting each week. The society held the first meeting in its new home, January 19, at which a symposium on neuroses was presented.

FLORIDA

Personal.—Dr. Ralph N. Green, whose appointment as captain in the Medical Corps, U. S. Army, was recently announced, has declined the appointment and will continue in his position as state health officer.

New Hospitals Dedicated.—The new Faith Hospital at St. Petersburg, erected at a cost of $75,000 and having accommodations for forty patients, was recently opened to the public. Attending physicians and surgeons must be members of the Penellas County Medical Society.——The Flagler Hospital, St. Augustine, was dedicated and formally opened, January 6, by ceremonies attended by thousands of citizens of St. Augustine. The hospital was constructed at a cost of more than $250,000.

GEORGIA

New Tri-County Society.—Physicians residing in the counties of Treutlen, Montgomery and Toombs recently met at Soperton and organized the Tri-County Medical Association. Dr. Ira E. Aaron, Lyons, was elected president, and Dr. James E. Hunt, Mount Vernon, secretary and treasurer.

County Reorganizes Health Service.—Hall County has voted to adopt the Ellis Health Law and has reorganized its health service under provisions of the act. Dr. Bron D. Blackwelder, formerly commissioner of health of Troop County, has been named commissioner of health of Hall County.

IDAHO

Fined for Illegal Practice.—It is reported that B. Goldberg, a vendor of proprietary medicines of Twin Falls, was recently found guilty by a jury in the district court of practicing medicine in violation of the state medical practice law. It was alleged that Goldberg had provided a woman with remedies and had given her treatment for neuralgia, for which he charged $40, including a fee of $10 for treatment.

ILLINOIS

Government Water Analysis Station.—The U. S. Public Health Service contemplates the erection at Peoria of a laboratory substation for analysis of waters of the Illinois River and other streams within the state. The site for the new station has not been chosen, but it is anticipated that it will be somewhere near the Union Station, as the water for analysis must be brought in tank cars.

Personal.—Dr. Ernest C. White, Springfield, member of the division of social hygiene of the state department of health, has been making a tour of the towns of Tuscola, Clinton, Quincy, Roodhouse, Danville, Okawville, Murphysboro and Benton for the purpose of delivering illustrated lectures on the diagnosis and treatment of syphilis, before meetings of the organized medical profession.——Dr. Frank P. Stedem, Saybrook, was severely injured in an accident at a crossing of the Lake Erie and Western Railroad, January 12. Both feet were so badly crushed that amputation was necessary.——Dr. Samuel E. Parr, has been elected physician of LaSalle County to fill the unexpired term of Dr. Albert J. Roberts, resigned.

Chicago

Action Withdrawn.—It is reported that the Illinois prohibition officers' charges against Dr. E. P. Murdock and Dr. Eldorado Scott, previously noted in these pages, were withdrawn without prejudice.

Joint Tuberculosis Meeting.—At a joint meeting of the Chicago Medical Society and the Robert Koch Society, held, January 26, Dr. Henry R. M. Landis, Philadelphia, delivered an address on his observations on tuberculosis as revealed in investigations at the Henry Phipps Institute. Before the meeting an informal dinner was given at the University Club by members of the societies in honor of Dr. Landis.

Henry Baird Favill Memorial.—A committee has been appointed to undertake a campaign for the collection of a fund of $500,000 for the endowment of two memorials to the work of the late Dr. Henry Baird Favill. It is proposed to create a Henry Baird Favill Memorial Laboratory, with fellowship endowments, in St. Luke's Hospital, to the interests of which Dr. Favill devoted many years of special effort. For this purpose a fund of $250,000 is solicited. A like sum is desired for the establishment of the Henry Baird Favill Foundation, the income of which shall be used in perpetuity for the promotion of public instruction in health and hygiene. Mr. Edgar A. Bancroft is chairman, and Mr. N. D. Sibley is secretary of the committee. The Merchants Loan and Trust Company, 112 West Adams Street, will act as treasurer of the fund.

INDIANA

Medical Registration Board.—Dr. William A. Spurgeon, Muncie, was recently elected president of the state board of registration and examination, and Dr. William T. Gott, Crawfordsville, was reelected secretary.

Memorial Tablet to Physician.—A tablet to the memory of Major Paul B. Coble, who died in military service in the World War, was unveiled in the medical school building of Indiana University, January 13. The Paul B. Coble post of the American Legion participated in the exercises.

KENTUCKY

Personal.—Dr. James Y. McCullough has been appointed physician of Jefferson County.

Enforcement of Narcotic Law.—According to a report of the narcotic inspector for the eastern district of Kentucky, the number of drug addicts in Kentucky has decreased 75 per cent. in the last five years. As an example of the decrease there was cited the case of two physicians who, according to government records, had under treatment five years ago 114 drug habitues and now have only four such patients. Approximately 200 violations of the Harrison Narcotic Law were reported in Kentucky in 1920.

MARYLAND

Personal.—Dr. Robert P. Bay has been appointed a member of the board of supervisors of the city charities of Baltimore, to succeed Dr. J. Whitridge Williams, resigned.——Dr. Martin F. Sloan, Baltimore, has resigned his position as superintendent of the Eudowood Sanitarium, Towson.

Physicians Honored by Friends.—On December 29, the medical staff and alumni association of the training school of the Franklin Square Hospital presented to the institution a life size portrait of Dr. Joseph H. Branham, at one time president and senior surgeon of the hospital. The presentation address was made by Dr. Bernard P. Muse, and Dr. John B. Schwatka accepted the portrait on behalf of the institution.

Society Meetings.—At a meeting of the section on ophthalmology of the Baltimore City Medical Society, held at the Faculty Building, January 19, Drs. C. E. Ferree and G. Rand, professors of experimental psychology at Bryn Mawr College, gave illustrated lectures on instruments used in the estimation of visual acuity and color perception.——At the Johns Hopkins University School of Hygiene and Public Health, January 24, Sir Arthur Newsholme, resident lecturer in public health administration, delivered an address on "National Changes and Longevity."

NEW MEXICO

County Society Disapproves Free Clinic.—At the regular January meeting of the Bernalillo County Medical Association a resolution was adopted opposing the establishment in Albuquerque of a clinic for the free treatment of charity patients. It was maintained that free treatment should be given through charity organizations, just as food and clothing are dispensed to indigents, and since Albuquerque employs city and county physicians whose services are free to all needy persons there is no necessity for a free clinic. Physicians of Albuquerque have always been ready to render their services free to any person unable to pay for medical or surgical treatment.

NEW YORK

Medical College Granted Time for Building.—The Albany County board of supervisors has granted the Albany Medical College an extension of five years, until June, 1926, to carry out an agreement to erect a new college building on the site deeded to the college by the county in exchange for a plot once owned by the college.

Abolition of Narcotic Commission Recommended.—Governor Miller has recommended to the legislature that the narcotic control commission be abolished and that its work be placed under the jurisdiction of the state department of health. A number of medical societies throughout the state have endorsed the governor's recommendation. It was maintained that the commission was an unnecessary expense to the public and that most of its work was being done by the federal government.

New York City

Academy Increases Membership.—Resolutions were recently adopted by the New York Academy of Medicine changing its by-laws to provide for an increase in its resident membership from 1,300 to 1,350.

Fund for Study of Cardiac Problems.—The Burke Foundation has founded the Sturgis Research Fund, endowed by its president, Mr. Frank K. Sturgis. The income of the fund will be used for research in cardiac diseases and allied problems.

New Jewish Memorial Hospital.—Architects have been commissioned to draw plans for converting the buildings of the Inwood Homes for Girls, recently purchased by the Jewish Memorial Hospital, into a complete general hospital, at an estimated cost of $150,000.

Harvey Lectures.— Sir Arthur Newsholme, resident lecturer at the School of Hygiene and Public Health, Johns Hopkins University, will deliver the sixth Harvey Society Lecture at the New York Academy of Medicine, January 29, on "National Changes in Health and Longevity."

Criminal Conviction Upheld.—It is reported that the conviction of Dr. Julius Hammer for manslaughter for performing a criminal operation which caused the death of a woman in June, 1919, was upheld by the appellate division of the supreme court, January 14. Dr. Hammer was sentenced for from three and one-half to fifteen years in prison.

Survey of Cripples.—The New York Committe on After Care of Infantile Paralysis Cases has published the report of one of its special committees dealing with a survey of the cripples. The expenses of the survey were met by contributions from various organizations, associations and hospitals in New York City, supplementing a liberal gift from the Rockefeller Foundation. Under the direction of Mr. Henry C. Wright, it was sought to ascertain the number of persons crippled through different causes, the nature of the treatment given them, and the principal causes which produce cripples. Six typical districts, with an aggregate population of 110,000, were selected for the field canvass. The work of all organizations, hospitals and institutions dealing with cripples was examined to determine its character and scope. The report makes recommendations regarding the reduction of factors that produce cripples and the training of cripples to be self-supporting, and discusses the facilities in the city for meeting these requirements.

NORTH CAROLINA

Personal.—Dr. Guy S. Kirby, Marion, has been elected health officer and Dr. John B. Johnson, Old Fort, quarantine officer of McDowell County.

Hospital Notes.—In a special message to the legislature, Governor Bickett has requested the establishment of a state tuberculosis sanatorium for negroes. The measure was repeatedly recommended by the state board of health.——Two additional wings have been added to the Anson Sanatorium, Wadesboro, increasing the capacity of the hospital by twenty rooms.——It has been announced that the Baptist State Hospital will be erected at Winston-Salem, on a site in Ardmore comprising 13 acres. About $100,000 is available for immediate use, and construction will be begun early in the spring.

OHIO

Health Officers Appointed.—Dr. Harold H. Biggs, Wadsworth, has been appointed health officer of Medina County. ——Dr. H. L. S. Hinkley, Greenspring, has been reappointed health officer of Seneca County for a term of two years.—— Dr. Fred W. Murray, Summerfield, has been named full-time health officer of Noble County.

Academy Acts on Health Legislation.—The Academy of Medicine of Cincinnati, at its December meeting, adopted a resolution endorsing the underlying purposes of the Sheppard Towner Maternity Bill, but urged that it be amended so that the administration of the act be placed under the U. S. Public Health Service instead of under a newly organized federal board. The academy also urged the establishment of a department of public health and public welfare with an executive officer as a member of the President's cabinet.

OREGON

State Board Appointments.—Drs. Charles J. Smith, Portland, George E. Houck, Roseburg, and John H. Rosenberg, Prineville, have been appointed members of the state board of health.——Dr. James K. Locke, Portland, has been appointed a member of the state board of medical examiners to fill the unexpired term of Dr. Frank W. Wood, resigned.

PENNSYLVANIA

Hospital Opened.—The Elizabeth Steele Magee Hospital, Pittsburgh, has been reopened as the Woman's General Hospital for gynecologic and obstetric cases. The medical staff will be furnished by the University of Pittsburgh which will utilize the hospital for teaching purposes in connection with its medical school. The hospital accommodates 140 adult patients and eighty infants.

Dauphin County Health News.—The state department of health will supervise the activities of the health centers which will be established throughout Dauphin County under auspices of local committees at Linglestown, Hummelstown, Williamstown, Lykens, Wiconisco, Gratz, Hershey, Progress, Dauphin and Penbrook.——Dr. Daniel E. Hottenstein, Millersburg, has been appointed medical inspector for Dauphin County.

Philadelphia

Personal.—Dr. Thomas H. Fenton is in the Jefferson Hospital suffering from a bullet wound of the jaw, received in an attack by two highwaymen.

Phipps Institute Physical Examination.—With a view to developing an organization for the examination of workmen in industrial plants, the Phipps Institute has begun an examination of a picked group of men—policemen and firemen—that have already passed a rigid physical examination before entering the city service. Of 4,183 policemen examined about 100 had diseases of the heart, fifty-four had disease of the lungs, fifty-five diabetes, and thirty-one nephritis. Of the total number of policemen examined 338 had serious diseases and 496 had questionable defects. Among the firemen 3.7 per cent. had major defects and 5.6 per cent. were doubtful. The examinations were made under the supervision of Drs. H. R. M. Landis and F. A. Craig of the Henry Phipps Institute, and Dr. Hubley R. Owens, chief surgeon of the Department of Public Safety.

Honor to Dr. Keen.—The dinner and reception given by the medical professon of Philadelphia to Dr. William Williams Keen, at the Bellevue Stratford Hotel, January 20, in honor of his eighty-fourth birthday, was attended by 600 physicians and friends. Dr. George de Schweinitz was the toastmaster, and the speakers included Dr. William H. Welch, Baltimore, Dr. J. Chalmers DaCosta, Philadelphia, and Mr. David Jayne Hill. Major-Gen. Merritte W. Ireland, Surgeon-General, U. S. Army, presented a specially bound volume containing addresses and letters as a tribute to Dr. Keen, and Dr. William J. Taylor of the College of Physicians, presented a life size bust of Dr. Keen in army uniform, by Samuel Murray. Dr. Keen in responding gave a short sketch of his life and outlined the changes that had taken place in medicine and surgery during these many years.

SOUTH CAROLINA

Malaria Prevention Work.—Active work on the drainage of lowlands in and around the town of Andrews and Georgetown County with a view to an organized effort at malaria prevention will be begun within a short time. Dr. L. M.

Fisher, U. S. P. H. S., is in charge of the work, which is directed from the headquarters in Columbia. The funds are furnished jointly by the citizens of Andrews, the Rockefeller Foundation and the South Carolina State Board of Health.

TENNESSEE

Hospital Transferred.—The National Grand United Order of Wise Men and Women of the World, a negro fraternal organization, has purchased St. Anthony's Hospital in Memphis for the sum of $11,000. Dr. Roy B. Granberry has been appointed superintendent, and Dr. Mabel S. Fugitt, assistant superintendent.

New President of Meharry College.—Dr. John J. Mullowney, professor of science at Girard College, Philadelphia, has been appointed president of the Meharry Medical and Dental Colleges, Nashville, to succeed Dr. J. W. Hubbard, resigned because of ill health. Meharry College will shortly come into the endowment of $500,000 which was contributed for an extension of its educational work.

UTAH

Personal.—Dr. Mabel A. Genung, San Francisco, has been appointed a member of the state bureau of venereal disease control.——Dr. Alfred Cyril Callister, Salt Lake City, has been appointed Salt Lake County physician to succeed Dr. Thomas J. Howells, resigned.

WISCONSIN

Personal.—Dr. Walter W. Armstrong has resigned his position as health commissioner of the city of La Crosse.

Society Elections.—The Milwaukee Medical Society, at its meeting, January 11, elected the following officers for the ensuing year: president, Dr. Louis M. Warfield; vice presidents, Drs. Robert W. Blumenthal and Rock Slyster; secretary, Dr. Lawrence G. Sykes, and treasurer, Dr. Joseph P. McMahon.

County Sanatorium Completed.—The Jefferson County Sanatorium for the treatment of tuberculosis has been completed and accepted by the county supervisors. It is probable that ex-soldiers and patients from other Wisconsin counties will be accepted for treatment if the facilities of the sanatorium are not fully utilized by residents of the county.

CANADA

Death of Philanthropist.—Sir William Gage, originator of the King Edward Memorial Fund for Consumptives and chairman of the Toronto Free Hospital for Consumptives and of the Queen Mary Hospital for Consumptive Children, died in Toronto, January 14, aged 71.

Sudden Deaths from Arsenic Preparation.—Two distressing fatal accidents recently occurred on the same day in the practice of a well-known physician of Toronto following the injection of an arsenic product manufactured in Toronto. A coroner's jury is making a special investigation of the occurrence.

Hospital News.—A number of additions were made in 1920 to the Mountain Sanitarium, Hamilton, Ont. A nurses' home costing $85,000, two residences for the staff physicians, sun rooms, and a preventorium ward for special cases were erected.——The Board of Control, Toronto, has granted $90,000 to the Hospital for Sick Children to cover the deficit during 1920.——It is planned to erect a new Reception Hospital in Toronto, near the General Hospital, on a site donated by the University of Toronto with which, it has been suggested, the hospital shall be affiliated for teaching purposes.

GENERAL

Plague Fund Requested.—The U. S. Public Health Service has requested Congress to appropriate a contingent fund of $355,000 for the control of bubonic plague at the ports of Boston, New York, and other points on the Atlantic Coast.

Woman's Health Foundation Meeting.—The Woman's Foundation for Health, which was organized at the International Woman Physicians' Conference held early in 1919, held its second annual meeting in New York, January 6. Fourteen women's national organizations were represented at the meeting.

Army Hospital Transfer Proposed.—A bill has been introduced in the United States Senate by Senator Joseph Robinson authorizing the transfer of Fort Logan H. Roots, near Little Rock, Ark., from the War Department to the U. S. Public Health Service. The bill proposes to make the hospital available for the treatment of discharged veterans of the World War.

Copyright Protection of Proprietary Remedy Denied.—It is reported that under a decree issued by Federal Judge Dietrich, in New York the Albany Chemical Company and its officers have been ordered to withdraw all applications for the issuance of a trade mark or other registration of the word "aspirin," whether used singly or in association with other words. The action was instituted by the federal government which alleged that the defendants had falsely claimed that no other person or corporation had the right to use the name.

Committee Seeks Data on Diphtheria Immunization.—As a result of informal discussions of the subject of active immunization against diphtheria during the Health and Sanitation Exhibition in Chicago, Nov. 24-28, 1920, a committee was appointed to investigate the efficacy of the toxin-antitoxin mixture, with special reference to untoward results. The committee, which consists of Drs. Hugh O. Jones, George H. Weaver and Abraham Levinson, is desirous of obtaining first hand information regarding any ill effects following the use of toxin-antitoxin mixtures for active immunization. Communications should be addressed to Dr. Hugh O. Jones, City Department of Health, Chicago.

The Bowdoin Medical School.—A few months ago in the course of a survey of all medical colleges, a reinspection of the Bowdoin Medical School was made by a representative of the Council on Medical Education and Hospitals of the American Medical Association. As usual, following such inspections, a frank statement of the conditions found was furnished to the president of Bowdoin College and the officers of the medical school. Recently, President Kenneth C. M. Sills, following a meeting with his trustees and overseers, issued the following statement:

> By action of the boards of trustees and overseers of Bowdoin College the Bowdoin Medical School will be finally closed as a department of Bowdoin College at the end of the current year, June, 1921, unless by that time some way shall be found to meet the requirements necessary to keep the school in Class A of American medical colleges. It has been conservatively estimated that for this purpose there must be an addition to the resources of the school of $25,000 for immediate equipment of laboratories and of at least $50,000 yearly income for more teachers and for upkeep. Unfortunately at the present time the college sees no way of procuring such funds; the need of such an endowment has often been placed before the people of Maine, but the appeals have never received an adequate response.
>
> The college will not apply for state aid for the school. But if the citizens of Maine and the friends of medical education who believe that the maintenance of a medical school is properly a state function, desire to have the medical school re-established as a state institution under state control and adequately supported by the state, Bowdoin College will be glad to give all assistance possible to that end and would doubtless offer for such a purpose for temporary use, if desired, such part of the buildings and apparatus of the college as might be available.
>
> The action of the governing boards of the college . . . was taken with deep regret and for financial reasons. In 1820 the Maine Medical School was established by the State of Maine and placed "under the control, superintendence and direction of the president and trustees and overseers of Bowdoin College." For over a hundred years the college has carried on this trust to the best of its ability and has recently assumed cheerfully the deficits of the school which in the aggregate amount to over $35,000. If it were possible to continue the school in Class A without greatly impairing the funds of the college, no doubt the college would do so gladly. But it has not the funds that will yield the necessary $50,000 annual additional income. The trustees and overseers of the college believe that there is a place for a medical school in Maine and are hopeful that the people of the state, despite the great demands on the incoming legislature, will establish such a school as a state institution, around which all the medical and public health work of the state would be centered.

Senate Passes Sheppard-Towner Bill.—The Sheppard-Towner Bill providing for cooperation between state and federal governments for the care of maternity and infancy has passed in the Senate. As the bill was considerably amended prior to its passage, the more important sections are given verbatim, as they now stand.

Section 1 provides "That there is hereby authorized to be appropriated annually out of any money in the Treasury not otherwise appropriated, the sums authorized in Section 2 of this Act, to be paid to the several states for the purpose of cooperating with the state in promoting the care of maternity and infancy, and the sum authorized in Section 5 for the use of the Children's Bureau, for the promotion of maternal and infant hygiene, for the administration of this Act, for the purpose of making such studies, investigations, and reports as will further the efficient administration of this Act."

Section 2 authorizes an annual appropriation of $480,000, $10,000 to be paid to each state for administrative expenses; a further appropriation of $1,000,000 for the fiscal year ending June 30, 1922, and a permanent annual appropriation of $1,480,000 for apportionment among the states in proportion to their population.

Section 3 provides that "The Children's Bureau shall consist of the Secretary of Labor, who shall be chairman; the chief of the Children's Bureau, who shall be the executive officer; the Surgeon-General of the United States Public Health Service, and the United States Commissioner of Education. The Children's Bureau shall have charge of all matters concerning the administration of this Act, and shall have power to cooperate with the State agencies authorized to carry out the provisions of this Act. It shall be the duty of said Children's Bureau to make or cause to have made such studies, investigations and reports as will promote the efficient administration of this Act."

Section 4 provides that cooperation shall be carried on under the direction of the Child Hygiene division of the state department of health, where one exists, and that the Children's Bureau may recommend to the state agencies the appointment of advisory committees, both state and local, and that at least half the membership of these committees shall be women.

After the usual provisions for organization, personnel, equipment, etc., Section 8 provides that any state desiring to avail itself of the benefits of the Act shall submit to the Children's Bureau detailed plans for administration and for instruction in the hygiene of maternity and of infancy through public health nurses, consultation centers and other suitable methods.

Section 9 provides for popular nontechnical lectures to be given as a University Extension Course by the various educational institutions. Section 14 forbids the use of any money appropriated under the Act for the purchase or erection of buildings or the purchase or rental of any lands.

LATIN AMERICA

Memorial Tablet for Sampaio.—A bronze tablet was recently unveiled in the medical chemistry laboratory of the University of Rio de Janeiro to commemorate the work there of Professor Diogenes Sampaio who died in 1918. He was influential in the organization of the laboratory which is henceforth to bear his name.

Personal.—Dr. Rafael Calvo C. of Colombia is now visiting in this country.——Dr. A. Hamilton Rice of Harvard University has just returned from a trip to South America.——Dr. Francisco Domínguez of Havana, Cuba, is visiting in Europe. Dr. Domínguez has devoted special attention to radiology, a subject on which he has published several books.

Next Pan-American Sanitary Congress at Havana.—At the closing session of the sixth sanitary conference of the American republics, held at Montevideo in December, it was decided to hold the seventh conference at Havana in 1923. A resolution providing for the reorganization of the international sanitary bureau at Washington, D. C., was approved.

Medical Society of Chile.—According to the last annual report of the president of the Medical Association of Chile its present membership is 185. The society has been in existence nine years and has shown a steady increase, both in the number of members and its activities. The president of the association is Dr. E. González Cortés and its official organ, the *Revista Médica de Chile* is edited by Dr. C. Charlin C. and E. Prado Tagle.

FOREIGN

Smallpox in Spain.—Our Spanish exchanges devote much attention to the prevalence of smallpox throughout Spain, and especially in the provinces of Valladolid, Almería and Guipúzcoa. At Valladolid from August 1 to December 7, there were reported about 300 cases with forty-four deaths.

Neurologists Organize in Norway.—The Norsk neurologisk Forening was recently founded at Christiania with Dr. Monrad-Krohn, president, and Dr. H. Saethre, secretary. It is proposed to hold quarterly meetings of the society, membership in which is open to all who are interested in neurology.

Far Eastern Association of Tropical Medicine.—It is announced that the next annual meeting of this association will be held at Weltevreden, Java, in August, 1921. The Weltevreden physicians forming the organization committee for the meeting are planning to issue as a souvenir a complete edition of the works of Bonthuis, in Latin and English. The edition, limited to 500 copies, is expected to cost 15,000 florins, and the Netherlands Academy of Sciences has been appealed to for financial aid as well as for scientific cooperation in the meeting.

Memorial to Sir Victor Horsley.—Friends and former colleagues of the late Sir Victor Horsley have taken steps to commemorate his services to science by the foundation of a lectureship or scholarship bearing his name. A general committee has been appointed under the chairmanship of Sir Charles Ballance to raise the necessary fund. Subscriptions may be sent to the honorary treasurers, Sir Frederick Mott, 25, Nottingham Place, W. 1, and Dr. H. H. Tooth, 34, Harley Street, W. 1, London, or to the honorary secretaries, Sir W. Arbuthnot Lane, 21, Cavendish Square, W. 1, London, and Hon. Edward J. Domville, Symondsbury, Bridport.

Knighthood Conferred on Physicians.—In the list of New Year honors conferred by the king of England appear the names of four medical men: Dr. William Hodgson, mayor of Crewe, known chiefly for services to scientific education in Cheshire; Dr. Charles Ryall, senior surgeon to the Cancer and Bolingbroke hospitals and author of numerous works on cancer; Dr. Squire Sprigge, editor of the *Lancet*, on which he has served since 1892, author of "Methods of Publishing" in 1890, "Life and Times of Thomas Wakley" in 1896, and "Odd Issues" in 1898, also editor of other notable works; and Dr. Dawson Williams, editor of the *British Medical Journal* since 1898, and author of "Medical Diseases of Infancy and Childhood" in 1898. Knighthood was also conferred on Dr. E. Coey Bigger, chairman of the Irish Public Health Council, and Dr. Alexander S. Hood of Sydney, Australia.

Government Services

MEDICAL OFFICERS, UNITED STATES NAVY, RELIEVED FROM ACTIVE DUTY

CONNECTICUT

Hartford—Spillane, B.

NEW YORK

Brooklyn—Daly, J. F.
New York—Weston, A. T.
West Chazy—Stiles, H. R.

GEORGIA

Augusta—Cremens, J. F.

VIRGINIA

Portsmouth—Holladay, G. G.
Sutherland—Spangler, P. C.

Special Classification of Medical Officers

In the near future Surgeon-General Ireland will issue a questionnaire designed to elicit information regarding the capabilities, aspirations and preferences of each officer in the service. While in many instances it will not be immediately practicable to place officers in the work and station that they especially desire, the information obtained through the questionnaire will furnish detailed data as to the aims and qualifications of every commissioned medical officer in the Army.

Numerical Strength of the Army Medical Corps

While pending legislation in Congress aims to fix the size of the Army at 175,000 men, it is virtually assured that there will be no reduction in the commissioned personnel of the Medical Corps. The existing law fixes the number of commissioned officers of the Medical Corps in the ratio of "6½ to every thousand men," and while the Army at the time numbers 280,000, the Medical Corps has barely more than 50 per cent. of its maximum allowance of officers. It is clear therefore that, notwithstanding the probability that Congress will reduce the Army by more than 100,000 men, there is no necessity for any material reduction in the number or relative rank of medical officers.

Army Training School for Nurses

The Surgeon-General of the Army has received notice from the board of regents of the University of New York that the Army School of Nursing has been registered as an approved training school for nurses. The Army School of Nursing is conducted in connection with the Walter Reed Hospital, Washington, D. C., and the Letterman General Hospital, San Francisco. The school at San Francisco is considered a branch of the parent institution at Washington and is maintained for the benefit of applicants whose homes are in the West. When the Army Medical School is established on the grounds of the Walter Reed Hospital, the nurses' training school will be organized as one of its departments. There are at present 520 student nurses enrolled in the school, 500 of whom will be graduated next summer following a three years' course of instruction. In addition to the facilities afforded by Army hospitals, arrangements have been made to give the student nurses special instruction in affiliated civil hospitals and welfare institutions.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 3, 1920.

The Prevention of Venereal Disease

The problem of venereal disease continues to be discussed with some heat in the press. The Society for the Prevention of Venereal Disease criticizes the refusal of the ministry of health to grant financial support to the economic policy of the society, which advocates that those who persist in exposing themselves to risk should be taught to purchase, carry and apply a simple disinfectant that has been proved effective in warding off infection. The establishment of numerous disinfection depots to which persons can repair after exposure to risk is an unwarrantable expense, the society considers, in view of the fact that avoidable loss of time is entailed, that the services of a trained attendant are unnecessary, and that the method of application of the disinfectant is extremely simple and easy. The National Council for Combating Venereal Disease, a rival organization which has not the same faith in disinfection as the society and inclines more to moral suasion, has recently obtained from the ministry of health a grant of $40,000 for the purpose of sending missions to the dominions and the colonies on the task of endeavoring to prevent venereal disease by moral rather than medical propaganda. This the society pronounces a waste of public money. Sir George Newman, principal medical officer to the ministry of health, reports that during the year ending March 31, 1919, $1,150,000 was spent on venereal clinics, and the expenditure must have greatly increased since that date. The society holds that such expenditure, together with a large portion of the huge sums spent in the upkeep of asylums, nervous disease hospitals and general hospitals, would be unnecessary if venereal disease was prevented, as it undoubtedly could be, were the economic policy of the society persistently and widely taught. The society affirms that it is prepared to bring conclusive evidence as to: (1) the efficacy of immediate self-disinfection in the male as a prevention of venereal infection and the possibility of almost completely eradicating the disease by this means; (2) the gross inaccuracy of the statistics supplied to the ministry by the war office; (3) the failure of the government, the war office and the ministry of health to organize public education on this subject or carry out any thorough scheme for testing the efficiency of immediate self-disinfection as a preventive of venereal disease, either during the war or since; (4) the increase of venereal disease since the armistice, and its necessary effect on innocent women and children, by increasing sterility, miscarriages and the production of diseased children; (5) the large amount of support for a campaign of education in the principles and practice of the prevention of venereal disease by means of immediate disinfection that is given by organized labor, the medical profession and virtually all who have had personal experience in such methods, and (6) the great financial burden that venereal disease is to the nation. As the society receives no financial help from the government, it is entirely dependent on the public, to whom it appeals for money to carry on its educational campaign.

On the other hand, the National Council for Combating Venereal Diseases reports on the commission sent, with the authority of the colonial office, to study the social conditions and the steps to be taken locally to combat venereal disease in the East. It has had a warm welcome during its journey across Canada. The Canadian Council for Combating Venereal Disease, and the public health authorities, took the opportunity which the presence of the commission afforded to conduct a vigorous campaign of instruction, and to enlist public support throughout the dominion, and the valuable assistance given by the press greatly added to the success of these meetings. A large meeting was held at Toronto, November 8, under the chairmanship of Justice Riddell, and a resolution was passed urging that the Ontario council should be reorganized on the lines of the National Council in Great Britain, so that closer cooperation might be obtained between the government and the provincial and municipal authorities. Branches of the Ontario council are to be formed at Hamilton, Brantford and London, and the Canadian Manufacturers Association and the Trades and Labor Council are to assist the campaign. Prior to the departure of the commission for Hong Kong and other eastern ports, it was able to convene a meeting at Victoria of representatives of virtually every organization in British Columbia, and a committee was formed to assist the Canadian council in attacking venereal diseases as a general health problem.

Medical Secrecy and Panel Patients

The ministry of health has issued a new form of record for panel patients in the form of an envelop which is to follow the patients throughout life from one physician to the next one under whose care he comes. On this envelop is to be recorded all particulars as to the patient, including the disease for which he has been treated. It is contended that these envelops will assist the progress of medicine by revealing the whereabouts of disease and giving to each new physician a picture of his patient's condition. But as these envelops must be shown to medical officers appointed by the ministry and to such other persons as may be appointed for the purpose, and, when the patient moves to a new district, must be sent to the local insurance committee, they have been severely criticized in the press as a violation of professional secrecy. Again, physicians with large practices are often too busy to keep records and employ clerks for the purpose, to whom, necessarily, medical secrets will be open. Suppose a girl has an illegitimate child or a miscarriage: That damning fact will be on record against her ever afterward. Some forms of disease, such as venereal, patients would strongly object to being disclosed to others than the physician who treated them. On the other hand, the desirability from the medical point of view of a complete history of the patient's illness being available by every physician under whose care he or she may come, and also for statistical purposes, cannot be gainsaid. The authorities seem to be somewhat in a dilemma in the matter.

PARIS

(From Our Regular Correspondent)

Dec. 24, 1920.

The Centenary of the Academy of Medicine

The celebration of the centenary of the Academy of Medicine was observed in accordance with the appointed program. Dr. Albert Brochin, whose father was editor of the *Gazette des hôpitaux* (now in its ninety-fourth year), and who has himself, for many years, edited for that journal the transactions of the Academy of Medicine, has just published in it some reminiscences especially interesting at this time. He recalls the fact that the academy did not immediately give certain very important discoveries the hearty welcome they deserved. For example, when Villemin submitted to the academy his discoveries in regard to the virulence and contagiousness of tuberculosis—antedating, as they did, by several years the discoveries of Koch—the assembly remained skeptical, and some time elapsed before the academy appreciated the value of this discovery. It was even worse in the case of Pasteur, who encountered in the Academy of Medicine several members (Jules Guérin, Peter, Depaul) who were implacable opponents. "Who is this chemist who is trying to revolutionize medicine" was the question often heard.

Brochin recalls also the systematic opposition encountered by certain candidates for admission to the academy, mentioning especially the surgeon Péan, who had presented to the academy a series of cases in which he had performed ovariotomy or hysterectomy, with reference to which opinion was divided. Some members of the academy expressed indignation and others admiration. In his first series of cases Péan had presented merely the tumors he had removed. But a certain clique of academy members was so unfavorably disposed toward him that he was accused of presenting the tumors of patients who had not survived the operation. On the advice of his teacher, Nélaton, he presented, at a later meeting, the patients along with the tumors. Some still thought that a scandal was being perpetrated, but Péan persevered and was finally admitted to the academy.

Preferential Milk Tickets

As milk is very scarce in Paris, some have advised reintroducing the custom of preferential milk tickets, procurable on presentation of a physician's certificate and entitling the holders to prior consideration in view of children or sick persons in the family; but the authorities have decided that certificates may be issued, for a definite consideration, only by physicians of the Assistance médicale à domicile. This decision has brought forth vigorous protests from physicians who find themselves thus restricted in the exercise of their profession and placed at a disadvantage as compared with the physicians of the Assistance médicale. It makes it possible for the latter to abuse the privilege in order to secure new clients at the expense of other physicians. The Syndicat des médecins of the department of the Seine, the Syndicat médical of Paris, and certain other professional bodies have lodged a protest with the chairman of the municipal council against the exclusive right accorded to the physicians of the Assistance publique to issue milk certificates.

The Responsibility of Physicians

The civil chamber of the Court of Cassation, the supreme court of France, rendered an interesting decision recently touching upon the responsibility of physicians. A young woman had so much down and hair on her face that she felt disgraced and decided to have them removed. She consulted a physician and he used roentgen-ray treatment, which proved successful so far as the disappearance of the hair was concerned. The young woman, however, had contracted a dermatitis from the roentgen-ray treatment, which, although it healed, left visible marks on the face. By reason of this fact she instituted a damage suit against the physician who had treated her. The court of appeals assessed damages against the defendant in favor of the plaintiff, basing the decision on the statement that roentgenologic treatment may have grave consequences for the patient, even though minute precautions are taken and in spite of the skill of the practitioner, and that, in view of the fact that the physician was not confronted with a disease which he was expected to cure but was only dealing with a simple physical imperfection which he was to get rid of or to conceal, it was a tort justifying an action for damages for the physician to undertake the responsibility of removing down and hair from the face of his client, thereby producing permanent lesions on her face. Responding to the appeal of the defendant, the civil chamber of the supreme court, taking into consideration the fact that the law charges the responsibility for damage caused to others to the account of the one who, through fault, negligence or imprudence, causes the damage, decided that the law applies to all torts whatsoever that any person, irrespective of his position or profession, may commit and which work hardship on others, and that no exceptions may be made in favor of physicians. Therefore, the supreme court decided that the assessment of damages against the defendant was justifiable, and rejected his appeal.

MADRID

(*From Our Regular Correspondent*)

Jan. 5, 1921.

The Malaria Problem in Spain

Malaria is a problem that has caused many troubles in Spain. Not the least has been the appointment by the International Red Cross Association of a commission to study malarial conditions in Spain and perhaps suggest some prophylactic or therapeutic measures. The commission requested, most courteously, permission from the secretary of the interior to carry out its work. This permission was granted immediately. Somebody, however, who ranks the secretary, considered this as a bad precedent and intimated to the secretary his displeasure. The secretary, lacking personal knowledge of the matter, especially as regards its sanitary aspects, although they form such an important part of his department's work, and apparently in complete ignorance of national rights, had nothing to say in defense of his previous action. Therefore, when the commission arrived at Barcelona, it faced so many difficulties that, after remaining some time there, it at last got tired of waiting and returned to Geneva. In the meanwhile, the government, to show that it was doing something, assigned to the antimalaria campaign not the appropriation of 500,000 pesetas ($67,250) which had been promised before, but the appropriation of 150,000 pesetas ($20,175) assigned to combat all infectious diseases. A commission was appointed which was presided over by a prominent scientist and had as its members an official of the Alfonso XIII Infectious Diseases Institute and an engineer. As might have been expected, the first act of the commission was to specify the fees which its members should receive. The protests of the newspapers caused the acceptation of the suggestions of *El Siglo Médico,* which asked that quinin should be distributed freely from drug stores, cigar stores and even the taverns at malaria-infected places. This product was therefore sent to Cáceres, which is apparently the place most infected, and in order to attend to the distribution of the quinin, several quinin distributors have been appointed at rather high salaries.

Practice of Medicine in Spain by Foreigners

Since 1869, all foreigners have enjoyed the privilege of practicing in Spain the professions studied by them at foreign universities without any more restrictions than the bureaucratic ones to which Spaniards themselves are submitted. This generosity, however, has not been reciprocated by the countries who profit most by it. Spanish physicians who have to struggle with the economic conditions, mentioned so often in these letters, have also to compete with the large number of foreign physicians who, we may add, have not always been a credit to the schools where they received their diploma. In addition, entirely too often they have not been very correct in their behavior toward Spanish physicians. The result was that these foreigners brought neither science with them nor a spirit of fellowship; or perhaps they imagined they were not bound to exhibit this toward native physicians of a country which they treat as if it were a colony. Spanish physicians, incensed at this conduct and taking into account that the number of foreign physicians is increasing steadily, succeeded in having the government heed their complaints. A decree has therefore been issued, which substantially provides that the secretaries of education and national welfare can hereafter permit the practice of the professions of medicine, dentistry, civil engineering and mining engineering only to persons who receive their degree in countries which reciprocate with Spain. Besides, in view of the fact that most licenses granted to foreigners to practice their profession in Spain are, according to the terms of the law, only temporary, all present licenses granted to persons who have foreign diplomas will become void as soon as the present license expires. Spanish physicians rejoice over this well justified measure, although there remain some pessimists who now fear that countries having an excess of professionals, such as Germany and especially Austria, may adopt reciprocity laws which will permit them to send to this country their overflow of physicians.

BELGIUM

(From Our Regular Correspondent)

Dec. 31, 1920.

The Regulation of Prostitution

M. Jasper, minister of the interior, has called the attention of all the communal governments to the urgent necessity of waging an effective campaign against the spread of syphilis. He has laid stress on the fact that the best weapon consists in the discovery and sterilization of germ carriers; furthermore, the creation of intercommunal dispensaries giving free treatment should be extended. In this connection he announced that the suppression of the regulation of prostitution is being considered, and with this eventuality in mind he submitted a questionnaire to the various communes. His replies will serve as a basis for the general inquiry that the hygienic service is expecting to make in furtherance of the campaign against prostitution. The problem is covered, in the main, by these three questions: 1. Is prostitution regulated in the communes; if so, what form does the regulation take. 2. Is there any medical control of prostitution in the commune; if so, how is it managed? 3. Do the regulatory measures and the medical control have a tendency to prevent clandestine prostitutes from coming within the range of antisyphilitic treatment?

The Franking Privilege of Pasteur Institute

It has been the custom for some time past to allow physicians to send free of charge any specimens intended for examination by the Pasteur Institute. This privilege exerted a favorable influence on the campaign against contagious diseases; particularly against tuberculosis, syphilis and rabies. During the present period of retrenchment a desire to take away this privilege has become manifest, which would greatly impair the laboratory service so much needed by physicians residing at some distance from university centers. Thanks, however, to the steps taken by the Pasteur Institute and the Public Health Service the superintendent of the mail service has reconsidered the question and has decided that, pending a definite decision in the matter, the necessary instructions will be given to insure, for the time being, that no charge will be made for sending empty tubes or specimens for analysis.

Marriages

Berte O. Edwards, Asheville, N. C., to Miss Emorie Doughton, N. C., at Washington, D. C., recently.

William Heiskell Deadrick to Mrs. Ava Van Leer Lusby, both of Hot Springs, Ark., January 8.

Luther S. Love, Silver Point, Tenn., to Miss Vera Sanders of McMinnville, Tenn., November 7.

W. Louis Chapman to Miss Geneva Jefferds, both of Providence, R. I., December 20.

George A. Stewart to Miss Eleanor Bittinger Wolf, both of Baltimore, January 8.

Albert H. Hill to Miss Emma L. Treibley, both of Mifflinburg, Pa., December 24.

Joseph Seymour Tennen to Miss Mollie Brody, both of Brooklyn, January 2.

Louis Bazet to Mrs. Angele Beaudry, both of San Francisco, January 14.

Henry L. Picard to Miss Julia Conlin, both of Philadelphia, January 12.

Deaths

Godfrey Roger Pisek ⊕ New York; New York University, New York, 1897; aged 47; professor of pediatrics and diseases of children in the University of Vermont, Burlington; a member of the staff of Post-Graduate, New Utrecht and Mineola hospitals and Darrach Home for Children; a member of the American Pediatric Society; died, January 19, from heart disease.

Arthur Mathewson, Washington, D. C.; University of the City of New York, 1861; aged 84; passed assistant surgeon, U. S. Navy, during the Civil War; at one time president of the American Ophthalmological Society; a founder and chief surgeon of the Brooklyn Eye and Ear Hospital; died, December 31, from arteriosclerosis.

John Stewart Gordon, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1889; aged 65; at one time city and county physician of Ogden, Utah, president of the Ogden General Hospital, and surgeon for the Southern Pacific Railroad; died, January 5, from injuries received when he was struck by a motor truck.

Victor B. Weller ⊕ Delaward, Ohio; Starling Medical College, Columbus, 1901; aged 43; captain, M. C., U. S. Army, and discharged, Jan. 28, 1919; secretary of the Delaware County Medical Society; was instantly killed, January 12, when he jumped from a moving passenger train.

Fred Ward Eastman, Lee Summit, Mo.; College of Physicians and Surgeons in the City of New York, 1913; aged 37; captain, M. C., U. S. Army, and discharged, Aug. 26, 1919; physician for a mining company in Bolivia, Argentine; died, January 6, from typhus fever.

Jeremiah H. Stealy ⊕ Freeport, Ill.; Jefferson Medical College, Philadelphia, 1882; aged 61; at one time attending physician and surgeon to St. Francis and Globe hospitals; died at the University Hospital, Ann Arbor, Mich., January 10.

Claude Edison Sims, Shoals, Ind.; Indiana Medical College, Indianapolis, 1906; aged 41; superintendent of the Fort Lapwai Tuberculosis Sanatorium for Indians, Lapwai, Idaho; died, January 13, from tuberculosis.

Hugh Kerr Aiken, Laurens, S. C.; Medical College of the State of South Carolina, Charleston, 1890; aged 53; president of the Laurens National Bank; died, January 5, from the effects of a wound of the head.

Charles D. Wooden, Rochester, N. Y.; Bellevue Hospital Medical School, New York, 1876; aged 71; a member of the Medical Society of the State of New York; died, January 8, from heart disease.

Hugo E. Wangelin ⊕ Belleville, Ill.; University of Minnesota, Minneapolis, 1891; aged 52; also a dentist; president of the local board of education for five years; died, January 13, from pneumonia.

James Herbert Moore, Brookline, Mass.; New York Homeopathic Medical College, 1884; aged 59; professor of diseases of children in Boston University School of Medicine; died, January 8.

C. Clarence Sichel, New York; University of Pennsylvania, Philadelphia, 1899; aged 44; one of the founders and at one time chief surgeon of the Washington Heights Hospital; died, January 10.

Gustav Adolph Theiss, Akron, Ohio; Western Reserve University, Cleveland, 1894; aged 50; a member of the Ohio State Medical Association; was shot and killed by a bandit, January 8.

Everard William Mahler ⊕ New Orleans; Tulane University, New Orleans, 1905; secretary-treasurer of the Louisiana State Board of Medical Examiners; died, January 22, from pneumonia.

George L. Hutchinson ⊕ Los Angeles; Long Island College Hospital, Brooklyn, 1884; aged 61; assistant surgeon of the Southern Pacific and several other railroads; died, January 7.

William McFadden, Philadelphia; Jefferson Medical College, Philadelphia, 1876; aged 76; for many years a member of the board of health; died, January 9, from heart disease.

Dunlop Thompson, Morven, N. C.; University of Maryland, Baltimore, 1901; aged 40; died, January 5, from the effects of a gunshot wound of the head, self-inflicted, it is believed.

Frederick James Thorpe Old, Los Angeles; University of Toronto, Ont., 1891; aged 49; a member of the Medical Society of the State of California; died, December 31.

⊕ Indicates "Fellow" of the American Medical Association.

Archie Clarence Brindle, West Liberty, Ohio; Jefferson Medical College, 1897; aged 50; a member of the Ohio State Medical Association; died, January 9, from pneumonia.

Owen Thomas Kenyon, Dawson, Ga.; Tulane University, New Orleans, 1886; aged 54; captain, M. C., U. S. Army, and discharged, Dec 5, 1918; died, January 7.

William Elbridge Boardman, Boston; Harvard University Medical School, 1868; aged 66; a member of the Massachusetts Medical Society; died, January 11.

Benjamin Seaver Blanchard ⊕ Brookline, Mass.; Harvard University Medical School, Boston, 1882; aged 64; died, January 4, from rheumatic fever.

Charles Frank Tincher, Jamestown, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1889; died, December 5, from cerebral hemorrhage.

Joseph T. Rieves, Greensboro, S. C.; Louisville (Ky.) Medical College, 1891; aged 60; at one time city physician; died, January 12, from septicemia.

William Joseph Hierstein ⊕ Dyersville, Iowa; College of Medicine and Surgery, Chicago, 1909; aged 37; died in Dubuque, Iowa, January 12.

Orlando Camellia Hook, Seaman, Ohio; Cincinnati College of Medicine and Surgery, 1875; aged 65; died, December 29, from cerebral hemorrhage.

Elbert C. Lay, Rutledge Pike, Tenn.; University of Tennessee, Nashville, 1887; aged 68; at one time state representative; died, December 22.

Robert Lee Randolph ⊕ Alexandria, La.; Tulane University, New Orleans, 1884; aged 58; lieutenant, M. C., U. S. Army; died, January 14.

John Scott Tate, Waco, Texas; College of Physicians and Surgeons, Keokuk, Iowa, 1868; aged 78; died, October 31, from heart disease.

George W. Shafer, Washington, D. C.; Starling Medical College, Columbus, 1865; aged 86; a veteran of the Civil War; died, December 5.

James H. McDonald ⊕ Chicago; Chicago Medical College, 1876; aged 69; for twenty-five years city school physician; died, January 21.

Arthur L. Ridgman ⊕ Grand Rapids, Mich.; College of Physicians and Surgeons, Keokuk, Iowa, 1885; aged 63; died, November 13.

Clarence N. Frame ⊕ Independence, Mo.; Missouri Medical College, St. Louis, 1895; aged 50; died at Los Angeles, December 27.

Mary A. Seymour Breckington, Chicago; Hahnemann Medical College and Hospital, Chicago, 1882; aged 82; died, January 17.

Alexander Guthrie, Neosho, Mo.; Medical College of Ohio, Cincinnati, 1866; aged 78; died, November 20, from lobar pneumonia.

Charles L. Swift, Castle Creek, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 70; died, December 28.

Arnon Lynn Thompson ⊕ Madisonville, Ky.; University of Nashville, Tenn., 1903; aged 41; died, January 7, from pneumonia.

Leslie Horatio Hendee, Pittsfield, Mass.; Baltimore Medical College, 1894; aged 56; died, December 31, from nephritis.

Walter Scott Wallace, Newport, Wash.; Kentucky School of Medicine, Louisville, 1906; aged 37; died, December 21.

Clarence A. Jenks ⊕ Los Angeles; University of Southern California, Los Angeles, 1903; aged 44; died, January 8.

Henry C. Gibson, Chadron, Neb.; Central Medical College of St. Joseph, Mo., 1900; aged 53; died, January 1.

Peyton B. Green ⊕ Wytheville, Va.; University of Virginia, Charlottesville, 1885; aged 59; died, December 19.

John Louis Burgess ⊕ Waco, Texas; Vanderbilt University, Nashville, Tenn., 1900; aged 44; died, January 6.

Edward J. Nolan, Philadelphia; University of Pennsylvania, Philadelphia, 1867; aged 58; died, January 7.

James Johnston McFadden, Buffalo; Rush Medical College, 1875; aged 70; died, December 28.

Eugene F. Finley, Brooklyn; University of Louisville, Ky., 1892; aged 52; died, January 5.

Carl Muth ⊕ Sheboygan, Wis.; Rush Medical College, 1868; aged 78; died, January 14.

Malcolm Gunn, St. Louis; Rush Medical College, 1890; aged 53; died, January 12.

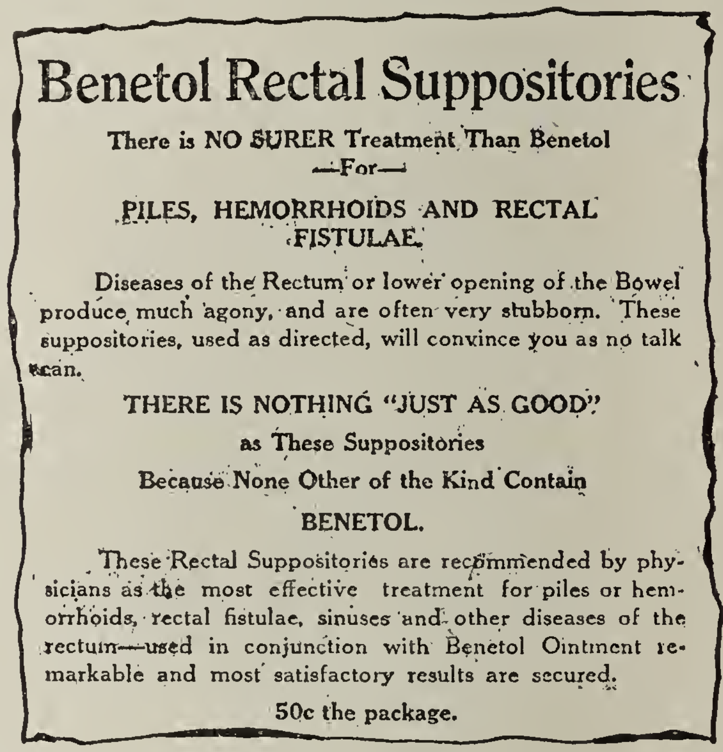
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Benetol Suppositories.—In January, 1919, the Benetol Co. of Minneapolis, Minn., shipped a quantity of "Benetol Suppositories" which were misbranded. The Bureau of Chemistry reported that analysis showed these suppositories to consist essentially of cacao butter, carrying alpha- and beta-naphthol, boric acid and traces of menthol and carbolic acid. The labels and circulars accompanying the suppositories represented that they were a treatment, remedy and cure for special diseases of women, leucorrhea, whites, vaginitis, vulvitis, cervicitis, endometritis, gonorrhea and all diseases of the vagina, inflammation or irritation of the cervix and sexual diseases. These claims were declared false and fraudulent. In December, 1919, a decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7795; issued Nov. 26, 1920.*]



Benetol Rectal Suppositories

There is NO SURER Treatment Than Benetol

—For—

PILES, HEMORRHOIDS AND RECTAL FISTULAE

Diseases of the Rectum or lower opening of the Bowel produce much agony, and are often very stubborn. These suppositories, used as directed, will convince you as no talk can.

THERE IS NOTHING "JUST AS GOOD"

as These Suppositories

Because None Other of the Kind Contain

BENETOL.

These Rectal Suppositories are recommended by physicians as the most effective treatment for piles or hemorrhoids, rectal fistulae, sinuses and other diseases of the rectum—used in conjunction with Benetol Ointment remarkable and most satisfactory results are secured.

50c the package.

Vinol.—During 1917 and 1918 Frederick Stearns & Co. of Detroit are alleged to have shipped a quantity of this preparation from Michigan to New York. The federal officials seized 539 cases of it on the charge that the product was misbranded. When analyzed by the Bureau of Chemistry it was reported that the stuff consisted essentially of sherry wine containing protein matter, iron peptonate, citrate of iron and ammonium, salicylates, phosphates, and probably glycerophosphates of sodium, potassium and calcium and also sodium chlorid (salt). A number of false and fraudulent claims for curative effects were made in the trade package both in English and in a foreign language. It was also falsely claimed that it could be used in place of cod-liver oil and that it contained the "medicinal and restorative elements of cod-liver oil." In May, 1919, Chester Kent & Co., claimants for the shipment, having consented to a decree, judgment was entered ordering the release of part of the article for export and condemning and forfeiting the remainder, this remainder being released on order of the court to the claimant on the payment of the cost of the proceedings and the execution of a bond.—[*Notice of Judgment No. 7840; issued Dec. 8, 1920.*]

Mir-A-Co.—In June, 1919, the Mir-A-Co Co., Houston, Texas, were alleged to have shipped a quantity of this product into Louisiana. The label gave what purported to be the analysis of this product. How the claimed analysis varied from the facts is here shown:

	GRAMS PER LITER	
	As Labeled	*As Found*
Sulphur (as SO_3)	87.260	53.358
Iron (as Fe_2O_3)	36.420	30.224
Phosphorus (as P_2O_5)	0.638	0.383
Alumina (as Al_2O_3)	19.442	1.079
Chlorin	0.012	0.140
Silica	0.250	.....
Magnesia (as MgO)	1.340	.....

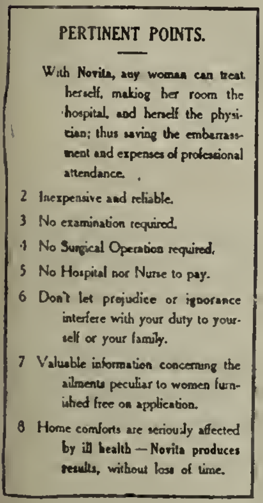
In addition to the false and misleading statements regarding composition, there were many fraudulent therapeutic claims made for the product. In January, 1920, no claimant having appeared, a decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 7842; issued Dec. 8, 1920.*]

Novita Remedies.—A quantity of "Novita Globules," "Novita Capsules," "Novita Salve, Stainless" and "Novita Salve, Brown" were shipped by the Novita Co., Chicago, Ill., over a period from February, 1918, to February, 1919. All of these were declared misbranded. The "Novita Globules" when analyzed by the Bureau of Chemistry were found to consist of sugar-coated pills, containing essentially potassium nitrate, podophyllin, oil of juniper, uva ursi, starch and a plant drug, probably digitalis. Some of the false and fraudulent claims made for the "Globules" were:

> "Specific for Kidney and Bladder Troubles."
>
> "No remedy has so many marvelous cures to its credit as Novita, and none can successfully take its place."
>
> "The salutary impetus which this promoter of vital energy communicates overcomes their inaction and averts diseases of which that inaction is premonitory.
>
> ". . . the stimulus which it gives to urination is attended with no exciting or inflammatory influences upon the kidneys and bladder . . ."

"Novita Capsules" when analyzed by the federal chemists were found to consist essentially of a saponifiable base, containing hydrastis and a small amount of tannin. Some of the false and fraudulent claims made for these capsules were:

> "Novita Capsules For diseases of the uterine organs.
>
> "A three months' course often effects a cure, but in very stubborn cases, where there are other complications, a longer treatment is required.
>
> "Menstrual derangements Suppressed or irregular menstruation, displacements."
>
> "All tumors or cancerous formations."



PERTINENT POINTS.

With **Novita**, any woman can treat herself, making her room the hospital, and herself the physitian; thus saving the embarrassment and expenses of professional attendance.

2 Inexpensive and reliable.

3 No examination required.

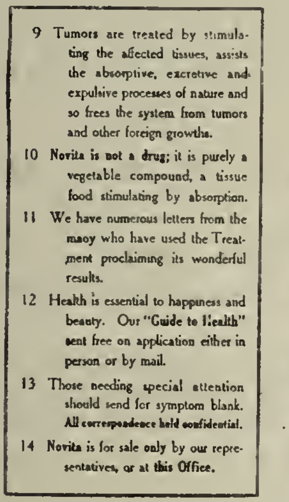
4 No Surgical Operation required.

5 No Hospital nor Nurse to pay.

6 Don't let prejudice or ignorance interfere with your duty to yourself or your family.

7 Valuable information concerning the ailments peculiar to women furnished free on application.

8 Home comforts are seriously affected by ill health — **Novita produces results,** without loss of time.



9 Tumors are treated by stimulating the affected tissues, assists the absorptive, excretive and expulsive processes of nature and so frees the system from tumors and other foreign growths.

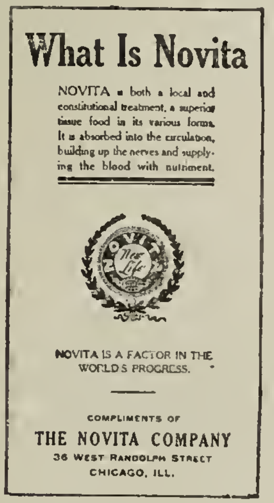
10 **Novita is not a drug;** it is purely a vegetable compound, a tissue food stimulating by absorption.

11 We have numerous letters from the many who have used the Treatment proclaiming its wonderful results.

12 Health is essential to happiness and beauty. Our **"Guide to Health"** sent free on application either in person or by mail.

13 Those needing special attention should send for symptom blank. **All correspondence held confidential.**

14 **Novita** is for sale only by our representatives, or at **this Office.**



What Is Novita

NOVITA is both a local and constitutional treatment, a superior tissue food in its various forms. It is absorbed into the circulation, building up the nerves and supplying the blood with nutriment.

NOVITA
New Life

NOVITA IS A FACTOR IN THE WORLD'S PROGRESS.

COMPLIMENTS OF
THE NOVITA COMPANY
36 WEST RANDOLPH STREET
CHICAGO, ILL.

"Novita Salve, Stainless" was found, according to the Government report, to consist essentially of a saponifiable base containing salts of lead and mercury, apparently ammoniated mercury and lead acetate, with a small amount of acetanilid. Some of the false and fraudulent claims made for Novita Salve, Stainless were:

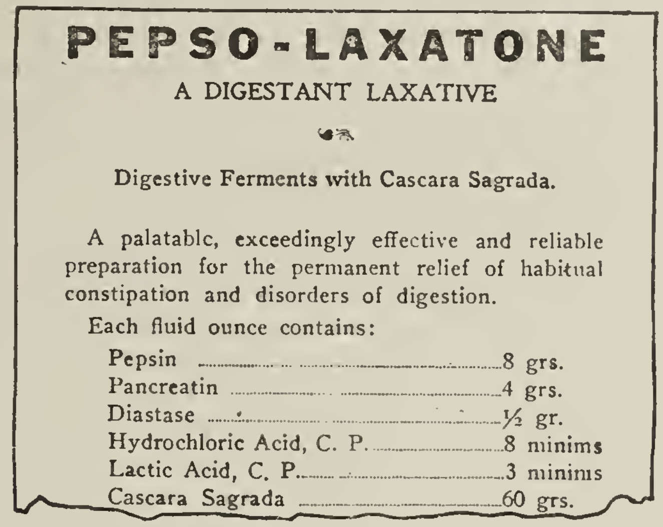
> "A nerve and tissue remedy for external use."
>
> "Use freely . . . particularly in ovarian tumor and cancerous affections."
>
> ". . . for eczema, scrofula, and facial eruptions."
>
> ". . . especially valuable in nerve trouble."
>
> "In cases of rheumatism, stiffened joints or limbs . . . will . . . bring back vitality and strength to the parts."
>
> "This salve furnishes nutriment to the body through the medium of the skin."

"Novita Salve, Brown" was reported by the Bureau of Chemistry to consist of a saponifiable base containing hydrastis and a tannin-bearing drug." The same false and fraudulent claims were made for the brown salve as were made for the stainless salve and in addition the following fraudulent claims:

> "It is especially helpful in cases where the ovaries are diseased, and where the spine or limbs are affected."
>
> "It will also produce a growth of adipose tissue or fat just beneath the skin, making the form plump and round."

In April, 1920, John B. Danis and his assignee, Herbert H. Gray, having consented to a decree, judgment of condemnation and forfeiture was entered and the court ordered that the product be released to these claimants on payment of the costs and the execution of a bond of $500.—[*Notice of Judgment No. 7784; issued Nov. 26, 1920.*]

Pepso-Laxatone.—The Burlingame Chemical Co., Los Angeles, Cal., shipped in September, 1919, a quantity of Pepso-Laxatone which was adulterated and misbranded.



PEPSO-LAXATONE

A DIGESTANT LAXATIVE

Digestive Ferments with Cascara Sagrada.

A palatable, exceedingly effective and reliable preparation for the permanent relief of habitual constipation and disorders of digestion.

Each fluid ounce contains:

Pepsin	8 grs.
Pancreatin	4 grs.
Diastase	½ gr.
Hydrochloric Acid, C. P.	8 minims
Lactic Acid, C. P.	3 minims
Cascara Sagrada	60 grs.

When analyzed by the Bureau of Chemistry it was found to consist essentially of alcohol, water, sugar, pepsin and a laxative plant drug. The label declared that Pepso-Laxatone contained pepsin, diastase and pancreatin. It contained neither diastase nor pancreatin and this claim was, therefore, declared false and misleading. Further, the product was claimed to be "An efficient combination of agents for the permanent relief of . . . Gastric Disorders and Indigestion"; this claim was declared false and fraudulent. In February, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7770; issued Nov. 26, 1920.*]

Alkano.—This product was alleged to have been shipped in March, 1919, by the Alkano Remedy Co. of Kansas City, Mo. The chemists of the government reported that analysis showed it to consist essentially of potassium iodid, plant extractives, including resins, saponin, strychnin, glycerin, invert sugar, alcohol and water. It was falsely and fraudulently recommended for "rheumatism, blood poison . . . skin diseases, constitutional catarrh . . . rundown condition," etc. In September, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7849; issued Dec. 8, 1920.*]

Aims of Physical Training.—What does physical training set out to accomplish? What are its aims? Its primary aim is not the acquisition of mere strength or masses of muscle, but rather the development of both body and mind. It seeks to exercise every muscle in the body more or less equally, favoring no one group at the expense of another. In this way it certainly—if continued—not only improves muscular efficiency but develops the entire body. The exercise increases the physiologic activities of the body, deepens respiratory action, tones up all bodily functions, and induces a higher state of nutrition generally. Incidentally, the flushing of the brain with newly oxygenated blood will inevitably produce a mental vigor and freshness otherwise impossible. To increase a child's physical welfare is therefore the primary aim of physical training.—*Med. Officer* **24**:227 (Nov. 27) 1920.

Correspondence

IMPORTANT CONSIDERATIONS IN THE ADMINISTRATION OF ARTIFICIAL PNEUMOTHORAX

To the Editor: — At present the laity demands artificial pneumothorax in the treatment of pulmonary tuberculosis, owing, no doubt, to the wonderful improvement in many hopeless cases following compression of the lung. Naturally there are some bad results with this form of treatment. Those who are made worse are always ready to condemn the method, as are also their friends and associates. It is apparent that artificial pneumothorax will go through the same cycles of popularity and condemnation as have other treatments for tuberculosis, such as tuberculin, unless changes are made in the selection of patients and method of administration. There will then be many patients who will die without this treatment who might have their lives prolonged with it. This state of affairs must be avoided, and can be, by the standardization of the treatment.

The method of administration seems to differ with each operator. The amount of air given and the interval between treatments are not the same. I have recently seen a patient who was treated at intervals of six weeks even at the start. Physical examination disclosed that there was absolutely no collapse or compression of the lung and also that the infection was so slight that artificial pneumothorax would probably be harmful rather than of any benefit. Another patient came to me with a history of having taken pneumothorax for three months. She stated that she took the treatment (at her physician's advice) every five or six weeks. No air could be demonstrated in the treated pleural cavity, and the lung was full of large, bubbling râles. The history showed that the patient was toxic, with continual fever, and the expectoration was large in amount and purulent.

In those patients in whom I have effected a partial collapse and been obliged to stop for some reason, I have noticed almost without exception that a cavity would develop in the compressed area. This cavitation I believe was due to a lowered resistance of the cells in the compressed area from the pressure. When the lung reexpanded, the cells, owing to altered circulation, etc., were unable to take care of the infection. In other words, there was a mechanical injury of the cells in the compressed area. Another danger in these cases that are not collapsed sufficiently is adherent pleura which may prevent further collapse.

It has been shown that about 50 c.c. of atmospheric air is absorbed by the pleura in twenty-four hours. Taking this fact into consideration, it is a matter of mathematics to determine how often to give the treatment in the majority of cases. It is obvious that many physicians are not using this treatment properly when, after two or three treatments, they allow an interval of one month to elapse. It is evident that the lung is being exercised more and injured more than if there were no interference whatever.

The object of artificial pneumothorax treatment is to close up ulcerating areas, thereby decreasing pus formation, cough and toxemia. If we are to do this permanently we must keep constant pressure on the lung. In this way a marked fibrosis results, as has been shown at necropsy. This pressure must be kept up just as long as is possible. In selecting the case for treatment by artificial pneumothorax we must observe our prospective pneumothorax patient long enough to be confident that he will not get better with the usual treatment. We must feel that the compressed lung will not function for the rest of the patient's life if the results of artificial pneumothorax are to be what they should. After the physician has selected his patient, he should give the treatment just as often and in such amount as to obtain a compression in the shortest time and most aseptic manner possible. The manometer and fluoroscope must be his constant guide.

A procedure that I have found effective is to give 350 c.c. at the first treatment and then give the second treatment of from 400 to 500 c.c. on the third day. I then increase the interval between instillations one day until the patient is taking the treatment once a week. I continue this weekly treatment for at least six months, and then give one every ten days. The amount to be given after the second instillation will depend on the manometric reading and the fluoroscopic findings. Gradually positive pressure must be obtained even if there is some displacement of diaphragm and mediastinum; but marked embarrassment of respiration must be avoided and the patient must have absolute rest for twenty-four hours following treatments.

Herbert F. Gammons, M.D., Dallas, Texas.
Superintendent, Woodlawn Sanatorium.

"CHRONIC PELVIC PERITONITIS OF UNKNOWN ETIOLOGY OCCURRING IN WOMEN"

To the Editor:—In The Journal, Jan. 8, 1921, p. 127, Dr. Stein, in referring to my article on "Chronic Pelvic Peritonitis of Unknown Origin Occurring in Women," makes the suggestion that we are dealing with a congenital anomaly similar to the condition known as Jackson's membrane. While it is possible that the disease described in my article may be due to peritoneal reduplications, still, the condition encountered in the pelvis was quite different from the veil-like membranes that represent these developmental variations. The adhesions were firm, filled the pelvis, closed the tubal orifices, extended diffusely over the culdesac, and did not follow any definite line that would enable one to deduce that we are dealing with peritoneal anomalies. They resembled accurately the type of lesion seen in chronic inflammatory or irritative processes.

As to the possibility that Dr. Sturmdorf suggested, while it may be true that the cervical mucosa is inflamed, we were unable to demonstrate such a lesion histologically, bacteriologically or clinically in these cases.

Samuel H. Geist, M.D., New York.

BLOODLESS AMPUTATION AT THE HIP JOINT

To the Editor:—In the report of a case of "Exarticulation of the Hip Joint" in The Journal, Jan. 8, 1921, Dr. Barney Brooks writes:

> The disadvantage of any tourniquet method is that the tourniquet is inconvenient and insecure during the operation if an attempt is made to amputate the soft parts very near the pelvic girdle.

This conclusion is not in accord with the experience of a large number of the most expert technicians and greatest surgeons of our time, nor is it in accord with the facts as demonstrated in hundreds of cases of amputations at the hip as devised by me and made public before the American Medical Association in 1890. The exsanguination of the part to be removed (as the conditions may permit), the insertion of the security pins and the application of the constricting rubber tube is a technic so simple and so secure that a tyro may successfully undertake it, and the point of constriction can be so far removed from the operative field as to offer no possible obstruction to disarticulation. Soon after my method was made public, I was invited by Prof. W. W. Keen to demonstrate it before his class at the Jefferson Hospital. The patient, a woman, well advanced in pregnancy, had a thigh of such unusual size that it not only tested the successful constriction but necessitated the highest possible application of the tube. The operation was bloodless and (as the woman went to full term) so satisfactory to Professor Keen that in reporting the case, he said:

> It was reserved for an American surgeon to devise what is undoubtedly the best method, and in fact which I think we can now call the only method of hemostasis in amputation of the hip joint.

In the *Annals of Surgery*, September, 1895, Prof. John F. Erdmann submits a series of eighteen hip joint amputations performed in seven of the leading New York hospitals in the period from January, 1884, to January, 1895, with a mortality ratio of 44.4 per cent. Seven of these operations were by my method, and all the patients recovered. The death rate in the remaining group was 72.7 per cent. In addition to these performed by myself, I have received reports from many hundreds of operations by this method, and in no single instance has any objection been made of the difficulty of applying the hemostatic apparatus or of its failure to control bleeding, or of any postoperative effects due to pressure. With such results how may we justify opening into the cavity of the abdomen to tie or even compress the iliac artery?

JOHN A. WYETH, M.D., New York.

[A copy of Dr. Wyeth's letter was referred to Dr. Brooks, who writes:]

To the Editor:—If the paragraph which Dr. Wyeth quotes is to be isolated from the remainder of the publication, then the last clause should be given special emphasis:

"The disadvantage of any tourniquet method is that the tourniquet is inconvenient and insecure, *if an attempt is made to amputate the soft parts near the pelvic girdle.*"

The real point is that the conventional term "hip joint amputation" is used to refer to any thigh amputation which includes the removal of the entire femur, and the level at which the skin, muscles and fascia are divided is not considered.

I should entirely agree with Dr. Wyeth that in the operation of "hip joint amputation," as ordinarily performed, in which the amputation of the soft parts leaves the proximal ends of the long muscles of the thigh unamputated, his method of hemostasis is quite satisfactory. If, however, the operator desires to amputate the muscles of the thigh at their origins from the pelvic girdle, any tourniquet which encircles the thigh would be inconvenient and insecure.

BARNEY BROOKS, M.D., St. Louis.

"AN IMPROVED URETHRAL INSTILLATING SYRINGE"

To the Editor:—In connection with Dr. Moore's suggestion (THE JOURNAL, Jan. 15, 1921, p. 176) for an improved urethral instillating syringe, allow me to offer the observation that the ordinary adapter provided for Luer syringes will screw into the regular Keyes silver cannula and thus provide a satisfactory means of employing an all glass syringe for urethral instillations.

FRED Z. HAVENS, M.D., Waupun, Wis.

Diet in Tuberculosis.—Two terms are of special importance in considering the diet of a tuberculous patient; these terms are production ration and maintenance ration. It is desirable to think of these terms, and indeed in these terms, when we consider, say, the growth of a young child, the well-being of a pregnant mother, the needs of the mother and the child when the child is at the breast, and also the welfare of a patient suffering from tubercle. In each case there must be given a maintenance ration to neutralize ordinary waste and produce ordinary energy, and an excess or production ration which will supply material for growth or meet the needs of special waste.—H. deC. Woodcock, *Lancet*, Oct. 23, 1920.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TREATMENT OF ENURESIS

To the Editor:—Please give me some information in regard to treatment for bedwetting in children. I have tried the usual remedies without success. Kindly withhold my name from publication.

B. J. G., Georgia.

ANSWER.—Enuresis is usually the result of disturbance of bladder function, and occurs either as a symptom of some other disease or as an independent disorder. It may be due to cerebrospinal involvement or to some pathologic disorder of the bladder, urinary tubes or genitalia. In some instances, severe metabolic diseases disturb bladder function. These conditions are easily recognized, and the treatment is directed toward the pathologic state that is producing the disordered bladder function. Ordinary bedwetting, when organic disease can be excluded, is classified as a neurosis of the bladder. It occurs most frequently during sleep, though it may occur during the daily nap or during the waking hours.

Many methods of treatment have been suggested. One plan seems to give one physician brilliant results, whereas the same treatment fails in other hands. There can be no doubt that suggestion plays an important part in the treatment. A general outline of treatment may be discussed:

1. General Management; Diet: Great quantities of vegetables, particularly potatoes, should be avoided. The amount of fluid intake should be diminished. The patient may be permitted to take meat, fat, carbohydrates and farinaceous food. To forbid a moderate amount of water in the evening or at bedtime is without result. Older children should be taught regularity in emptying the bladder during the day. At definite times the bladder should be emptied—five or six times daily. The child should be awakened about an hour after retiring and once or twice later on during the night to empty the bladder (this usually without result). The child should lie with his head low and his pelvis high, or the foot of the bed should be raised. The child may have sitz-baths of tepid or cold water every other day. Hydrotherapeutic courses, packs, or swimming may be tried. Change of environment, sea baths, a stay in the mountains, and sanatorium treatment are helpful. Exercise and sports are employed as general therapeutic remedies. Grover of Boston has suggested rest-cure treatment.

2. Medicinal Treatment: It is not known that any particular drug acts as a specific. If the physician exercises sufficient suggestive power over his patient he may be able to effect a cure with a placebo. Drugs that are used are: tincture of belladonna in generally increasing drop doses; atropin sulphate (the dosage may be found in Holt); strychnin sulphate, from 1/180 to 1/200 grain three times a day; antipyrin; bromids under certain conditions; hexamethylenamin, and ergot.

3. Electrical Treatment: As ordinarily employed, this is harmless and has a definite suggestive value. It seems to make little difference whether one uses the faradic or galvanic stream or alternating currents. One may apply the flat electrode over the symphysis pubis and the knob-formed electrode over the perineum, or the flat electrode may be placed over the perineum and the roller electrode applied to the bladder region. The metal electrode may be introduced into the rectum for a considerable distance and then another electrode placed over the bladder region. One should not introduce an electrode into the bladder for the supposed purpose of strengthening the sphincter muscles of the bladder, on account of the danger of infection. The dosage of the electric current should be regulated so as to be just slightly uncomfortable. It should not, however, be painful. Electricity should be employed for only a few moments at a time. If a slight suggestion of pain is felt, the patient may be given to understand that unless a cure results a stronger current must be employed. If results are to be obtained from electrical treatment they must be obtained soon. If after one or two months' treatment three times weekly no result has been obtained, the kind of electricity employed should be changed. Local massage is worthy of trial.

4. Local Treatments of the Bladder: Bladder treatments such as are employed in adults are sometimes tried. The bladder may be filled with increasing quantities of warm fluid, such as boric acid solution or potassium permanganate solution. The results from this form of treatment are altogether

uncertain, and the procedure is mentioned here only to be condemned. The introduction of sounds is an old form of treatment and also has a suggestive value. This treatment, however, is altogether too heroic and too dangerous to deserve approbation. Various local surgical procedures have been employed. Operations for phimosis, hypospadias, epithelial adhesions of the vulva, etc., have acted as powerful suggestive remedies and sometimes have been successful.

5. Epidural Injections: With a small needle the membrane lying between the sacrum and the coccyx may be punctured and physiologic sodium chlorid solution or 0.5 per cent. procain solution may be injected. A result usually occurs after several injections. The procedure is harmless. A number of cases of nervous bladder disturbance which have resisted every other form of treatment have been cured by this procedure. It may be tried in obstinate cases.

Thyroid extract in appropriate doses has been used without any permanent or general results.

6. Apparatus for Temporary Occlusion of the Urethra: The urethra is temporarily closed by an apparatus so that the patient awakens because the desire to urinate causes pain and discomfort. This method is particularly useful in older persons and has been used extensively by young soldiers. Its employment in children is not advisable.

7. Hypnosis: There can be no doubt that a certain number of cases can be cured by hypnotizing the patient. The treatment should be employed only by experienced physicians. If, however, after several treatments no result is obtained, this form of treatment should be discontinued.

The treatment is therefore that of a neurosis, and the cure depends on the power of suggestion. The parents should be asked to cooperate in the suggestive treatment. They must not sympathize with the patient or lend encouragement to his supposed infirmity. The personality of the physician and the cooperation of the patient and family, are frequently the most powerful agents in curing this neurosis.

BENZYL BENZOATE IN PERTUSSIS

To the Editor:—Please give me references to the use of benzyl benzoate in whooping cough. T. S. Huggard, M.D., West Point, Iowa.

Answer.—McMurray, (Benzyl Benzoate Treatment of Whooping Cough, *New York M. J.* **112**:122 [July 24] 1920; abstr., The Journal, Aug. 7, 1920, p. 433) used benzyl benzoate in whooping cough and reported satisfactory results. Macht (*Bull. Johns Hopkins Hosp.* **31**:236 [July] 1920; abstr., The Journal, Aug. 28, 1920, p. 633) administered benzyl benzoate to 115 children afflicted with whooping cough. He believed that 90 per cent. of the patients showed more or less beneficial effects, that 50 per cent. exhibited improvement in the symptoms, and that the therapeutic effects were not curative but distinctly of a palliative nature. No other evidence has yet been published so far as we can discover.

BULLETINS OF THE NATIONAL RESEARCH COUNCIL

To the Editor:—I note an item in The Journal, July 24, 1920, p. 253, concerning the National Research Council listing 300 laboratories in which research work is carried on in the United States. Where can I procure a bulletin issued by the National Research Council?

E. D. Hatcher, Nevada, Mo.

Answer.—The National Research Council has its headquarters at Washington, D. C. (1701 Massachusetts Avenue). The bulletin on the industrial research laboratories issued by it may be obtained by applying to the council. The price is one dollar. This bulletin is one of a series which is regularly issued by the council at a subscription price of five dollars per volume, each volume including approximately 500 pages.

PHYSICIAN'S INCOME TAX

To the Editor:—Please answer the following questions for me relative to income tax returns:

1. Are physicians allowed exemptions for money expended in attending medical conventions or meetings, the A. M. A. session, for example?
2. Is the sum paid as dues in various medical societies legitimate expense?
3. Can money paid for medical publications be exempted?

R. A. Bowdle, M.D., East Ely, Neb.

Answer.—1. Physicians may deduct railroad and Pullman fares for attending meetings of professional organizations.

2. Dues for medical societies are legitimate expenses and may be deducted.

3. Subscriptions to medical journals are a current expense and may be deducted. The purchase of books, however, is an investment and may not be deducted.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 127 Butler Bldg., San Francisco.

Connecticut: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Maine: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

Massachusetts: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Cheyenne, Feb. 7-9. Sec., Dr. J. D. Shingle, Cheyenne.

MEDICAL EDUCATION IN CHINA

Recent reports state that in all China there are found to be less than 2,000 physicians. What a small proportion of the population of 400,000,000 Chinese people can receive scientific treatment in case of illness or injury! In an effort to ascertain the exact number of students looking toward medicine, if not also to stimulate the youth of China to look toward the practice of medicine, a survey has recently been made of the middle schools of China. In 153 of the institutions reporting, there are 36,095 students, and of these 1,153 stated that they were planning to study medicine. Since this is only about 20 per cent. of all middle schools, the total number who may enter on the study of medicine will be considerably larger.

The Rockefeller Foundation is said[1] to have abandoned its purpose of erecting at Shanghai a great medical school similar to the Union Medical College at Peking. This decision is said to be due to the fact that in its initial session the college had a class of only seven students, although $6,000,000 had been expended for its construction and maintenance. This small attendance is said to be due to the fact that the medical course is given in the English language and that only a small number of the universities and schools in the neighborhood of Peking emphasize their courses in English. The situation is said to be quite different at Shanghai, where English is more generally taught, which will insure larger numbers of Chinese medical students.

In order to provide a clear field when a large medical school in Shanghai was planned by the Foundation, the Harvard Medical School of China was purchased by the Chinese Medical Board, and the Pennsylvania Medical School at Shanghai consented to step aside in favor of the larger institution. A few months ago, however, after the Foundation withdrew from the field, the Pennsylvania Medical School began pushing forward its plans to enlarge its plant. The erection of a science laboratory building, to cost $100,000, was promptly begun. This will house departments of physics, chemistry and biology and, temporarily, the medical laboratories also, but the latter will be removed to other buildings which will be erected later. The institution will provide a premedical course covering three years, and a medical course of four years similar in standard to those established by the Peking Union Medical College.

Connecticut Homeopathic November Reciprocity Examination

Dr. Edwin C. M. Hall, secretary, Connecticut Homeopathic Medical Examining Board, reports two candidates licensed by reciprocity at the meeting held at New Haven, Nov. 9-10, 1920. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Boston University School of Medicine	(1904)	Mass.
New York Homeo. Med. Coll. and Flower Hosp.	(1918)	New York

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[1] National Medical Journal of China, September, 1920, p. 216.

New Jersey October Examination

Dr. Alexander Macalister, secretary, New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 19-20, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Five candidates, including 2 osteopaths, were examined, all of whom passed. Thirty-seven candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Maryland	(1919)	87.2
University of Pennsylvania	(1917)	80.5
Woman's Medical College of Pennsylvania	(1919)	87.2

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University	(1919)	Dist. Colum.
Loyola University School of Medicine	(1918)	Mass.
University of Illinois	(1919)	New York
College of Physicians and Surgeons, Baltimore	(1904)	Illinois
University of Maryland School of Medicine	(1903)	W. Virginia
Maryland Medical College	(1903)	W. Virginia
Tufts College Medical School	(1917)	Mass.
Bellevue Hospital Medical College	(1897)	New York
Columbia University	(1917), (1918), (1919, 2)	New York
Cornell University Medical College	(1913)	New York
Fordham University School of Medicine	(1918), (1919)	New York
Long Island College Hospital	(1894) Florida, (1919)	New York
New York Homeo. Med. Coll. and Flower Hosp.	(1919)	New York
New York Homeo. Med. Coll. and Hospital	(1904)	New York
Syracuse University	(1919)	New York
University and Bellevue Hosp. Med. Coll.	(1919, 3)	New York
Leonard Medical School	(1901)	N. Carolina
Ohio State University Coll. of Medicine	(1916)	Ohio
Starling-Ohio Medical College	(1914)	Ohio
Medico-Chirurgical Coll. of Philadelphia	(1896)	Penna.
Temple University	(1918)	Delaware
University of Pennsylvania	(1899) Pennsylvania, (1900)	Mass.
Vanderbilt University	(1917)	Tennessee
University of Vermont Coll. of Medicine	(1899), (1913)	Vermont
Queen's Univ. Fac. of Med., Kingston	(1906) Va., (1912)	New York
University of Palermo	(1890)	New York
Syrian Protestant Coll., Beirut	(1914)*	New York

* Graduation not verified.

Tennessee June Examination

Dr. Alfred B. DeLoach, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Memphis, Nashville and Knoxville, June 11-12, 1920. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Eighty-two candidates were examined, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Bennett Medical College	(1910)*	75.9
Illinois Medical College	(1910)	75
Northwestern University	(1920)** 79.9, (1920)**	89.1
Rush Medical College	(1915) 86, (1917)	88
Tulane University of Louisiana	(1913) 95.5, (1919) 84.4,	88.4
Johns Hopkins University	(1904)	89.6
University of Maryland	(1915)	89
Harvard University	(1912) 87.5, (1915) 91.6, (1920)	90.6
Columbia University	(1915) 91.8, (1920)	89.3
New York Homeo. Med. Coll. and Flower Hospital	(1914)	88.8
Jefferson Medical College	(1905) 75, (1920) 89.9,	91
Meharry Medical College	(1919) 85.5, (1920) 76, 77.6, 78.4, 78.5, 78.8, 80.5, 80.9, 81.3, 82.4, 82.4, 82.5, 83, 83.1, 83.4, 84.5, 84.8, 84.9, 85, 85.1, 88.1	
Memphis Hospital Medical College	(1908)	81.8
University of Chattanooga	(1909)	81.6
University of Nashville	(1905)	82.6
University of Tennessee	(1894) 78.4, (1916) 85.4, (1920)	80.4 83.9, 86.1, 87.9, 88.6, 89.3
Vanderbilt University	(1920) 81.4, 82.8, 83.6, 83.6, 84.4, 84.6, 85.1, 85.3, 85.6, 85.6, 85.8, 86, 86.1, 86.3, 86.4, 86.5, 86.6, 86.9, 86.9, 87, 87.1, 87.1, 87.6, 87.6, 88.5, 88.8, 89.1, 90.3	
University of Virginia	(1915) 90, (1920)	89.3

* Graduation not verified.
** Diploma withheld until 1921, pending completion of hospital internship.

Utah October Examination

Dr. C. L. Olsen, acting secretary, Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 4-5, 1920. The examination covered 17 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates, including 2 osteopaths, took the physicians and surgeon's examination, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
University of Illinois	(1920)	84.5
St. Louis University School of Medicine	(1914)	84.8
John A. Creighton Medical College	(1920)	88.1
Western Reserve University School	(1920)	84.1
Jefferson Medical College	(1919)	83.3

Book Notices

The Fundamentals of Human Anatomy, Including Its Borderland Districts from the Viewpoint of a Practitioner. By Marsh Pitzman, A.B., M.D., Professor of Anatomy in the Dental Department of Washington University, St. Louis. Cloth. Price, $4. Pp. 356, with 101 illustrations. St. Louis: C. V. Mosby Company, 1920.

The preface indicates that this book is intended for use as a dissecting manual and introductory text by students, and as a text by practitioners who ought to know more anatomy. The author is a teacher of anatomy in a dental college, and finds the ordinary textbooks too large and encyclopedic. He finds too much detail in the dissecting manuals also. He has therefore written a "modern textbook of anatomy," much briefer, and limited to the "fundamentals" considered from the point of view of a practitioner. "Practical" paragraphs are introduced, and "sufficient directions" for dissection are included. The style is colloquial, and the Latin terms employed have not always their proper forms. It is quite brief. Part I, systemic anatomy, covering all the "systems," skeletal, muscular, nervous, vascular, etc., is completed in thirty-eight pages, and Part II, regional anatomy, in 279 pages. The extent to which details are omitted may be seen in an example. The portal vein is said to be formed by the union of veins corresponding to the celiac axis and the superior and inferior mesenteric arteries; but its formation by the junction of the splenic and superior mesenteric veins is not mentioned, nor do the names of the latter appear definitely in the book. The directions for dissection state simply that "the arteries and veins (of the abdomen) should be dissected" (p. 193). Medical students and practitioners will find it insufficient either as a dissecting manual or as a textbook. The author's fear that attempt by the student to master too much detail may result in confusion has been unnecessarily great, so far as they are concerned. It would be a good book for use by students whose need of detailed knowledge is less insistent than theirs, if it were free of inaccuracies. Its reliability may be judged from the following statements:

> A water blister following a superficial burn is a collection of fluid between the epidermis and dermis (p. 27).
>
> Groups of "synovial glands" lie in the recesses of the joint cavities, (p. 50).
>
> The small intestine has no glands (except liver and pancreas, p. 175).
>
> The cartilage about the vault of the skull first turns into fibrocartilage before any bone is deposited. This is known as the intramembranous type of bone development (p. 264).
>
> The fornix is continuous at both extremities with the corpus callosum (p. 300).
>
> A branch from the facial nerve nucleus of the brain stem makes its exit through the foramen ovale in company with the mandibular division of the trigeminal, carrying the motor supply to the muscles of mastication (p. 325).

The diagram on page 191 shows the azygos vein crossing over to the left side. The diagram on page 300 mistakes the massa intermedia for the foramen interventriculare of Monro.

Scurvy: Past and Present. By Alfred F. Hess, M.D., Clinical Professor of Pediatrics, University and Bellevue Hospital Medical College, New York City. Cloth. Price, $4 net. Pp. 279, with illustrations. Philadelphia: J. B. Lippincott Company, 1920.

For many reasons it is fortunate that the science of nutrition had taken on active growth before the outbreak of the World War. Not only did our recently acquired knowledge furnish information that was of inestimable value in maintaining the health of our armies, but it was of special value in the handling of the widespread effects of protracted defective nourishment in the civilian population. Reciprocally, an enormous amount of clinical material was furnished to extend and amplify the experimental observations, and as a result the already active interest in the problems of nutrition received an acute stimulation which resulted in an otherwise unapproachable rate of progress. A monograph on the subject of scurvy is, therefore, most timely, especially when prepared by so competent and industrious a student of this disease as Dr. Hess. The last comprehensive treatise on scurvy in English was published by Lind in 1772, so the field is open, to say the least. Scurvy is a topic that permits of most interesting literary treatment, bound up as it is with the stories of all the wars, explorations and famines of history to furnish a fascinating background, while in the foreground is the large mass of recent active laboratory and clinical research, with its fruitful yields and continued progress. Dr. Hess has not failed to take advantage of his favorable opportunity, and the book never lacks interest, from the picturesque material of the historical introduction to the closing discussion of the relation of scurvy to other diseases. It is readable throughout, and can be warmly recommended as an enjoyable as well as a profitable piece of medical reading for physicians of whatever training or special interest; for scurvy represents merely one of the manifestations of defective alimentation, and undoubtedly many less definite and outspoken conditions of ill health depend on imperfect provision for properly balanced and selected nourishment. A full bibliography also assures the book a place in the reference library of both the laboratory and the clinical investigator. All features of the disease are considered, historical, clinical, experimental, as well as the pathology, prognosis, diagnosis and treatment. Attention is called to the fact that with scurvy, as with the rest of the diseases dependent on partially defective nutrition, although leading facts have been known for centuries, decided advances have been made only in the last few years, through the application of experimental methods in laboratory and clinic from a rigid quantitative standpoint.

General Medicine. Edited by Frank Billings, M.S., M.D., Head of Medical Department, Rush Medical College, with the Collaboration of Burrell O. Raulston, A.M., M.D., Assistant Attending Physician, Presbyterian Hospital. Cloth. Price, $2.50. Pp. 624, with illustrations. Chicago: Year Book Publishers, 1920.

General Surgery. Edited by Albert J. Ochsner, M.D., F.R.M.S., LL.D., Professor of Surgery in the Medical Department of the State University of Illinois. Cloth. Price, $2.50. Pp. 620, with 223 illustrations. Chicago: The Year Book Publishers, 1920.

Pediatrics. Edited by Isaac A. Abt, M.D., Professor of Pediatrics, Northwestern University Medical School, with the Collaboration of A. Levinson, M.D., Associate Pediatrician, Michael Reese Hospital, Orthopedic Surgery. Edited by Edwin W. Ryerson, M.D., Associate Professor of Surgery (Orthopedic) Rush Medical College with the Collaboration of Robert O. Ritter, M.D., Associate Attending Orthopedic Surgeon, Children's Memorial Hospital. Cloth. Price, $1.75. Pp. 256, with 32 illustrations. Chicago: The Year Book Publishers, 1920.

These books follow the same style as in previous years. They represent a selection of articles of importance in the various specialties, the preparation of suitable abstracts, and the insertion of editorial additions or comments when such seem to be required.

Volume 1, on internal medicine, covers the field under the usual headings. Dr. Billings, in discussing the use of nonspecific proteins concludes in laconic style:

> The result of the treatment in typhoid fever, pneumonia and other acute infections and in chronic diseases is not constant. The modus operandi of the treatment is not understood. The method is not free from danger. If used, the doses should be small and the risk should not be taken without due deliberation.

In discussing pneumonia, he points out that actual evidence exists only in favor of Type I antipneumococcus serum. Those physicians who wish a collection of good abstracts of the literature of internal medicine for the year 1920 will find them in this book.

The volume on surgery, edited by Dr. Ochsner, is well illustrated and is unusually profuse in the number of editorial comments; this greatly enhances the value of the book.

In Volume 4, Dr. Abt edits pediatrics, and Dr. Ryerson the allied subject of orthopedic surgery. The pediatrics editor does not hesitate to point out faults in several of the articles abstracted. The section on orthopedic surgery is illustrated with charts and roentgenograms.

Radiologie des Vaisseaux de la Base du Cœur. Par H. Vaquez, Professeur à la Faculté de Paris, and E. Bordet, Chef de Laboratoire à la Faculté de Médecine de Paris. Paper. Price, 25 francs. Pp. 252, with 247 illustrations. Paris: J. B. Baillière & Fils, 1920.

The three editions of the earlier volume by Vaquez and Bordet on the radiology of the heart and the aorta have already received favorable comment in the pages of The Journal. This book may be regarded as the continuation and the final chapter of the earlier work. To the casual reader it may seem that the authors have devoted more attention than the subject warrants to the discussion of a comparatively trivial topic. But the arch of the aorta, and the other neighboring vessels are of great clinical importance. And as we note the valuable information obtained by the careful scrutiny of the minute details of roentgenograms of these parts, particularly if the plates are taken at various angles, if accurate measurements are made, and if findings thus discovered are interpreted in the light of the clinical history and physical examination, we realize that the thorough study of this limited region is well worth while. Many of the facts enunciated are based on experimental work on cadavers. Postmortem checking up on clinical and roentgenographic diagnoses has also played an important part. The book is decidedly helpful; and of not minor importance are the many illustrations.

A Text-Book of Pathology. By W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore. Second edition. Cloth. Price, $10 net. Pp. 1155, with 575 illustrations. Philadelphia: W. B. Saunders Company, 1920.

As pointed out in the preface, the exigencies of war turned the attention of pathologists particularly to the study of infectious diseases, those caused by animal parasites, and the effects of wounds, poisonous gases and malnutrition. In this edition, the author has attempted to follow these advances by the insertion of paragraphs summarizing new work or by rewriting whole chapters. Particular attention has been given to the sections on shock, acid-base equilibrium, hydrocephalus, immunity in tuberculosis, meningococcal infections, pneumonia after measles, influenza, cholera and leprosy. The illustrations have been modified and new ones inserted. Following each chapter is a table of references to the literature, several references to publications issued during 1919, assuring the reader that the publication is up to date. The extent of revision may be estimated by the fact that the first edition contained 1,085 pages while the present edition contains 1,155.

The Duodenal Tube and Its Possibilities. By Max Einhorn, M.D., Professor of Medicine at the New York Postgraduate Medical School. Cloth. Price, $2.50 net. Pp. 122, with illustrations. Philadelphia: W. B. Saunders Company, 1920.

This summarizes the numerous published papers by the author. The indications for the use of the duodenal tube and measures to facilitate its passage, as well as an analysis of duodenal contents thus obtained, are thoroughly considered. Full details are given for duodenal methods of feedings and for duodenal instillation of remedies. This work has served as a basis for the recent interesting work on diagnosis and treatment of diseases of the biliary tract, especially the nonsurgical drainage of the gallbladder. The book is clearly written, and should be a useful guide to those who are interested in this procedure.

High Frequency Apparatus: Design, Construction and Practical Application. A Practical Treatise for Electrical Engineers, Electricians, Physicians, Students and Experimenters. Covers the Design and Construction of all Kinds of High Frequency Apparatus for Use in Experimental, Medical and Plant Cultivation Work. Includes also directions for the Construction of a Complete Stage Outfit for Both Low and High Potential Work. By Thomas Stanley Curtis. Second edition. Cloth. Price, $3. Pp. 269, with illustrations. New York: Norman W. Henley Publishing Company, 1920.

This volume would appeal to any one who contemplates constructing a high frequency apparatus. The book is well supplied with diagrams and formulas for building different units. There are some interesting chapters on plant culture with high tension currents.

Electrical Treatment. By Wilfred Harris, M.D., F.R.C.P., Senior Physician and Lecturer on Neurology, St. Mary's Hospital, Maida Vale. Third edition. Cloth. Price, $3.50. Pp. 354, with illustrations. New York: William Wood and Company, 1920.

This is a small volume well adapted to the use of the physician who does not care to specialize in electrical treatment. The book deals largely with the use of faradic and galvanic electricity, and also of sinusoidal, high frequency and static electricity in the treatment of nervous diseases. The text is clear and concise and presents the subject in a sane manner, free from technical terms.

Medicolegal

Sale of Drugs by Physician Issuing Prescriptions

(Jin Fuey Moy v. United States (U. S.), Decided Dec. 6, 1920)

The Supreme Court of the United States says that each count of the indictment averred that the defendant, Jin Fuey Moy, was a practicing physician, and did unlawfully, wilfully, knowingly and feloniously sell, barter, exchange and give away certain derivatives and salts of opium, to wit, a specified quantity of morphin sulphate, to a person named, not in pursuance of a written order from such person on a form issued in blank for that purpose by the commissioner of internal revenue under the provisions of Section 2 of the Harrison Narcotic Law, "in manner following, to wit, that the said Jin Fuey Moy, at the time and place aforesaid, did issue and dispense" to the person named a certain prescription of which a copy was set forth, and that said person "was not then and there a patient of the said Jin Fuey Moy, and the said morphin sulphate was dispensed and distributed by the said Jin Fuey Moy not in the course of his professional practice only; contrary to the form of the act of Congress," etc. It was objected that the act of selling or giving away a drug and the act of issuing a prescription were so essentially different that to allege that the defendant sold the drug by issuing a prescription, for it amounted to a contradiction of terms, and the repugnance rendered the indictment fatally defective. The government suggested that the clause as to issuing the prescription might be rejected as surplusage; but the court is inclined to think that it enters so intimately into the description of the offense intended to be charged that it cannot be eliminated, and that unless the defendant could "sell," in a criminal sense, by issuing a prescription, the indictment was bad. If "selling" must be confirmed to a parting with one's own property, there might be difficulty. But by Section 332 of the Criminal Code, "Whoever directly commits any act constituting an offense defined in any law of the United States, or aids, abets, counsels, commands, induces, or procures its commission, is a principal." Taking this together with the provisions of Section 2 of the narcotic laws it is easy to see, and the evidence in this case demonstrated, that one may take a principal part in a prohibited sale of an opium derivative belonging to another person by unlawfully issuing a prescription to the would-be purchaser. Hence there is no necessary repugnance between prescribing and selling, and the indictment must be sustained.

The evidence showed that the defendant was a practicing physician in Pittsburgh, registered under the act so as to be allowed to dispense or distribute opium and its derivatives without a written order in official form, "in the course of his professional practice only"; that he was in the habit of issuing prescriptions for morphin sulphate without such written order and not in the ordinary course of professional practice; that he issued them to persons not his patients and not previously known to him, professed morphin users, for the mere purpose, as the jury might find, of enabling such persons to continue the use of the drug, or to sell it to others. In some cases he made a superficial physical examination; in others, none at all. His prescriptions called for large quantities of morphin—from 8 to 16 drams at a time—to be used "as directed," while the directions left the recipient free to use the drug virtually as he pleased. His charges were not according to the usual practice of medical men, but according to the amount of the drug prescribed, being invariably one dollar per dram. All the prescriptions were filled at a single drug store, the recipients being sent there by the defendant for the purpose; while persons inquiring at that drug store for morphin were sent to the defendant for a prescription. The circumstances strongly tended to show cooperation between the defendant and the proprietors of the drug store. At and about the dates specified in the indictment—the spring of the year 1917—and for more than two years before, the number of prescriptions issued by the defendant and filled at that drug store ran into the hundreds each month, all calling for morphin sulphate or morphin tablets in large quantities. In each case in which the defendant was found guilty, the evidence fully warranted the jury in finding that he aided, abetted and procured a sale of morphin sulphate without a written order on a blank form issued by the commissioner of internal revenue; and that he did this by means of a prescription issued not to a patient and not in the course of his professional practice, contrary to the prohibition of Section 2. Manifestly the phrases "to a patient" and "in the course of his professional practice only" are intended to confine the immunity of a registered physician, in dispensing the narcotic drugs mentioned in the act, strictly within the appropriate bounds of a physician's professional practice, and not to extend it to include a sale to a dealer or a distribution intended to cater to the appetite or satisfy the craving of one addicted to the use of the drug. A "prescription" issued for either of the latter purposes protects neither the physician who issues it nor the dealer who knowingly accepts and fills it.

The judgment of conviction under review is affirmed.

Courts Favor Prophylactic Measures

(Hanzal et al. v. City of San Antonio et al. (Texas), 221 S. W. R. 237)

The Court of Civil Appeals of Texas says that this is the day of prophylaxis, and the highest and best efforts of men are marshaled to prevent disease and preserve health, rather than to await the approach of the forces of disease and death and then use efforts to destroy and annihilate them. Courts are lending their approval to such advanced humanitarian ideas, and giving full force and effect, whenever practical and in consonance with enlightened construction of constitutional provisions, to sanitary laws. The sordid interest of the individual must give way when it becomes necessary to conserve and protect the health of the people, which has been aptly termed the most valuable economic asset and greatest social blessing that can be secured to any government. Health regulations being of such vital importance to any community must, if reasonable and impartial, be submitted to by individuals for the public good and general welfare. The state cannot, by reason of the vastness of demands made on it, and the complexities of local situations and exigencies constantly arising, supervise and superintend on all occasions; and courts, recognizing the necessity for it, have held uniformly that the power granted to municipalities and other agencies of government to prescribe rules for the prevention of disease and the preservation of health is not a delegation of legislative authority which is prohibited by the constitution. So, too, health authorities of municipalities are often empowered, and it is made their duty, to execute rules; and courts uniformly hold that it is not an improper delegation of legislative authority, to adopt and execute such rules as are expedient to prevent the spread of cholera, smallpox, yellow fever, scarlet fever, diphtheria and other communicable diseases. The law of necessity demands that the great majority must be protected at the expense of some of the rights of the individual. As to trades, callings and occupations, laws regulating and throwing restrictions about them in the interest of the public health are everywhere upheld and sustained, and where the validity of such laws is challenged it is no longer a question of authority to enact them, but whether the occupation, calling or business is one involving the public health. In this case, what the court sustains is the validity of a city ordinance regulating barber shops and the trade or occupation of barbering, for sanitary purposes and the protection of the health of the public. The state directly, or through any agencies created by it, has the power to use preventive means against such probable contagion, infection or communication of vile diseases, as might be imparted through careless or insanitary barbers. The commissioners of the city were invested with the authority to place the power of deciding what may be an "infectious, contagious or communicable disease" to its health officer; and this power of passing on the infectious, contagious or communicable nature of diseases was made the occasion to animadvert on the ability of "physicians of the so-called regular or allopathic school" to determine whether such contagion, infection or communicability exists. But the lack of knowledge as to the classification of diseases by the health officers will not be anticipated, but will be investigated if it should ever be presented.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

December, 1920, **160**, No. 6

*Experimental Studies in Diabetes: Internal Pancreatic Function in Relation to Body Mass and Metabolism. I. Alterations of Carbohydrate Assimilation by Removal of Portions of Pancreas. F. M. Allen, New York.—p. 781.
Diagnosis of Myxedema. J. M. Anders, Philadelphia.—p. 801.
*Influence of Protein Food on Increased Blood-Pressure. H. O. Mosenthal, New York.—p. 808.
*Management of Heart in Pneumonia. H. Brooks and J. Carroll, New York.—p. 815.
*Rôle of Electrocardiogram in Prognosis. J. D. Heard and G. E. Hein, Pittsburgh.—p. 828.
Negativity of Final Ventricular T Wave of Electrocardiogram. F. A. Willius, Rochester, Minn.—p. 844.
*Ileal Regurgitation, Nerves and Diet in Chronic Intestinal Invalid. J. Bryant, Boston.—p. 865.
*Significance of Small Amounts of Sugar in Urine. L. Kast, E. L. Wardell and V. C. Myers, New York.—p. 877.
Pathogenesis of Acute Leukemia: Report of a Case of Acute Myeloblastic Leukemia, with the Association or Complication of Vincent's Angina. M. Packard and E. P. Flood, New York.—p. 883.
*Contents of Stomach. E. J. Best, San Francisco.—p. 889.

Experimental Studies in Diabetes.—The first experiments of the series now reported on by Allen deal with the removal of various portions of the pancreas and observations of the tolerance for Merck's anhydrous glucose by stomach and by subcutaneous injection in 30 per cent. solution. It was found that dogs show an increased tendency to glycosuria from glucose given by stomach or subcutaneously when as little as a fourth or a third of the pancreas is removed. Apparently, therefore, the pancreas has little if any "margin of safety" from the standpoint of strictly normal metabolism, and there may be frequent occasions when its full endocrine function is needed for the purpose of fully normal assimilation. Quantities of sugar which exceed the normal assimilation may possibly be conceived as overtaxing the normal pancreatic function. The internal secretory potency of different parts of the pancreas is equal, as far as such tests can determine; but the influence of a given mass of tissue increases as the total mass of remaining tissue decreases. The "margin of safety" of the pancreas with regard to diabetes is large, amounting in the dog to at least seven eighths of the gland. The point at which diabetes begins is sharp and definite. The curve of lowering of tolerance, with removal of successive portions of pancreas, is approximately hyperbolic in form. The quantitative relations of the pancreatic hormone stands in some quantitative relation with the amount of carbohydrate metabolized, because a deficiency is revealed by moderate glucose dosage when only one fourth of the pancreas is removed, and because in diabetes the islands can be driven to destructive overfunction by carbohydrate excess and spared by regulation of diet. A more important quantitative relation is the minimum requirement of the body cells to prevent diabetes. When this minimum quantity of the hormone is present the organism retains its power to metabolize almost the whole of any glucose dosage that can be absorbed from the stomach or subcutaneous tissue, no matter how large or how long continued. When this minimum is reduced by only a trifle the phenomena of diabetes begin. With mild diabetes this deficit may be guarded against by restriction of carbohydrate. With more severe diabetes the total diet and body weight must be reduced. With still more severe diabetes the supply of hormone is inadequate for even the lowest metabolism and glycosuria is therefore uncontrollable even by fasting. Hopeless diabetes, uncontrollable by fasting, results (barring hypertrophy) when the remnant is about one twentieth of the pancreas. It seems evident that in the case of man a relatively small mass of normal island tissue can prevent diabetes, and the conclusion is therefore suggested that any positive means of augmenting the endocrine pancreatic function even by a little would give therapeutic results far surpassing those of the negative plan of sparing the function by diet.

Influence of Protein Food on Blood Pressure.—From Mosenthal's observations it would appear that it is exceptional for a low protein diet to diminish the blood pressure or a high protein diet to raise it.

Management of Heart in Pneumonia.—One of the most outstanding and striking facts in connection with pneumonia is that fatal cases terminate almost invariably with what appears clinically as a cardiac death. The predominating cardiac lesion in pneumonia is an inflammation or degeneration of the heart muscle. Brooks and Carroll believe that every case of pneumonia begins with a strain on the right heart, and that this strain is in amount that which justifies the conclusion that the paramount factor in prognosis of all forms of pneumonia lies here, and that on the ability of the right heart to resist the mechanical and toxic effects of the disease, mostly depends the fate of the patient. They believe further that small doses of digitalis at the outset of the infection enable the right heart to realize in the presence of an initial increased pulmonary pressure, a compensatory circulatory adjustment. Through this compensation at the onset the right heart in most instances is able to maintain an equilibrium. The best effects are obtained when the drug is given early in the disease and before the heart shows any evidence of incompetency. Brooks and Carroll give tincture of digitalis at the moment that the diagnosis is made or even when it is highly suppositious. The routine use of 5 minims of a good tincture by mouth, three or four times a day, is sound and efficient therapy. When the heart is crippled or subnormal, from 15 to 20 minims, every two or three hours, are given until the rate effect appears, the pulse becomes full, the muscle sound good and the apical thrust vigorous. If, then, the heart appears competent, the dose is reduced to 5 minims, every three hours or, perhaps, entirely discontinued. If signs of inordinate right heart strain appear or incompetency develops the dose is immediately increased. Rest, properly timed venesection, and numerous other adjuvant measures are frequently of great therapeutic utility.

Rôle of Electrocardiogram in Prognosis.—An attempt was made by Heard and Hein to assess the prognostic value of information derived from the study of electrocardiograms obtained from 560 patients whose hearts were beating under the domination of the normal pacemaker and at a rate which was approximately normal. A detailed report is made.

Ileal Regurgitation.—In unselected gastro-intestinal material, Bryant says, a frequency of from 20 to 30 per cent. of ileal regurgitation is to be expected. The patient with ileal regurgitation usually suffers from an increased intensity of any nervous irritability to which he may be liable, during the continuance of untreated ileal regurgitation. Immediate treatment of ileal regurgitation is by simple, bland, nonputrefying diet.

Significance of Slight Glycosuria.—It would appear from qualitative sugar observations on hourly specimens of urine, a few of which are given by Kast and others, that the results obtained with the usual qualitative tests made on specimens of urine taken at random, or even in the morning before breakfast, are quite misleading as regards the carbohydrate tolerance of the patient.

Studying Contents of Stomach.—A method is given by Best for the fractional stomach examination which makes it possible to complete all the tried tests of gastric study in two hours and gives connected pictures of the secretion during this period.

American Journal of Ophthalmology, Chicago

December, 1920, **3**, No. 12

Thrombosis of Retinal Veins After Influenza. E. Jackson, Denver.—p. 855.
Self Inflicted Conjunctivitis. H. Friedenwald, Baltimore.—p. 858.
Value of Dental Examination in Treatment of Ocular Disorders. W. L. Benedict, Rochester, Minn.—p. 860.
Some Optical Imperfections of Eye and Some of Their Uses. H. Sewall, Denver.—p. 865.
Two Cases of Glioma of Retina. C. C. Rush, Johnstown, Pa.—p. 869.
Malignant Melanoma of Choroid, with Gradually Decreasing Intraocular Tension. L. M. Francis, Buffalo.—p. 872.
Hereditary Reversion Pigmentation of Eyelids with Heterochromia of Iris. H. V. Würdemann, Seattle.—p. 874.

Orbital Epidural and Brain Abscess; Necropsy Studies. E. M. Blake, New Haven, Conn.—p. 876.
Hints in Relation to Dynamics of Extrinsic Ocular Muscles with Suggestions as to Treatment of States of Muscular Imbalance. J. M. Banister, Omaha.—p. 878.
Operation for Restoring Canaliculus. F. W. Dean, Council Bluffs, Iowa.—p. 883.
Painless Subconjunctival Injection. C. A. Campbell, Steubenville, Ohio.—p. 884.

Archives of Dermatology and Syphilology, Chicago

January, 1921, **3**, No. 1

*Study of Epidermophyton Inguinale. G. W. Wende and K. R. Collins, Buffalo.—p. 1.
*Tuberculosis of Lip. E. P. Zeisler, Chicago.—p. 14.
*Epitheliomas Developing on Lupus Erythematosus. W. G. Wander, St. Louis.—p. 22.
*Erythema Nodosum and Tuberculosis. J. H. Stokes, Rochester, Minn.—p. 29.
*Studies on Albuminuria and Eosinophilia in Scabies. J. M. Hayman, Jr., and T. S. Fay, Philadelphia.—p. 32.
*Pityriasis Rubra Pilaris. O. L. Levin, New York and E. B. Smith, Philadelphia.—p. 40.
Notes from Kalahi Leprosy Hospital. J. T. Wayson, Honolulu, H. I.—p. 45.
*Removal of Warts. T. K. Lawless, Chicago.—p. 47.
Study of a Case of Yaws (Frambesia Tropica) Contracted by an American Soldier in France. J. F. Schamberg and J. V. Klauder, Philadelphia.—p. 49.

Study of Epidermophyton.—Wende and Collins report on the results of an inquiry into the morphology of the causative fungi and a clinical and laboratory study of thirty-seven cases of dermal scaling.

Tuberculosis of Lip.—The case reported by Zeisler represents an unusual instance of solid tuberculoma of the lower lip with ulcerations of the buccal mucosa associated with a chronic pulmonary tuberculosis of the fibroid type. The author points out that tuberculosis of the lip must be differentiated from chancre and epitheliomatous ulcerations. A positive diagnosis rests on the finding of tubercle bacilli and the characteristic histology.

Epithelioma Developing on Lupus Lesion.—Four cases of carcinoma on lupus erythematosus are reported by Wander. During the past ten years, 110 cases of lupus erythematosus appeared, including the four of this report, making the incidence of the occurrence of carcinoma on lupus erythematosus 3.6 per cent. at the Barnard Free Skin and Cancer Hospital.

Erythema Nodosum and Tuberculosis.—Stokes reports a case terminating in tuberculous meningitis. The outstanding features of interest in this case are: 1. Absence of clinical evidence of tuberculosis when the patient presented herself with rheumatoid symptoms and erythema nodosum. 2. The apparently exact correspondence of the onset of erythema nodosum with the time of generalization of the tuberculous infection as estimated by the age of the tubercles found at necropsy. 3. The complete absence both in life and at necropsy of the septic foci responsible for erythema nodosum of the streptococcal or Rosenow types.

Albuminuria and Eosinophilia in Scabies. — Forty-nine patients were observed by Hayman and Fay. Albumin was found in ten. Of thirty-five untreated patients, six showed albumin, 17.1 per cent. In the fourteen treated patients, four showed albumin, 28.5 per cent. Of the patients showing albumin, all had a generalized eruption of the hands, arms, legs and trunk. None showed any special or peculiar type of lesion, nor were pustules especially in evidence. In fact they were more conspicuous by their absence. Therapeutic measures appear to increase the incidence of albuminuria. In no case were the urinary findings of clinical significance, and the patients complained of only cutaneous symptoms. Fifty-five cases of scabies examined had an eosinophilia.

Pityriasis Rubra Pilaris.—A report is made by Levin and Smith of a typical case of pityriasis rubra pilaris occurring in a male adult who revealed more or less definite signs and symptoms of thyroid dysfunction. The skin condition showed rapid improvement and an apparent cure was obtained with thyroid therapy alone. No claim is advanced for the specificity of thyroid extract in the cure of this disease, but it is recommended that organotherapy should be given a trial in the treatment of pityriasis rubra pilaris, and only by further study and careful clinical observations will its actual therapeutic value and effects be definitely determined.

Removal of Warts.—The ordinary high frequency apparatus is used by Lawless with the exception of the glass vacuum tube, instead of which, a metallic needle holder is used of such length that when it is inserted into the chamber of the high frequency apparatus an electric contact is formed. In the needle holder, a fine platinum or a very fine sewing machine needle is inserted and made secure.

Arkansas Medical Society Journal, Little Rock

December, 1920, **17**, No. 7

*Is Castor Oil an Oxytocic? St. C. Cooper, Fort Smith.—p. 141.
Use and Application of Surgical Solution of Chlorinated Soda. W. T. Lowe, Pine Bluff.—p. 143.

Action of Castor Oil on Uterus.—Cooper believes that castor oil, when given near term, has a selective action on the cervix uteri causing rapid cervical dilatation. It shortens the first stage of labor and brings on strong regular pains.

Boston Medical and Surgical Journal

Dec. 23, 1920, **183**, No. 26

Diagnosis and Treatment of Neurosyphilis. H. C. Solomon, Boston.—p. 723.
Cysts of Jaws. K. H. Thoma, Boston.—p. 730.
Minor Rôle of Conduction Apparatus in Slowly Progressive Deafness. F. P. Emerson, Boston.—p. 736.
*Hair-Ball in Stomach Causing Acute Abdominal Symptoms Successfully Removed at Operation. W. Whittemore, Boston.—p. 741.

Hair-Ball in Stomach.—Whitemore reports the case of a girl, aged 13 years, who entered the hospital with a diagnosis of acute appendicitis. For a year or more she had been in the habit of pulling hair from her head winding it about her finger and then sucking her finger. One year ago she began to have periodic attacks of pain in her stomach which she localized near the umbilicus. These attacks were associated with nausea and vomiting. This occurred about every two or three months, lasting a week. There had been no fever at any time, nor any blood from mouth nor with stools. Between attacks there had been almost constant pain in her stomach which was worse when she moved about and disappeared when she lay down. There was a questionable but indistinct mass in the left upper quadrant of the abdomen. Immediate operation seemed advisable and the preoperative diagnoses considered were (1) an intussuception, this being based largely on a questionable mass felt; (2) acute appendicitis with the appendix on the left side; (3) a perforation of the stomach from a mass of hair in the stomach, but although this possibility was discussed it was not considered very seriously. At operation a large, hard mass, which was somewhat movable was felt inside the stomach. A hair-ball, about the size and shape of the inside of the stomach, weighing 212 gm., was removed. The patient made an uneventful recovery.

Delaware State Medical Journal, Wilmington

Oct.-Nov.-Dec., 1920, **11**, No. 4

Presidential Address. H. M. Manning, Seaford.—p. 9.
Equilibrium and Vertigo. E. R. Mayerberg, Wilmington.—p. 12.
Nasal and Aural Conditions Associated with Flying. W. H. Bonner, Wilmington.—p. 17.

Florida Medical Association Journal, St. Augustine and Jacksonville

December, 1920, **7**, No. 6

Treatment of Influenza Pneumonia. S. Erwin and L. Limbaugh, Jacksonville.—p. 87.
Value of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. A. H. Higgins, Tampa.—p. 89.

Johns Hopkins Hospital Bulletin, Baltimore

December, 1920, **31**, No. 358

Unpublished Letters of Laennec. W. S. Thayer, Baltimore.—p. 425.
*Pleural Spirochetosis. V. R. Mason, Baltimore.—p. 485.
*Vicarious Blood Platelet Formation. C. H. Bunting, Madison, Wis.—p. 439.
*Measurements of Intracranial Pressure Changes in an Epileptic and Its Experimental Variations. F. G. Ebaugh and G. S. Stevenson, Baltimore.—p. 439.
*Determination of Acetone in Breath. H. L. Higgins, Baltimore.—p. 447.
*Certain Cultural Characteristics of Gonococcus. E. O. Swartz, A. T. Shohl and D. M. Davis, Baltimore.—p. 449.

*Laboratory Method for Preparation of Fibrinogen. J. McLean, Baltimore.—p. 453.
Restoration of Hearing in Case of Gunshot Injury of Eustachian Tubes. J. W. Baylor, Baltimore.—p. 454.
Histologic Pathology of Case of Measles Conjunctivitis. J. R. Paul, Baltimore.—p. 455.
*Lymphosarcoma, Lymphatic Leukemia, Leukosarcoma, Hodgkin's Disease. L. T. Webster, Baltimore.—p. 458.
Some Adaptive Difficulties Found in School Children. E. L. Richards, Baltimore.—p. 461.

Pleural Spirochetosis.—Mason reports a case of what he believes to be the first instance of spontaneous infection of the pleural cavity by *Spirochaetae bronchialis* (Castellani) recorded. The patient had been ill for several months before the empyema developed, but no examination was made of his sputum to determine the nature of the lung disease; however, its clinical course and the results of physical examination were very similar to those of bronchospirochetosis. Mason believes that during an attack of coughing an area of pulmonary gangrene was ruptured and spirochetes forced into the pleural cavity. Following the formation of a pneumothorax an empyema developed. The pus from the pleural space contained not only actively motile spirochetes but many bacilli and cocci.

Vicarious Blood Platelet Formation.—In a study of the blood of influenza patients of the 1920 epidemic, Bunting says he encountered what appears to him to be indubitable evidence of the compensatory formation of platelets or platelet-like bodies from leukocytes of the circulating blood. He speaks of this as a "compensatory formation" for the reason that in influenza there is apparently a sharp inhibition of bone-marrow activity with a marked fall in the number of circulating platelets as one of the results. Practically every large lymphocyte in the smear showed some stage in the formation of pseudopodia or platelets. By the term "large lymphocyte" is meant a cell, common in normal blood smears, which is apparently a mature form of the small lymphocyte. At least, it is a cell with a nucleus the size of that of a small lymphocyte, but with more protoplasm, which has an acidophilic staining tendency and contains a few coarse, often rod-shaped azurophilic granules. Some of these cells showed merely the collection of the granules about a point in the periphery of the cell; others, a slight protrusion of this part of the protoplasm; others showed the cutting off of the granule containing mass, while still others showed the formation of definite pseudopodia of considerable length with grouping of the granules as in platelets and with beginning constriction of the process evident. It was also noted in the smears that these lymphocytes had apparently acquired an increased adhesiveness over that normally seen, and in this case, a condition not shown by the other forms of leukocytes. Careful study of the preparations, however, eliminated from the author's mind the possibility that this adhesiveness was responsible for the production of the pseudopodia as artefacts. The clumping of the granules, the beginning construction of the pseudopodia, the varied direction of extension of the processes, the absence of signs of stree in cells close by, all indicated that here one was dealing with the production of platelet-like bodies, differing slightly morphologically but probably possessing the same functional value as indicated by this very adhesiveness. A similar process was noted in the blood of several other influenza cases, but in no case was there an approach to the extensiveness of the processes, noted in the case described.

Intracranial Pressure in Epilepsy.—The studies reported on by Ebraugh and Stevenson were made on a patient who had a sufficiently large area of bone defect in his skull the result of an operation which failed to relieve him from his attacks of epilepsy. The intracranial pressure changes was measured by the application of an inverted tambour. Roughly they follow absolute pressure changed in the cerebrospinal fluid. Rhythmic changes in intracranial pressure of various types have been recorded. Epileptic attacks are associated with a rise in intracranial pressure and are unaccounted for by activities of the patient. A rise of blood pressure sometimes occurs with the rise of intracranial pressure during the attacks. The patient gives subjective complaints associated with these changes. Petit mal attacks show typical kymographic tracings of pressure changes. Intracranial pressure is lowered by the intravenous and oral administration of hypertonic solutions. The oral administration of 200 c.c. hypertonic Ringer's solution gives a transient fall of 20 mm. water with a terminal rise of pressure. From 30 per cent. hypertonic glucose given intravenously a prolonged fall of pressure, averaging 20 mm., after a slight initial rise, was noted. These changes represent far greater changes in the true intracranial pressure. Glucose is more ideal to use for therapeutic purposes. The administration of hypertonic solutions (water) gives a constant increase of intracranial pressure. These changes are adequately controlled by the use of isotonic solutions.

Determination of Acetone in Breath.—Higgins states that for the past five years he has been using a chemical method of estimating quantitatively the acetone in the breath, determining in this way if acetone bodies are present in the body and roughly in what amounts. This has been found of practical value in many cases, especially in cases of hyperpnea, when acidosis is recognized or suspected, and it is important to know immediately if acetone bodies may not be the cause of the condition. In diabetic patients, the determination of acetone in the breath affords a rapid quantitative measurement of the amount present in the body; the determination is useful in diagnosing diabetic coma, and in following the condition of a patient when coma is impending or when changes in diet are being made. In cases in which a patient has been getting little or no food, as in fasting or recurrent vomiting, the determinations of the acetone in the breath act as a guide to the patient's condition. The method used is described in detail. The air for the determination is collected in a rubber bag of 1,000 c.c. capacity when full. Within thirty seconds after collecting the specimen, it is blown through the Scott-Wilson acetone reagent. If acetone is present a white cloud is formed which reaches its maximum density in about five minutes.

Cultural Characteristics of Gonococcus.—The superior growth of gonococcus in closed systems, when part of the air or of the oxygen has been removed or replaced, Swartz and his co-workers state, is essentially due to the lowered oxygen tension, and not to moisture, change of reaction, or presence of carbon dioxid. Moisture is, however, necessary to good growth. A reduction in the oxygen tension of 10 per cent. is sufficient to produce optimal growth. The gonococcus will grow luxuriantly, if the oxygen tension is suitable and moisture and uncoagulated proteid are present, on a medium having an initial reaction anywhere between p_H 6.6 and p_H 8.0, inclusive. In dextrose containing mediums, the acid end-point for the gonococcus is p_H 5.6.

Preparation of Fibrinogen.—By substituting ammonium sulphate for sodium chlorid to salt out the fibrinogen a readily soluble precipitated fibrinogen was secured by McLean. No difficulty has been encountered in dissolving fibrinogen which has been reprecipitated three times. Thus a fibrinogen free from prothrombin, which tends to adhere to the precipitate, may be obtained.

Relationship Between Leukosarcoma, Lymphosarcoma and Lymphatic Leukemia.—The close relationship between leukosarcoma, lymphosarcoma and lymphatic leukemia is emphasized by Webster. Three leukosarcoma cases studied presented a blood picture of lymphatic leukemia, general involvement of the lymphatic system, infiltration of the parenchymatous organs and bone marrow, associated with an invasive mediastinal tumor. One case beginning as a localized tumor of the chest developed a typical lymphatic leukemia after roentgen-ray treatment. The glands were enlarged all over the body, the liver and spleen descended below the costal margin. It seems that leukosarcoma combines the features of lymphosarcoma and lymphatic leukemia and that a localized lymphosarcoma may under certain conditions become generalized and, with a blood picture of lymphatic leukemia, may terminate as a leukosarcoma. Very important in this connection is the mode of spread of the lymphosarcoma group which, regardless of its primary site, extends in a characteristic manner first by local infiltration and later by the blood stream to parenchymatous organs, lymph glands, bone marrow, etc. Webster suggests the term "lymphadenosis, leukemic or aleukemic" to simplify the classification until a definite etiologic agent is found.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

December, 1920, **16**, No. 5

*Action of Caffein, Theobromin and Theophyllin on Mammalian and Batrachian Heart. R. S. A. Heathcote, Oxford.—p. 327.
*Comparative Studies on Physiologic Value and Toxicity of Cotton Seed and Some of Its Products. I. G. Macy and L. B. Mendel, New Haven, Conn.—p. 345.
*Influence of Intravenous Injections of Acacia-Glucose Solutions on Urine Excretion and Blood Volume in Rabbits. P. M. Mattill, K. Mayer and L. W. Sauer, Chicago.—p. 391.
Anesthetic and Convulsant Effects of Gasolin Vapor. H. W. Haggard, New Haven, Conn.—p. 401.

Action of Caffein, Theobromin and Theophyllin.—It is claimed by Heathcote that caffein, theobromin and theophyllin have an active vasodilator action on the coronary vessels, probably muscular in origin, caffein being the weakest and theobromin the strongest. Experimental evidence is thus provided for the use of theobromin in those conditions such as angine pectoris in which coronary vasodilation may be of service.

Cotton Seed Meal.—The most characteristic clinical symptoms of cotton seed meal injury in rabbits, guinea-pigs, pigeons, and albino mice are emaciation, loss of appetite, weagness, rough hair and unkempt appearance, disturbance in breathing, finally coma and, perhaps, paralysis. Macroscopic postmortem examination reveals dilation of the right side of the heart, usually congestion of the liver, kidneys, and, in many cases, the lungs. Splanchnic congestion was frequent, and if the intestines were not hemorrhagic, they often appeared friable and easily ruptured.

Effect of Acacia on Blood Volume.—Mattill and his associates claim that acacia is capable of maintaining the blood volume in spite of a very marked glucose diuresis. Injecting acacia-glucose mixture wherein the glucose is present in concentrations of from 30 to 40 per cent. in quantities of about one half of the rabbit's blood volume in one and one-half hours, a decrease of the blood volume is practically prevented by the presence of 3 per cent. acacia in the injection fluid. Glucose injections without acacia produce uniformly a diminution of the blood volume.

Journal of Urology, Baltimore

December, 1920, **4**, No. 6

Later Development of Urethra in Male. F. P. Johnson, Baltimore.—p. 447.
*Intractable Bladder Symptoms Due to Ureteritis. G. L. Hunner, Baltimore.—p. 503.
*Improved Method of Determining Urea in Urine by Means of Urease. A. M. Roman, Chicago.—p. 531.
Value of Cultural Method in Diagnosis of Chancroid. O. Teague and O. Deibert, New York.—p. 543.
*Precipitin Reaction in Diagnosis of Gonococcus Infections. G. H. Robinson and P. D. Meader, Baltimore.—p. 551.
*Tuberculosis of Spine Resembling Pyelitis. N. B. Foster, New York.—p. 559.
Wax-Bulb Ureter Catheter for Routine Use, E. L. Keyes, Jr., New York.—p. 563.
*Solitary Cysts of Kidney. H. L. Kretschmer, Chicago.—p. 567.

Bladder Symptoms Due to Ureteritis.—Further experience with cases of so-called simple ulcer of the bladder and more careful history taking and more minute attention to possible foci of infection has led Hunner to reverse the opinion he held at first with reference to the absence of a distant focus of infection. One of the most striking circumstances leading to this reversal of opinion is the recent discovery that many patients suffering with this type of bladder ulcer have at the same time, or subsequently develop, ureteral stricture. In one case of resection of the bladder, the patient came back later suffering with symptoms due to ureteral stricture. In three bladder ulcer cases pyelitis developed during convalescence from the bladder operation and all three women were found to have ureteral stricture. Of the last twenty patients with an elusive ulcer, only eight of them operated on as yet, seven have had symptoms leading to the investigation for and the discovery of ureteral stricture. He says that his experience with ureteral stricture cases leaves no room for doubt as to the focal infection theory answering for the etiology in the vast majority of these cases.

Determination of Urea in Urine.—A new method for the quantitative determination of urea in urine by direct nesslerization is given by Roman which is said to be specific, accurate, practical and giving uniform results when performed by different technicians under the same conditions. An apparatus is used, which essentially is a vacuum flask, by the use of which the escape of ammonia formed is avoided.

Precipitin Reaction in Diagnosis of Gonococcus Infections.—Robinson and Meader claim that the present methods of diagnosing gonorrhea are inadequate since in many cases, clinically positive gonococci cannot be demonstrated in the discharge whereas a positive precipitin test is obtained in all cases where the gonococcus can be found in the discharge. A positive precipitin test is found in specimens from many patients whose history and clinical symptoms point to gonorrhea but in whose discharges the gonococcus cannot be demonstrated. The precipitin test is of value in the diagnosis of vaginal and other specimens where the microscopic demonstration of gonococci in the discharge is difficult or impossible.

Tuberculosis of Spine Resembling Pyelitis.—Foster's patient had attacks of unilateral pain resembling renal colic with intermittent fever and pyuria. Cystoscopic examination revealed pus from the kidney on the side with pain. Examination of the spine and roentgenograms were negative. Nephrectomy was done. Later kyphosis and signs of disease of vertebrae were discovered.

Solitary Cyst of Kidney.—Kretschmer cites a case of solitary cyst extending from the lower pole of the right kidney which had a double pelvis. A calculus was found in the superior pelvis.

Laryngoscope, St. Louis

December, 1920, **30**, No. 12

*Six Cases of Septic Sinus Thrombosis in Children. S. J. Kopetzky, New York.—p. 763.
Logical Cause, Pathology and Treatment of Brain Lesions. A. Kahn, New York.—p. 809.
Lateral Sinus Disease. H. H. Martin, Savannah, Ga., and S. J. Crowe, Baltimore.—p. 817.
Brain Abscess of Otitic Origin with Epileptiform Attacks; Decompression; Recovery. C. M. Sautter, New York.—p. 823.

Septic Sinus Thrombosis.—Kopetzky points out that the painless type of mastoiditis is a source of potential danger to patients because its gravity is not recognized, nor is it often diagnosed. He urges that a more general knowledge of the various types of mastoiditis, by specialist as well as general practitioner, is desirable, as not all types are to be treated alike. Some present graver risks to the patient than others. The findings at operation should be carefully studied, as a hemorrhagic lesion, accompanying or following an attack of influenza, and giving septic symptoms, should make a survey of the sinus condition imperative as soon as the necessary data to establish the diagnosis are at hand.

Maine Medical Association Journal, Portland

December, 1920, **11**, No. 5

Goiter. F. H. Lahey, Boston.—p. 145.

Medical Record, New York

Jan. 8, 1921, **99**, No. 2

Cardiac Arrhythmias and Their Identification by Methods Which are Generally Available. E. E. Cornwall, Brooklyn.—p. 43.
Concept of Roentgen-Ray Pathology. II. Pneumopathy. A. J. Pacini, Washington, D. C.—p. 46.
Insomnia. C. B. Pearson, Catonsville, Md.—p. 53.
Some Interesting Things About Tuberculosis. S. A. Slater, Worthington, Minn.—p. 56.
Autotransfusion for Hemorrhage. G. R. Love, Chicago.—p. 58.

Military Surgeon, Washington, D. C.

December, 1920, **47**, No. 6

Elementary Chemical and Bacteriologic Aspects of True Reaction of Culture Mediums. W. C. Cox and C. B. Wood.—p. 621.
Renaissance of Medicine in China. E. V. Cowry.—p. 653.
Report of Nerve Injuries Cared for at Evacuation Hospital No. 8, A. E. F. A. M. Hanson.—p. 662.
Management of Fractures. C. H. Moore and A. De F. Smith.—p. 666.
Results of Wound Excision with Suggestions as to Improvements and Alternative Methods. M. B. Tinker, Ithaca, N. Y.—p. 674.
Year's Work in Military Hospitals and Prospectus of Future. F. Kramer.—p. 681.
Making of Medical and Surgical History of War of Rebellion. L. C. Duncan.—p. 695.
Teaching in Army and Out. E. Colby.—p. 701.

New York Medical Journal

Jan. 8, 1921, **113**, No. 2

- *Familial Distribution of Migraine-Epilepsy Syndrome. J. A. Buchanan, Rochester, Minn.—p. 45.
- Animal Versus Vegetable Protein. W. H. Porter, New York.—p. 47.
- Prevention of Venereal Disease. E. A. Rout.—p. 49.
- Present and Contemplated Antinarcotic Legislation. T. S. Blair, Harrisburg, Pa.—p. 51.
- Serious Ear Conditions and Complications in Ambulatory Patients. M. Rosenbluth, New York.—p. 54.
- Woody or Ligneous Phlegmon of Reclus. Report of Two Cases Occurring in the Thigh. J. J. Gilbride, Philadelphia.—p. 56.
- Traumatic Intramuscular Ossification. R. F. Maddren, New York.—p. 58.
- Proctologic Examination as an Aid to General Diagnosis. A. A. Landsman, New York.—p. 60.

Migraine-Epilepsy Syndrome.—Two papers published by Buchanan elsewhere and bearing on this subject were abstracted in The Journal, Nov. 27, 1920, p. 1521, and Dec. 4, 1920, p. 1595.

Northwest Medicine, Seattle

December, 1920, **19**, No. 12

- Internal Splinting of Bone. P. B. Magnuson, Chicago.—p. 299.

Oklahoma State Medical Ass'n Journal, Muskogee

December, 1920, **13**, No. 12

- Experiences with Empyema at Base Hospital 191, A. E. F., France. P. P. Nesbitt, Muskogee.—p. 419.
- Pulmonary Acoustics. L. A. Riely, Oklahoma City.—p. 429.
- Value of Prenatal and Infant Welfare Clinics. C. V. Rice, Muskogee.—p. 432.
- Selection of Sites for State's Tuberculosis Sanatoria. A. R. Lewis, Oklahoma City.—p. 434.

Public Health Journal, Toronto

December, 1920, **11**, No. 12

- Health Education in Rural Schools. J. E. Browne.—p. 533.
- Standard Treatment of Syphilis Used in Genito-Urinary Clinic of Montreal General Hospital. F. S. Patch.—p. 542.
- When Typhus Raged in Canada. R. George.—p. 548.
- Physician and Public Health Work. R. E. Wodehouse.—p. 552.
- Plan for a More Effective Federal and State Health Administration. F. L. Hoffman.—p. 556.

So. Carolina Medical Association Journal, Greenville

December, 1920, **16**, No. 12

- Diagnosis of Atypical Malaria. F. B. Johnson, Charleston.—p. 295.
- Radium Therapy in Uterine Diseases. S. O. Black, Spartanburg.—p. 301.
- Use of Mercurochrome-220 Soluble in Treatment of Some Urological Conditions. T. M. Davis, Greenville.—p. 304.
- Gallbladder Complications of Typhoid Fever with Report of Cases. N. B. Heyward, Columbia.—p. 308.
- Radium. A. R. Taft, Charleston.—p. 311.

Texas State Journal of Medicine, Fort Worth

December, 1920, **16**, No. 8

- Some Important Factors in Prognosis of Pulmonary Tuberculosis. S. E. Thompson, Kerrville.—p. 331.
- Tuberculosis in Infancy and Childhood. D. Greer, Houston.—p. 333.
- *Use of Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. J. S. Kahn, San Antonio.—p. 336.
- Tuberculous Meningitis; Reports of Cases. W. R. Smith, El Paso.—p. 340.
- Needed Change in Control of Tuberculosis. H. F. Gammons, Dallas.—p. 343.
- Result of Sputum Typing in Pneumonia for 1919-1920. J. E. Robinson, Temple.—p. 345.
- *Pulmonary Stenosis Following Streptococcus Pneumonia. J. H. Agnew, Houston.—p. 346.
- Pneumonia at the U. S. Army Base Hospital, Fort Sam Houston, Texas, During Winter 1918-1919. F. D. Francis, Chicago, and H. J. John, Cleveland.—p. 348.
- Modern Ideas on Etiology of Bronchial Asthma. G. C. Lechenger, Houston.—p. 353.

Artificial Pneumothorax in Pulmonary Tuberculosis.—Twenty cases are analyzed by Kahn. Ten show consistent betterment as a result of the operation, as evinced by marked and apparently permanent reduction or loss of cough, expectoration and fever. Four others while showing the same improvement, lost it through unavoidable intercurrent illness not related to either the tuberculosis or the operation. Three of these, though classified as failures, are still under treatment with at least reasonably fair chances of ultimate arrestment.

Pulmonary Stenosis Following Pneumonia.—Among 600 cases of lobar pneumonia seen by Agnew only one was noted in which endocarditis affected the right side of the heart. It is known that the heart was normal preceding the infection and therefore a congenital pulmonary stenosis or a patent ductus arteriosus can be ruled out. There was not the characteristic pulse of aortic stenosis, nor was the murmur transmitted to the vessels of the neck. There were no signs of aneurysm, which was further excluded by the roentgen ray. The murmur was entirely different from that of mitral insufficiency, and the pulmonic second sound was diminished in intensity. The position and character of the murmur, with the thrill and definite right-sided hypertrophy of the heart, established the diagnosis of pulmonary stenosis.

Wisconsin Medical Journal, Milwaukee

December, 1920, **19**, No. 7

- Nervous Child. S. Blanton, Madison, Wis.—p. 323.
- *Group Diagnosis and Group Therapy. L. F. Barker, Baltimore.—p. 329.
- *Protein of Foodstuffs as a Factor in Cause of Headache. R. C. Brown, Milwaukee.—p. 337.
- Treatment of Acute Respiratory Infections. O. M. Layton, Fond Du Lac.—p. 346.
- Diagnosis and Treatment of Pernicious Anemia. A. R. Tormey, Madison.—p. 348.
- Parenteral Injections of Milk in Diseases of Eye. C. Zimmermann, Milwaukee.—p. 352.

Group Diagnosis and Therapy.—The results of Barker's analysis of group diagnosis and group therapy are on the whole, favorable to these methods. Group medicine he says may be regarded as the latest phase of progress in practical clinical work. It is an outcome, of the growth of science, of the principle of division of labor, of the rise of specialism and of certain other factors. The general diagnostic survey, comphehensively, accurately, quickly, proportionally and economically conducted can be of great advantage to persons submitting to it, and therapy, too, can be carried out better through the coordinated activities of a group than by isolated practitioners. The arguments against group practice on the grounds of superfluousness, cost, inhumanity, cliquism, and commercialism are seen, on close scrutiny, to lose much of their cogency though they indicate difficulties and dangers against which group workers should be on guard. The profession and the public should welcome modifications of medical procedure that make practice more rational, precise and efficient. Medical practice even at its best cannot wholly take away the appetite of people for charlatanism and for superstition. Barker says we smile, sometimes, at the age when the Delphic oracle was consulted, but let us not forget that even today the ouija board is much in evidence, and that a distinguished physicist relies on spirit messages from his deceased son. But as medical science grows and physicians become more skilful and better organized, the people will become ever less susceptible to the delusions of obscurantism. And among the agencies contributing to this desirable end, group medicine may also find a place.

Proteins as Cause of Headache.—Brown maintains that the protein of foodstuffs is able to produce symptoms and manifestations in individuals in whom the protein mechanism is inadequate for those particular proteins. The protein poison manifestations may be most trivial or they may be severe. The articles of food which he has found most liable to cause headache as well as other protein manifestations are, in order of their importance, meat extractives, fruit and fruit extractives, eggs, meat, coffee, tea, chocolate, cocoa, and certain vegetables such as tomato, mushroom, rhubarb, and cucumber. However, any protein may be the cause. In one case the protein of oats and also that of white potato caused headache. The protein extracts such as meat soups and fruit juices are even more potent than meat or fruit. This shows that the protein poison is soluble. Brown believes that the usual hospital diet of meat soup, eggs and fruit juice is bad not only in cases of protein poison manifestations, but also in cases of infectious disease for it has a tendency to reduce the normal alkaline reserve of the body which is needed to combat infection. Brown states that migraine and periodic headaches are primarily due to an inherited deficient metabolism and can in every instance be cured by a properly restricted diet.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Dec. 25, 1920, **2**, No. 3130

*Stasis and Prevention of Cancer. A. C. Jordan.—p. 959.
Inflammatory Lesions of Nasal Accessory Sinuses. H. Tilley.—p. 962.
Army Medical Service and Its Relation to Training of Newly Qualified Medical Men. J. Griffiths.—p. 965.
Teeth in Recruit. J. P. Helliwell.—p. 968.
Regimental Medical Officer. R. J. Blackham and T. H. Blake.—p. 971.
*Autohemagglutination: Physiology and Pathology of Blood. C. J. Bond.—p. 973.
Case of Idiosyncrasy to Novarsenobillon. P. Power.—p. 976.
Cesarean Section for Eclampsia: Mother and Child Saved. G. G. Genge.—p. 976.

Prevention of Cancer.—To prevent the occurrence of cancer, Jordan says: Avoid stasis in general, with its attendant toxemia; in other words, keep all the tissues healthy. Avoid sources of local irritation in the alimentary tact: (*a*) in the lips and mouth and tongue—avoid rough pipe stems, jagged teeth; abolish pyorrhea; (*b*) in the pharynx and larynx—eliminate chronic catarrh; (*c*) in the esophagus—swallow no large boluses of food; eat slowly; masticate thoroughly; (*d*) in the esophagus and stomach—avoid excess of strong irritant spices (for example, mustard, pepper) and avoid extremes of heat and cold, especially in drinks; (*c*) in the stomach and duodeum—prevent duodenal distension, pyloric spasm, and duodenal and pyloric congestion, by abolishing the ileal stasis which causes them; (*f*) in the small intestine—prevent bacterial decomposition of the contents of the jejunum and ileum due to ileal stasis, by the means shortly to be described; (*g*) in the large intestine—prevent stagnation and decomposition of solid feces in any part; combat catarrh by local and general means. It is never too early in life to commence these measures.

Autohemagglutination.—Although the occurrence of specific and nonspecific hemagglutinin in the blood serum is evidently not the result of coagulation changes in the blood plasma, since they are present in the plasma before coagulation takes place, Bond states that the question still remains whether hemagglutinins exist as such in the living uninjured blood while it is still circulating in the body. It is difficult to believe that nonspecific autoagglutinin is present in the free state in the circulating blood (even in disease), for if so, unless some mechanism exists by which the agglutinating effect of this substance on the native red cells in prevented, clumping of the red corpuscles would occur during life. However, the blood is a fluid of which the physical and chemical equilibrium is easily upset, and the mere withdrawal of the blood from the vessels may injure it sufficiently to bring about a regrouping of its chemical and physical aggregates, and other changes which may be recognized as an alteration in the hemagglutinative reactions in the blood when shed.

China Medical Journal, Shanghai

November, 1920, **34.**

Scientific Efficiency of Mission Hospitals in China. H. Balme.—p. 1.
City Hospital. J. A. Snell.—p. 41.
Up-Country Hospital. A. C. Hutcheson.—p. 48.
Mission Hospital and Its Policy for Future. P. H. Stevenson.—p. 60.
Devolution of Control of Mission Hospitals. C. J. Davenport.—p. 67.
Hospital Assistant in China. G. Hadden.—p. 73.
Preparation of Nurses for China. N. D. Gage.—p. 89.
Methods of Hospital Accounting. H. S. Houghton.—p. 99.
Plea for Adoption of a Uniform System of Case Records and Methods of Reporting Statistics in Our Annual Reports. A. S. Crawford.—p. 100.
A Purchasing Agency for Hospitals in China. R. C. Beebe.—p. 113.
Problems of Our Mission Hospitals. H. Fowler.—p. 119.
Hospital Evangelism. D. M. Gibson.—p. 129.
Irreducible Minimum in Educational Evangelism. S. G. Peill.—p. 132.
Hospital Follow-up Work. C. Lewis.—p. 141.
Chinese General Hospital in France.—p. 145.
Chinese Hospital in France, 1917-1919. C. F. Strange.—p. 158.

Dublin Journal of Medical Science

December, 1920, **4**, No. 10

Acids and Alkalies. I. Modern Methods of Estimating Reaction of Physiologic Solution. W. Fearon.—p. 457.
Neurasthenia and Allied Conditions. A. Baldie.—p. 465.
Prophylaxis of Malaria. W. B. Walker.—p. 476.

Indian Medical Gazette, Calcutta

November, 1920, **55**, No. 11

Midwifery Mechanics. A. Buchanan.—p. 401.
Natural Cure and Prevention of Dysentery by Fasting. R. F. E. Austin.—p. 405.
Analysis of 336 Cases of Hydrocele and Hematocele in Which Operation for Radical Cure was Performed. M. Alam.—p. 408.
*Treatment of Oriental Sore. G. N. Doyle.—p. 410.
Tonsillectomy: A Simple Method Used in 840 Cases. R. H. H. Goheen.—p. 411.
Epidemic Dropsy at Malda Jail. B. K. Bhowmik and S. L. Sarker.—p. 412.
Case of Suprapubic Cystotomy Complicated with Typholumbricosis. P. T. Kothary.—p. 413.
Case of Mauling by Leopard. S. R. Bhattacharjee.—p. 414.
Case of Tri-orchid. V. R. S. Ayyer.—p. 415.
Tuberculous Glands in Axilla. K. Bhushan.—p. 416.

Treatment of Oriental Sore.—Doyle exposes a sheet of lead foil, 6 inches square, to the roentgen rays at a distance of 6 inches from, preferably, a soft tube for fifteen minutes. Appropriate pieces are then cut off from the lead foil so treated and applied to the sore, being held in position by a bandage. The routine has been to leave this on for four days, at the end of which another freshly prepared piece has been applied, and so on at intervals of four days. At the end of from two to three weeks, the sore has completely healed, no other treatment being necessary, except to protect the delicate scar with a small pad and bandage against possible injury.

Japan Medical World, Tokyo

Dec. 11, 1920, **10**, No. 50

Treatment of Syphilis of Central Nervous System. T. Komatsu.—p. 1083.

Dec. 18, 1920, **10**, No. 51

Intestinal Parasites Found Among Coreans. H. Kobayashi.—p. 1103.

Journal of Pathology and Bacteriology, Cambridge

December, 1920, **23**, No. 4

*Diurnal Variation in Sizes of Red Blood Cells. C. Price-Jones.—p. 371.
*Action of Roentgen Rays on Transplantation of a Spontaneous Carcinoma of Rat. H. Chambers, G. Scott and S. Russ.—p. 384.
*Hemolytic Fever. K. Yamakami.—p. 388.
*Case of Tuberculosis of Myocardium. W. W. Adamson.—p. 399.
Principles Underlying Gram's Stain, with Special Reference to Bacterial Cell Membrane. T. H. C. Benians.—p. 401.
*Splenic Lesions in Some Cases of Splenomegaly Associated with Secondary Anemia. E. H. Kettle.—p. 413.
Effect of Osmic Acid and Other Agents on Affinity of Receptors for Immune Bodies and on Their Antigenic Properties. M. Kosakai.—p. 425.
New Apparatus for Accurate Blood-Gas Analysis. J. S. Haldane.—p. 443.
Gases in Human Arterial and Venous Blood. J. Meakins and H. W. Davies.—p. 451.
Experimental Study of Gastrotoxic Serum. Y. Miyagawa.—p. 462.
*Effects of Roentgen Rays on Lymphocytes. S. Russ, H. Chambers and G. Scott.—p. 477.
*Pigments of Suprarenals. G. M. Findlay.—p. 482.
*Study of Leukocyte Changes in Pellagra Compared with Those Occurring in Beriberi. G. M. Findlay.—p. 490.

Variation in Size of Erythrocytes.—Having observed that in the healthy person there is a considerable variation in the mean diameter of the red cells, Jones endeavored to ascertain the reason therefor. A series of experiments finally led to the conclusion that this variation probably is due to altered reaction of the blood, though of the details of this alteration there is little direct evidence. It is, however, known that at the dreary moment of first awakening the blood is a good deal more alkaline than later on during the day. But whether the diminished alkalinity and increased diameters which prevail during the active part of the day are due to accumulation of carbon dioxid or lactic acid, or to some other source of altered reaction, cannot be determined.

Effect of Roentgen Ray on Resistance to Cancer.—The experiments made by Chambers, Scott and Russ indicate a lowering of the animal's resistance to the growth of malignant cells, if it be given a rather large generalized dose of roentgen rays; a result exactly the reverse to what occurs if the animal be given a series of exposures to very small quantities of roentgen rays.

Hemolytic Fever.—Yamakami states that the transfusion of a perfectly unhemolyzed nonisolytic blood does not cause any appreciable temperature variation of the recipient. The intravenous injection of the animal's own blood or nonisolytic blood of other animals, hemolyzed with water, causes a febrile reaction similar to that produced by foreign proteins. Water, when injected intravenously into rabbits, causes a fever of typical form even when it is redistilled immediately before the injection. The fever is, therefore, not due to the contamination of water with a pyrogenetic substance of bacterial origin, but is to be attributed to its hemolytic property. The relationship between the quantity of the injected water and the variation of temperature is quite similar to that in the case of foreign protein injection.

Tuberculosis of Myocardium.—Adamson's patient had symptoms of tachycardia, and signs of enlargement of the heart with accentuated second sound in the pulmonic area. Later the heart sounds were both rapid and irregular. Two months before death he developed a temperature reaching 99 or 100 F. The urine had a slight amount of albumin. He had a history of syphilis, and the blood gave a positive Wassermann reaction. He became progressively worse, and died six months after admission to hospital. Both auricles were profoundly affected, especially the right one, where the wall was 1 inch thick, due to the caseous material. The tuberculous tissue projected into the auricle, though it did not penetrate the endocardium, and also projected slightly into the upper part of the ventricles. The myocardium near the apex of the heart showed invasion from the tuberculous pericarditis.

Splenic Lesions in Splenomegaly.—In five cases of so-called splenic anemia, the examination of the spleen removed by operation revealed a variety of changes representing at least four distinct and entirely different pathologic processes. Three of these are anomalous, but the fourth is well recognized under the name of Gaucher's disease. In none of the cases was there definite evidence that the disease was limited to, or primary in, the spleen, and in three of them, though the splenomegaly dominated the clinical picture, Kettle says it must be regarded as merely the most prominent feature in a more extensive pathologic process.

Effects of Roentgen Ray on Lymphocytes.—Russ and his associates state that, if a normal rat be irradiated for a time ranging from two seconds to about ten minutes, there is a strong probability that a bood count taken one hour later will show a diminution of 50 per cent. in the circulating lymphocytes. Rats immune to sarcoma were subjected to twelve seconds' dose of roentgen rays; the results showed a reduced susceptibility of the lymphocytes as compared with that obtaining in the normal rat.

Pigments of Suprarenals.—Findlay found lipochrome pigment in the suprarenals of man and the fowl. In the latter, the lipochrome is derived directly from the food. In addition to carotin and xanthophyll there is possibly present in the suprarenal a third substance related to the lipochromes. A true lipochrome infiltration occurs in all conditions associated with cell depression. Melanin pigment is of endogenous origin, and is formed within the nucleus in chronic conditions associated either physiologically or pathologically with cell depression.

Leukocyte Changes in Pellagra.—In pellagra, Findlay says, there is a slight increase in the total, but a decrease in the percentage neutrophil count. In beriberi there is a decrease in the total, but not in the percentage neutrophil count. In pellagra there is an increase both in the total and percentage lymphocyte count. In beriberi there is a decrease in the total, but not in the percentage lymphocyte count.

Journal of State Medicine, London

December, 1920, **28**, No. 12

Antigens and Antibodies. M. Nicolle.—p. 357.
Basic Principles in Roentgen-Ray Examination of Chest. M. Berry. —p. 368.

Lancet, London

Dec. 18, 1920, **2**, No. 25

*Spirochaeta Duttoni: Parasite of Tick Fever. W. B. Leishman.—p. 1237.
*Optic Neuritis in Lethargic Encephalitis. C. P. Symonds.—p. 1245.
*Sodium Bicarbonate Tolerance in Toxemias of Pregnancy. C. White. —p. 1248.
Albuminuria of Small White Kidney. I. J. Davies.—p. 1249.
*Danish Treatment of Scabies. S. Lomholt.—p. 1251.

Parasite of Tick Fever.—Leishman deals with his subject on the following lines: first, with a condensed account of some of his earlier work; secondly, with work which has either not been published or only briefly mentioned; thirdly, with the work of others on the same or closely related branches of inquiry which appears to have a bearing on the life history of *S. duttoni.*

Optic Neuritis in Lethargic Encephalitis.—Four cases are reported by Symonds in which optic neuritis was associated with signs of widespread lesions of the nervous system. Despite individual points of resemblance none of these cases corresponds with the clinical picture of acute disseminated myelitis, anterior poliomyelitis, or acute febrile polyneuritis. If the definition put forward by Barker, Cross and Irwin be accepted, the clinical signs of all four cases are consistent with the diagnosis of lethargic encephalitis. In one case the Wassermann reaction in the blood was feebly positive. In the blood of the remaining three and in all four cerebrospinal fluids, the Wassermann reaction was negative. In all four cases the cerebrospinal fluid showed changes consistent with the diagnosis of lethargic encephalitis. Symonds states that the association of optic neuritis with acute disseminated myelitis is an involvement of the optic nerves in a diffuse inflammatory process affecting the nervous system, analogous to the association of optic neuritis with lethargic encephalitis.

Sodium Bicarbonate in Pregnancy Toxemia.—White has used sodium bicarbonate in most forms of pregnancy toxemia as a method of treatment and he has also employed Sellards' method as a means of diagnosis and prognosis. The patient is given measured quantities of sodium bicarbonate at given intervals, and her urine tested by litmus paper before each dose is given. The amount given when the litmus is first turned blue is noted, and further doses are stopped till the urine is again acid. If there is ammoniacal cystitis the urine should be boiled in a test tube to drive off ammonia before testing, or less accurately, the litmus paper itself may be heated. White has found it safer to order it in dram doses (as nurses are liable to make mistakes when working in grams) and has usually given 1 dram in water every three or four hours. The average quantity taken by mouth (exclusive of any quantity given per rectum and intravenously) in fifteen cases was 45.3 gm. For purposes of comparison thirteen normal cases were observed and their urine was alkaline after an average of 6.8 gm. Thus the average sodium bicarbonate tolerance of patients clinically suffering from pregnancy toxemias is 45.3 gm. compared with the average tolerance of 6.7 gm. in puerperal cases not suffering clinically from toxemia. Further, the fatal cases has a tolerance of 40 gm. on the part of those that recovered. If a rough attempt is made to gage the severity of the clinical manifestations by the method of treatment adopted, it is found that the average tolerance of those on whom it was thought necessary to perform cesarean section or induction was 61.7 gm. compared with 33 gm. of those who were allowed to deliver themselves with or without the help of forceps. Three patients had nephritis. Their average tolerance is 23 gm. or lower than the primarily toxemic cases.

Danish Treatment of Scabies.—A form of scabies treatment with a new ointment in use in Denmark has proved so much of an advance on all other treatments that it is now almost the only one used all over the country. One single inunction suffices; after twenty-four hours the scabies is cured, and relapses are never seen. The cutaneous irritation is but slight. The treatment can very well be ambulant. The patient receives an ordinary cleansing bath, wipes himself thoroughly, and afterward rubs the whole of his body, except the head, carefully with the ointment, which is almost of the consistency of butter. The ointment must cover all the skin, but hard rubbing is neither required nor desirable. The patient ought then to wait for a quarter of an hour, to give the ointment time to get into the skin; after this he can go to bed. The next day at about the same hour he receives a second bath and fresh underclothing and the cure is finished. Meanwhile all his clothes have been disinfected. Lomholt doubts, however, if this is absolutely necessary. All statistics seem to prove this very simple treatment is as absolutely reliable as it is comfortable for the patient. The preparation of the ointment is a little complicated. (1) One kg. of sublimated sulphur is dissolved at a gentle heat in 2 kg. of a 50 per cent. solution of potassium hydroxid. This makes a clear yellow solution. (2) Two hundred and twenty-five gm. of petrolatum and 225 gm. of water-free lanolin are carefully mixed, without heating. (3) To this, 375 gm. of the solution of sulphur in potash lye mentioned above, is added. (4) Fresh zinc hydroxid is prepared in mixing 28 gm. zinc sulphate and 40 gm. 20 per cent. sodium hydroxid and this is afterward added to the ointment. (5) Liquid paraffin is added to obtain a total weight of 1,000 gm. (6) Five gm. of benzaldehyd is added to check the somewhat disagreeable smell of sulphuretted hydrogen. The high sulphids of potassium are the capital element of the ointment on which its activity depends, a production of sulphuretted hydrogen taking place when the ointment is placed on the skin.

Archives des Maladies du Cœur, etc., Paris

September, 1920, **13**, No. 9

*Syphilitic Aneurysm of Pulmonary Artery. M. Letulle and A. Jacquelin.—p. 385.
*Pathogenesis of Diastolic Gallop. L. Gallavardin.—p. 410.
*Significance of Reaction to Amyl Nitrite. G. Richard.—p. 416.

Syphilitic Aneurysm of Pulmonary Artery.—Letulle and Jacquelin report a case of true aneurysm of the pulmonary artery in a man of 58. The aorta and the peripheral vascular system were practically intact. Retrograde thrombosis had developed toward the heart, reaching to the bifurcation of the main trunk, thus shutting off almost completely the venous blood from the right lung, with resulting stagnation of blood and an apoplectiform edema in the air passages.

Pathogenesis of Diastolic Gallop Rhythm.—Gallavardin's conclusion is that the diastolic gallop is not merely a variety of the presystolic gallop, but is a special stethoscopic sign, the main factor in which is a modification of the heart cycle, either from interference with the conduction of the impulse from auricle to ventricle or from an abnormal prolongation of the systole of the ventricle. This explains the gravity of the cases in which it is encountered.

Amyl Nitrite and the Vascular Reactions.—Richard recalls that amyl nitrite inhibits the action of the vagus center while stimulating the vasodilating fibers. Hence the reaction to this drug shows whether the elasticity of the arteries is impaired, and also their power of contracting as the effect of the drug rapidly passes off. A feeble vasodilating and lower pressure reaction demonstrates that the arteries are less elastic than normal, and points to arteriosclerosis. This drug also shows at once whether the vagus or the sympathetic nervous system is overirritable. With sympatheticotonia the accelerating reaction is exceptionally rapid and intense, the maximal and minimal blood pressure findings show a prompt and deep drop, and after the effect of the drug passes off, there is a characteristic reaction of high blood pressure. With vagotonia, the drop in the blood pressure is less pronounced, and there is no secondary high rise in the blood pressure, while the appearance of extrasystoles under the influence of the nitrite confirms anew the exaggerated excitability of the vagus. Amyl nitrite furnishes interesting information also in regard to the condition and the reactions of the myocardium, as demonstrated by the sphygmogram. There are other ways of learning these points, but there is none so universal, he says, and so constant in its results, so available and so harmless.

Archives de Médecine des Enfants, Paris

December, 1920, **23**, No. 12

*Pneumococcus Purpura. P. Nobécourt and R. Mathieu.—p. 689.
*Ether-Oil by the Rectum in Children. J. Salazar de Souza.—p. 700.
*Renal Secretion in Children. Apert, Cambessédès and Mme. de Rio-Branco.—p. 709.
*Atypical Varicella. I. Iankoff (Sophia).—p. 714.
Mongolian Blue Spot at S. Paulo, Brazil. C. Ferreira.—p. 721.
Tarsal Scaphoiditis in Children. J. Comby.—p. 723.

Purpura in Pneumococcus Infection in Infants.—Nobécourt and Mathieu say that pneumococcus infections have been common at the maternity in their charge in the last two years, but purpura was noted only in two of the infants with pneumococcus pneumonia or meningitis. They compare with this five similar cases on record, with the necropsy findings in the total seven cases. The purpura developed in the course of pneumonia, enterocolitis, or meningitis when the condition was already grave, or it seemed mild and retrogressed, as in the two personal cases described, but three or four days later the fatal pneumonia or meningitis became manifest. The purpura is evidently an expression of septicemia; all the cases testify to its extreme gravity. Purpura may develop in cachexia or meningococcus infection, as well as forming a part of the hemorrhagic tendency in the newborn.

Ether-Oil Anesthesia by the Rectum for Children.—Salazar de Souza gives the details of 120 operations on children done under rectal anesthesia, and comments that the ease and facility of this method justify a trial of it by all who do operations on children, especially operations on the head. In his cases the ages ranged from 2, 4 and 5 months to 16 years. There were seven deaths in the total 120 cases but the anesthesia could not possibly have been incriminated in five, and in the two others any connection with the rectal anesthesia seems highly improbable.

The Ureosecretory Constant in Children.—Apert and his co-workers describe the application of various functional tests for the kidneys in eleven children from 6 to 11 years old. They modified the Ambard formula, as they describe, to conform to the relative proportional weight of the kidneys in children, obtaining in this way the same coefficient for the normal child as for the normal adult. This confirms that the essential characteristics of kidney functioning are practically the same at all ages.

Atypical Varicella.—The abnormal chickenpox induced profuse diarrhea and grave acute enterocolitis in two children a little over 2. The varicella was not diagnosed in one of the cases until another case developed in the environment.

Bulletin de l'Académie de Médecine, Paris

Nov. 30, 1920, **84**, No. 38

*The Sputum in Asthma. F. Bezançon and S. I. de Jong.—p. 253.
*Isolation of Active Principles of Plants. E. Bourquelot.—p. 258.
*Local Supraclavicular Tenderness in the Tuberculous. G. H. Lemoine.—p. 269.
*Avitaminosis and Inanition. A. Lumière.—p. 274.
*Multiple Abscesses in Brain with Subacute Course. H. Claude.—p. 277.
*Spurious Adenoid Disturbance. A. Castex.—p. 278.
*Hereditary Congenital Dislocation of Hip Joint. L. Dubreuil-Chambardel.—p. 281.

The Sputum in the Diagnosis of Asthma.—Bezançon says that his thirteen years of study of the sputum of persons with a tendency to asthma has confirmed the differential importance of eosinophilia in the sputum. Crystals and spirals are negligible, but the eosinophilia in the sputum reveals that the spasmodic coughing, especially at night, and the dyspnea in the tuberculous, not explainable by the extent of the lesions, are in fact the result of a possibly otherwise latent tendency to asthma. The absence of eosinophilia in other cases excludes the assumed asthma, and directs elsewhere the search for the cause of the disturbance. This is particularly important in men over 50 with attacks of distress in breathing at night. The eosinophilia and the benefit from treatment for asthma separate a curable group from those with heart and kidney disease. Even when asthma complicates other diseases, the benefit from eliminating this element in the clinical picture is obvious. The eosinophils are readily shown up by staining with hematein-eosin after fixation with alcohol-ether or methyl alcohol.

Biochemical Tests for Active Principle of Plants.—Bourquelot has applied the method described to 281 species of plants, and it revealed the presence of glucosids in 205 of them. The plants in question are more or less in use as household remedies in different countries, and some are officially inscribed. About 250 vegetable alkaloids have been isolated to date, but in 1901 only ten glucosids had been isolated. Then he began his search on the glucosids, based on the discovery that all glucosids hydrolyzable with emulsin are levorotatory. If addition of emulsin changes the polarization to the right, we can be certain of the presence of a glucosid which can then be isolated. He has thus isolated fifteen new glucosids in his laboratory, including eleven from drugs already used in medicine. This brings to fifty-six the number of glucosids isolated to date, but as glucosids are known to exist in 205 species, 149 other species are still awaiting investigation.

Tenderness Over Tuberculous Apex.—Lemoine relates that with an active tuberculous process at the apex, pressure with the finger in the first interspace showed a painful point in 192 tuberculous tested, while there was no local tenderness in the normal, and in those with disease elsewhere. Some have been under observation for from six to eight years, the local tenderness disappearing as the tuberculous process healed. This local tenderness, if associated with abnormal supraclavicular glands in a suspect, turns the scale in favor of tuberculosis. Sabourin locates this "*zone d'alarme*" at the center of a line from the base of the neck to the acromion.

Avitaminosis and Inanition.—Lumière reports that pigeons develop polyneuritis when kept on a starvation diet but fed with an excess of vitamins. They develop polyneuritis exactly the same as on the same diet with no vitamins. He explains this paradox as confirming that avitaminosis is merely a special form of inanition. When rice was supplied to these pigeons in sufficient amounts, they recuperated as rapidly as those which had developed the same polyneuritis paralysis in consequence of one-sided feeding on polished rice alone. Thus the polyneuritis developing from insufficient diet (4 gm. of polished rice and 2 gm. of glucose plus 1 gm. of beer yeast to supply an excess of vitamins) was promptly cured by addition of polished rice. The special function of the vitamins seems to be to stimulate the gastro-intestinal motor functioning and the secretory functions of the glands with an external secretion. Without vitamins, the digestive functions are sluggish and the organs of digestion hypotonic. The digestion glands cease to function when deprived of vitamins, and the animals succumb to the loss of these gastro-intestinal secretions although their digestive tract may contain abundance of nourishment. They also succumb if deprived of sufficient nourishment to keep them in health, even although there is abundance of vitamins. The symptoms are those of starvation in general, but about a third of the animals develop in addition the paralytic and cerebellar disturbances which have hitherto been regarded as pathognomonic of vitamin deficiency.

Innumerable Abscesses in the Brain.—Claude reports the case of a young man with advanced pulmonary tuberculosis who suddenly began to complain of agonizing headache, and died after three days of vomiting and mental confusion. Necropsy showed absolutely innumerable abscesses throughout the cerebellum, the whole forming a purulent sponge, and yet this condition had not elicited any appreciable symptoms until the last three days.

Clinical Picture Suggesting Adenoids.—Castex describes seven groups of children with symptoms falsely suggesting adenoids. The symptoms characteristic of adenoids may be induced by malformation of the septum by a projecting spur, by hypertrophic rhinitis, by atrophy of the intermaxillary bone from inherited syphilis, by rachitic deformity or overgrowth of the mucosa in children of the lymphatic type. Children with a relatively long cephalic diameter often have an abnormally high, hard palate which shortens the vertical diameter of the nasal fossae. Some of the above anomalies may concide. The children with these symptoms are generally a little older than those with true adenoids, but they may be associated, or first attract attention after an operation for adenoids.

Heredity of Congenital Dislocation of the Hip Joint.—In this communication five instances are described in which women had had congenital luxation of the hip joint corrected in early childhood, but their children presented the same type of dislocation as the mothers had been born with.

Journal de Chirurgie, Paris

1920, **16**, No. 6

*Reconstruction and Fixation of Fractured Long Bones. E. Juvara (Bucharest).—p. 589.

Reconstruction and Fixation of Fractured Bone.—Juvara's thirty-three illustrations show the different methods applicable for treatment of fractures. He prefers the use of a metal bar through which pass horizontally and parallel four long steel skewers that are driven deep into the bone. They hold the reconstructed bone firmly until healing is complete, and then they are drawn out and nothing is left in the tissues. He insists that the osteosynthesis should be done at once, as an emergency operation, as soon as roentgen examination of the fracture is possible. The operation is concluded with application of the above *fixateur* or other method for maintaining the osteosynthesis, driving in a screw, or tying a wire around the bone at two or three points.

Lyon Médical

Dec. 10, 1920, **129**, No. 23

*Phlegmons of Orbit and of Eyeball. Rollet and Bussy.—p. 965.
*Fracture and Contusion of Larynx. J. Garel and A. Gignoux.—p. 969.
The Manifest of the Oxford Professors. B. Lyonnet.—p. 1002.

Phlegmons of the Orbit and Eye.—Rollet and Bussy emphasize the difference in cause, treatment and prognosis between a phlegmon of the orbit and a phlegmon of the eye. No one dies from the latter, but the eye is lost. One may die from a phlegmon of the orbit, but the eye is not lost; it floats safely on the flood of pus. This independence of these two lesions is contrary to all experience with pathology of the viscera. With a phlegmon in the orbit, the frontal sinus should always be explored. They advise for this a small opening at the angle formed by a horizontal line passing through the two supra-orbital notches and a vertical, perpendicular line crossing it. There is no risk from this small opening here. If the mucosa is found sound, a stitch in the eyebrow hides the little scar. If the sinus is found diseased, the operation is completed by trephining and draining. Frontal sinusitis may induce a phlegmon in the orbit by the infection spreading by veins or lymphatics through the apparently sound bone. The sphenoidal sinus is scarcely ever responsible for a phlegmon in the orbit, but an infectious process in the maxillary sinus is very liable to spread to the orbit. Draining through the roof of the sinus is simple and effectual and the differential diagnosis is easy. But frontal sinusitis is the most common cause. While it is often hard to discover, it may progress without any symptoms until the orbit becomes involved.

Trauma of the Larynx.—Garel and Gignoux report six cases of contusion of the larynx with fracture in two, and discuss the differential diagnosis. Traumatism of the larynx is said to be generally accompanied with loss of consciousness, but this was not the case in their experience. Vitalba has compiled a few cases of sudden death from concussion of the larynx, and Bassère has reported an instance of prolonged inhibition of the respiratory and cardiac nerve centers after concussion of the larynx, the unconsciousness persisting for nine hours, with Cheyne-Stokes respiration and slowing of the pulse down to 40, this keeping up for three weeks. Violent paroxysmal coughing and spitting of blood follow the traumatism. In one of their cases this hemoptysis persisted for several months. Dyspnea is the most serious symptom, and it may become exaggerated at any moment from extravasation of blood, emphysema or edema, so that we must not trust to the patient's apparently doing well. Even several days after the accident there may be sudden asphyxia from acute edema, secondary hemorrhage or displacement of some fragment of cartilage during an abrupt movement. The prognosis is very different with simple contusion, although the symptoms at first may be the same with fracture as with contusion. The latter often causes such slight disturbance that the specialist's aid is not sought, but it may affect the voice irreparably.

Nourrisson, Paris

November, 1920, **8**, No. 6

*Stillbirths in France. Chambrelent.—p. 321.
*Choleriform Diarrhea in Infants. A. B. Marfan.—p. 336. Cont'n.
Congenital Heart Defects. E. Apert.—p. 347.
*Vomiting Form of Meningitis. H. Lemaire and Stiassnie.—p. 362.

Stillbirths.—Chambrelent's tables show that there are from 2.6 to 7.3 stillborn to every 100 viable children born in France. The proportion is highest in the industrial centers, and the regions where liquor drinking is most prevalent. From 1907 to 1910, inclusive, between 104 and 105 boys were born living to each 100 girls, but the proportion among the stillborn was from 131 to 137 boys to 100 girls. The figures for the country during the war are not available, but in three of the largest cites the proportion of stillbirths was no higher, in fact it was a little lower, during the emotional stress of the war than in other years. The statistics cited show the immense share of syphilis in the death of the fetus, and the benefit in this respect when the mother is given treatment during the pregnancy and the father before conception. Lead poisoning is another important factor that can be avoided, but the main factor responsible for high morti-natality, as he calls it, is the various forms of autointoxication. The fetus suffers from toxins derived from the mother or from abnormal conditions in the placenta, most of which are avoidable. He states that of 642 women who attended Oui's special "consultations for the pregnant," all but 2.85 per cent. were delivered of living children instead of the 8 per cent. stillbirths which is the average otherwise in the town (Lille). Among the 642, 135 were found affected with syphilis, tuberculosis, lead poisoning, albuminuria, hemorrhages, or contracted pelvis or other deformity threatening the life of the child. By careful medical supervision of the pregnancy it was thus possible to reduce by two thirds the number of the stillborn.

Choleriform Diarrhea in Infants.—In this instalment of Marfan's long study he discusses the conditions liable to be confused with choleriform diarrhea: strangulation of a hernia, heat fever, invagination of the intestine, galloping athrepsia, special intolerance for milk, tuberculous meningitis, cholera, and poisoning from arsenic or other drug. The choleriform diarrhea may be primary or secondary, but primary toxic diarrhea never occurs in infants breast fed or not getting cow's milk, and when toxic diarrhea develops, the primary cause must be ascertained. Treatment of choleriform diarrhea includes restriction to boiled water or weak tea for two days at least and never more than four, usually for three days, with very cautious resumption of feeding, supplemented by subcutaneous injection of camphor, caffein, and epinephrin to sustain the heart, raise the blood pressure and stimulate the nervous system. He has abandoned infusion of saline as superfluous. These measures are supplemented with hot baths 38 C. (100.4 F.) for five or ten minutes two or three times a day the first day, and once or twice the second day. If the rectal temperature is up to 40 C. and the extremities are not cold, he has the water cooler, about 36 or 35 C. If the pulse is not perceptible and there seems to be danger of collapse, he adds mustard to the water. After the bath the infant is dried and rubbed with cotton dipped in alcohol until the skin is red. It is a good plan to give the injection of camphor or caffein just before the bath. Lavage of the stomach is too much of a shock for the toxic phase, and there is no evidence that flushing the bowel is of any use in choleriform diarrhea, while each is liable to bring on convulsions. It seems plausible to, assume that the pressure of the water on the bowel mucosa may dissolve matter adhering to the bowel wall and thus facilitate the absorption of toxic substances. He also refrains from drugs to check the diarrhea, and from alcohol, during the toxic phase. In prophylaxis he advises artificial chilling of the room. He adds that even at the best, the mortality from choleriform diarrhea is still very high.

Uncontrollable Vomiting in Meningitis.—The child 20 months old was taken suddenly with headache, restlessness and irregular fever with frequent uncontrollable vomiting. Necropsy the third month explained the clinical picture by disclosing bulbar and medullary meningitis and subacute ependymitis with internal hydrocephalus, all on a basis of inherited syphilis.

Presse Médicale, Paris

Dec. 4, 1920, **28**, No. 89

Tuberculosis of Bronchial Glands and Lung in Children. H. Méry.—p. 873.
*Treatment of Alopecia Areata. R. Sabouraud.—p. 874.
Urinary Disturbance After Typhus and Relapsing Fever. L. Strominger (Bucharest).—p. 876.
Technic for Radiotherapy of Uterine Myoma. Haret and Grunkraut.—p. 877.
Pirquet's Dietetic System. L. Cheinisse.—p. 878.

Treatment of Alopecia Areata.—Sabouraud remarks that it is a great mistake to treat the patch of alopecia alone; the aim should be to prevent the development of new patches, regarding the treatment of the existing patch as secondary to this. Another mistake is to wait to see whether the alopecia will harmlessly subside; it is far better to treat it from the first as if it were going to be a grave form. This will not harm the mild cases while it will abort many of the graver forms. He advises to brush the entire scalp with a hard toothbrush dipped in a tonic and revulsive mixture. His formula for this is: cologne water, 300 c.c.; glacial acetic acid, 10 gm., and commercial solution of formaldehyd, 1 gm. A lotion of 30 gm. of Hoffmann's fluid with 1 gm. of glacial acetic acid is applied to the patch itself and its vicinity. In case the course of the alopecia seems threatening rapid extension, the small hairs broken off 3 or 4 mm. above the skin, he resorts to a cade oil salve. Men rub it in every evening and wash it out with soap in the morning; women three times a week with a weekly soap shampoo. He describes other measures for the graver cases, high frequency current, etc., and emphasizes that ten years of study of the subject have convinced him that inherited syphilis is responsible for a surprisingly large proportion of cases. The general health improves under mercurial treatment, as well as the alopecia; his success in this line has been so striking that he advocates mercurial treatment for young people with poor health or vague disturbances even if the idea of syphilis seems preposterous. When the alopecia develops at the menopause. ovarian treatment may aid, but this type generally heals spontaneously.

Dec. 8, 1920, **28**, No. 90

Asthma and Sclerosis of the Lung. F. Bezançon and S. I. De Jong.—p. 885.
Ligation for Wounds of Common Carotid. G. Coudray.—p. 886.
*Salvarsanized Serum in Treatment of Neurosyphilis. D. E. Paulian.—p. 888.

Salvarsanized Serum Treatment.—Paulian recalls that Marinesco published in 1911 his successful treatment during 1910 of syphilis with serum from other syphilitics who had been treated with salvarsan. He describes the technic used at present in Marinesco's service, and explains the efficacy of the treatment as due to the antibodies, spirocheticidal substances. He cites Kjeldahl's assertions as to the relations between the total nitrogen and the quantity of antibodies in the blood stream, and states that the total nitrogen in the blood increases as the arsenic disappears. The increase is progressive, and hence he advises to take the serum twenty-four hours after the injection, as the amount of antibodies must be higher then than earlier.

Progrès Médical, Paris

Nov. 20, 1920, **35**, No. 47

*Ulcer in the Greater Curvature of Stomach. L. Timbal.—p. 505.
*Intra-Uterine Treatment of Postpartum Infection. H. Vignes.—p. 507.
*Spina Bifida in Cervical Vertebrae. A. Feil.—p. 510.
Apoplectiform and Epileptiform Ictus in Mental Disease. H. Damaye.—p. 511.

Ulcer of the Greater Curvature of the Stomach.—Timbal emphasizes the gravity of the prognosis with ulcer of the greater curvature on account of the special danger of intense and tenacious pains from inflammatory adhesions. The pains are in the left hypochondrium, and spread to the flank and shoulder. The ulcer may perforate into the posterior cavity of the omentum with localized peritonitis, pushing the stomach forward and the liver upward. The peritonitis spreads below the liver, with a horizontal zone of dulness surmounted by a resonant zone close to the lower margin of the liver. This clinical picture begins with a sharp pain like a stab wound, and the abdomen retracts, with vomiting and tendency to syncope. This peritonitis may subside spontaneously—he has had such a case—but this is exceptional. Ulcer of the greater curvature is liable to induce formation of hour-glass constriction. More than gastric ulcer elsewhere, an ulcer in the greater curvature develops by waves, with possibly nearly symptomless intermissions. Ulcer of the greater curvature is less amenable to medical measures than ulcer elsewhere, so that the advisability of operative measures should be considered early.

Intra-Uterine Treatment of Postpartum Hemorrhage.—A very similar article by Vignes was summarized Dec. 18, 1920, p. 1751.

Localization of Spina Bifida in the Neck.—Feil's experience shows that spina bifida in the cervical spine is not such a rare occurrence. It should be suspected when there is little if any neck, the hair growing down to the level of the dorsal spinous processes, and when the movements of the head on the trunk are limited. This limitation is purely mechanical and there is no pain. Spina bifida may also be found in the lower and middle portions of the cervical spine as well as in the upper vertebrae.

Schweizerische medizinische Wochenschrift, Basel

Dec. 2, 1920, **50**, No. 49

*Cysticercus in Cerebellum. M. Hausmann.—p. 1105.
*Ascarids in Liver and Pancreas. D. Eberle.—p. 1110.
*Sinusitis. E. Schlittler.—p. 1112. Conc'n in No. 50, p. 1142.
Primary Carcinoma in Both Vagina and Cervix. H. Hofer.—p. 1116.
*Disinfecting Power of Sunlight. J. von Bergen.—p. 1120.
Dial Poisoning. H. Christoffel.—p. 1123.

Cysticercus in Cerebellum.—The young woman was suddenly affected with vertigo and vomited; poisoning from a dish of sauerkraut was assumed, as the mother had vomited at about the same time. But the mother rapidly recovered while the symptoms in the young woman continued a progressive course, imposing the assumption of a tumor in the right side of the cerebellum. While an operation was being considered the patient died, and at necropsy a cyst was found at the anticipated site. It shelled out readily and proved to be the work of *Cysticercus tenuicollis*. The right lobule of the cerebellum had been pressed into the foramen magnum, which explained the peculiar way in which the patient had held her head bent over to the left.

Ascarids in Liver and Pancreas.—In Eberle's first case the boy of 9 had been treated for appendicitis and helminthiasis. Five months later an operation on account of jaundice and pain revealed an ascaris in the gallbladder and three more in the hepatic duct, all living, and from 20 to 25 cm. long. The history of the case indicates that these ascarids must have been living in the bile apparatus for about six months, and had thus escaped the action of the repeated courses of santonin treatment. The gallbladder showed chronic irritation, but there had been no pain except presumably when the helminths were migrating through the Vater region. Eleven days after the operation, two more ascarids were removed from the bile ducts. All the helminths had their heads toward the liver. It is the first case on record, he says, of an operation for invasion of the bile apparatus under the age of 10. Eberle reports further a case in a woman of 45. Six gallstones and six living ascarids over 20 cm. long were removed from the common bile duct, twenty-five from the hepatic duct, thirty-five from the parenchyma of the liver, and two from the pancreas. Both liver and pancreas were studded with small abscesses. Eberle knows of only four cases on record of this combination of gallstones and ascariasis in the bile apparatus. The seventy ascarids mentioned were nearly all alive as also most of the eighty found in the digestive tract. The aspect when the abdomen was opened was mistaken for cancer at first. The result of santonin courses should be supervised and not be left to chance.

Complications of Paranasal Sinusitis.—Schlittler declares that there is scarcely any adult who has not had sinusitis at some time. The complications are not so serious as with middle ear infection although the bacteria involved are about the same. There have been only three deaths at the Basel clinic for which sinusitis was directly responsible, among the 2,225 cases. The sinusitis group formed 10 per cent. of the 21,290 cases of disease of the nose treated in 1898-1918. In the total 2,225 cases of sinusitis, complications developed in only 1 per cent. Some instructive cases are described; in one an acute coryza entailed the rupture of an unsuspected suppurative process in the frontal sinus. The ophthalmologist consulted on account of the swelling and pain in the orbit, diagnosed it as a primary orbital process and incised, nothing in the nose suggesting sinus mischief. The middle-aged formed the largest contingent of sinusitis cases, but he reports a case in an infant, only 1 year old, with acute ethmoidal sinusitis. Complications are most liable with frontal sinusitis, but they are mild as a rule, while the reverse prevails with inflammation in the maxillary sinus, orbital complications being rare but very grave, especially in the effect on vision. In several cases reported there was a chill at the onset, and the destructive process in the orbit or other adjacent cavities became installed almost over night. Even the fetid discharge from the nose on that side, protrusion of the eyeball, etc., were not regarded as of much moment, and operative measures were delayed for two or three weeks. By this time vision was irreparably lost in some of the cases. Furuncles, phlegmons, etc., may present an almost identical clinical picture, but the necessity for differentiation is not great if the practitioner makes it his rule to urge operative intervention without delay in all cases of symptoms indicating suppuration in the bones of the face and accessory cavities.

Disinfecting Action of Sun's Rays on Tubercle Bacilli.—Bergen reports as the results of his extensive tests at Leysin that direct exposure of virulent tubercle bacilli to the sunlight, at an altitude of 1,360 meters, rendered them innocuous when injected into the peritoneum of guinea-pigs after an exposure of half an hour during the summer. An hour's exposure was required for this during the spring and fall, and a little longer in the winter. His research has further convinced him, he says, that the share of the ultraviolet rays in this action of the sunlight has been much overestimated.

Dec. 9, 1920, **50**, No. 50

*Nature and Origin of Antibodies. H. Sahli.—p. 1129. Conc'n follows.
*Influence of External Heat on Stomach Secretion. A. Fischer.—p. 1139.

Nature and Origin of Antibodies.—Sahli rejects Ehrlich's side-chain theory of the formation of antibodies, except that it is based on the sound principle that the organism is capable of responding to extra demands with extra performance, not only in the nerve and muscle systems but also in the purely chemical sphere. But Sahli does not locate the site of this extra performance in the cell protoplasm, as Ehrlich did, but in the blood and tissue fluids. The cells produce the antibodies physiologically, in response to the demands of the blood and tissue fluids, and these demands fluctuate according to conditions at the moment. The ability of a substance to act as an antigen is dependent on the property of the organism receiving it to be capable of forming the corresponding antibody, that is, it must already possess a little of the antibody, already formed. The introduction of the antigen merely increases the amount formed. Diphtheria antitoxin, for example, may be found in the blood of persons and horses who have never been infected with diphtheria, and the antibodies in these and similar cases seem to be identical with the antigen-antibodies, as also with the anti-antibodies induced in other species. For instance, an antibody for sea urchin spermatozoa is found in normal rabbit serum. The absolutely infinite variety of colloidal-chemical combinations in the blood, tissue fluids and lymph, explains the large number of antibodies already existent. The artificial enrichment of any antibody occurs according to the well known laws that more is secreted to make up a deficit, and that this secretion is always carried to an excess beyond the actual need. Antibody production is thus nothing more than one form of the physiologic regeneration of the blood, this regeneration carried to excess. The antigen and the antibody unite in a colloidal combination, and this shuts off the functioning of the antibody from the blood. The organism responds to this loss of the antibody functioning by an extra secretion to produce more of the antibody. Accepting the above three premises entails the further premise that the blood is a secretion, and he presents an array of arguments to sustain this view.

Influence of External Heat on Secreting Function of Stomach.—Fischer insists that the experiences related in this line that have been published by others are based on mistaken premises. In his research on dogs with a Pawlow fistula, hot air baths reduced by 50 per cent. the secretion of gastric juice. This suggests the advantage of hot air baths in treatment of catarrhal hypersecretion, and possibly also of hypersecretion of mucus, as well as in treatment of gastric ulcer.

Pediatria, Naples

Nov. 15, 1920, **28**, No. 22

Vaccine Against the Staphylococcus. R. Vaglio.—p. 1033.
*Treatment of Vincent's Angina. F. P. Borrello.—p. 1039.
Unreliability of the von Dungern Serologic Test in Inherited Syphilis. F. Lo Presti-Seminerio.—p. 1043.
Mediastinal Abscess with Pott's Disease. C. Pestalozza.—p. 1048.
The Thymus. A. F. Canelli.—p. 1056. Cont'n.

Arsenicals in Vincent's Angina.—Borrello gives the details of six severe cases of fuso-spirillar ulceromembranous infection and refers to twelve others, all recovering after an average of two or three injections of neo-arsphenamin by the vein, applied also locally to the lesions. Some required up to five and eight injections; others were cured in a week or two with two injections, and one with a single injection of 5 cg.

Policlinico, Rome

Nov. 29, 1920, **27**, No. 48

*Familial Alkaptonuria. E. E. Debenedetti.—p. 1379.
Technic for Injection of Silver Salvarsan. C. Lombardo.—p. 1383.
*Intratracheal Injection of Neo-Arsphenamin. C. Bruzzone and E. Vecchia.—p. 1384.

Familial Alkaptonuria.—In the family described by Debenedetti no instances of alkaptonuria were known until two cousins married, and their four sons all had alkaptonuria while the two daughters escaped. One of the alkaptonuric sons has married a cousin, and their daughter has hip joint disease. Garrod and Umber have reported cases with a hereditary stamp, but nothing of the kind could be discovered in this family, possibly because all the children of the alkaptonuric sons happen to be girls (eight). The younger sons have no ochronosis nor deforming arthritis, but the older one has both in a pronounced form, and the son 30 years old has arthritis deformans.

Intratracheal Administration of Arsphenamin.—Bruzzone states that his experiments on animals and clinical experience have shown that arsphenamin solutions can be injected intratracheally without harm. The rabbits did not show the slightest reaction to the drug injected rapidly into the trachea, by inhalation or tracheopuncture, in the dose of 1 cg. per kilogram of neo-arsphenamin dissolved in 2 or 3 c.c. of distilled water. There were no symptoms of dyspnea and no modification of the respiration. In a syphilitic who had long been wearing a tracheal tube, and another with an ulcerating gumma in the pharynx, this intratracheal method proved effectual and harmless, as also in some ordinary cases of syphilis. Only one of the patients coughed a little after the injection, the others showed no reaction or only slight headache, and some a moderate febrile reaction. The surface area is so extensive that absorption evidently proceeds rapidly. The special indications for this method, aside from such cases as the above, are in spirochetal bronchitis and gangrene of the lung. Two cases have been reported recently in France in which pulmonary gangrene healed under intratracheal injections of a medicated oil.

Riforma Medica, Naples

Oct. 30, 1920, **36**, No. 44

*Changes in Cardiovascular System After Exercise. A. Barlocco.—p. 997.
*Horse Serum Treatment of Melena Neonatorum. R. Fuà.—p. 1004.
*Treatment of Gout. G. Guelpa (Paris).—p. 1006.

Modification of Circulation Under Muscular Exercise.—Barlocco discusses the modification of the diameter of the heart, the pulse and the blood pressure in normal persons, in those with heart disease well compensated, and in those with cardiac neuroses, under muscular work, extra exertion and fatigue. He studied the effect of epinephrin and of atropin in these various conditions, and compares the results in vagotonia and sympatheticotonia.

Melena Neonatorum.—Fuà extols the remarkable benefit from injection of 10 c.c. of horse serum in the arrest of severe melena and hematemesis in infants 2 or 3 days old. He gave calcium chlorid at the same time to some and repeated the injection once or twice in a few. In case of melena in sepsis, he thinks that human serum from an adult might be preferable, as this would provide bactericidal elements lacking in the serum of the newly born. But, otherwise, the horse serum seems to answer the purpose; even the common hemostatics are superfluous.

Treatment of Gout.—Guelpa's rather revolutionary treatment of gout is based on the premise that the urine of the gouty is hypo-acid or even alkaline. The aim therefore should be to give and generate acids in the organism. Meat and acid drinks are his main reliance for this. The first four days he gives a daily purge with abundance of acid drinks and mild decoctions but no food, solid or liquid; the next four days, meat three times a day, with acid fruits and beverages, toast and potato. These four day periods are repeated, alternating as before, mitigating the severity of the régime by the clinical findings. With treatment on these principles he has never failed, he says, in twenty years to cure his gouty patients, even those most severely ankylosed and variously deformed. It requires strict conformance to directions, and the pains in the joints may be worse during the fasting at first, but this is a beneficent reaction and is speedily followed by improvement. The purge he prefers for the first day is jalap, taken in a liter of hot boiled water; the three following days, sodium sulphate, also taken in a liter of hot boiled water, drinking it, fasting, at five minute intervals, sipping in addition decoctions of mallow, chamomile, linden, weak tea or weak coffee. He thinks it is important also to demineralize the drinking water, as he describes.

Rivista di Clinica Pediatrica, Florence

October, 1920, **18**, No. 10

*Spasmophilia and Changes in Endocrine System. M. Pincherle and B. Maggesi.—p. 577.
*Etiology of Measles. V. Zamorani.—p. 613.
Echinococcus Cyst in Liver of Boy of Five. N. Fedele.—p. 623.

Spasmophilia and Endocrine Derangement.—Pincherle and Maggesi report the necropsy findings in seven children, six of whom had died from laryngospasm, and the other from tetany associated with pneumonia. All showed signs of rachitis and a lymphatic tendency, with positive Chvostek phenomenon and frequent Trousseau. The Erb phenomenon was pronounced in four, and convulsions were common. Necropsy revealed evident anatomic changes in the endocrine organs in every case, sometimes of the whole endocrine system and sometimes of only one or a few. The thymus was never found normal in any of the seven, and the parathyroids in all but one showed more or less anatomic changes, mostly of the type of sclerosis but sometimes hemorrhagic. These endocrine lesions evidently formed the substratum which favored the development of spasmophilia. The involvement of several of these endocrine glands in the neck region explains the inefficacy of a single organ extract in treatment. All but two of the cases confirm the great importance of hereditary and familial factors in spasmophilia, which the Bologna school has emphasized.

Etiology of Measles.—Zamorani's bacteriologic research was practically negative. Of the various bacteria that have been incriminated in the causation of measles, those must be excluded, he says, which do not confer immunity after infection with them. Measles confers a durable immunity.

Brazil-Medico, Rio de Janeiro

Oct. 16, 1920, **34**, No. 42

*Lutz-Jeanselme Juxta-Articular Nodes. F. Silva.—p. 687.
Eugenic Regulation of Marriage. R. Kehl.—p. 689.

Juxta-Articular Nodes.—Silva relates that Lutz of Brazil was the first to describe this affection, his report on some cases having appeared in the *Monatshefte für Dermatologie* in 1892. But it is generally called by Jeanselme's name although his publication on the subject followed much later. Silva gives an illustrated description of a case in a woman. The large symmetrical lumps just below each elbow have persisted without much change for twelve years. The nodes are movable, cause no pain, and the largest measures 5 cm. in diameter and is 3 cm. high. The long course, absence of inflammation and other features exclude gumma, tuberculosis, and other lesions that might be confounded with it.

Semana Médica, Buenos Aires

Oct. 21, 1920, **27**, No. 43

- *Dislocation of Vertebra without Symptoms from Spinal Cord. J. M. Jorge.—p. 535.
- *Filariasis in Argentina. S. E. Parodi and L. L. Bonavia.—p. 543.
- Present Status of Diagnostic Biologic Reactions. R. Kraus.—p. 548.
- Lethargic Encephalitis at La Plata. G. B. Cavazzutti.—p. 554.
- Predigestion of Milk with Yeasts Plus Cultures of Saprophytes. S. Tatti.—p. 557.
- Priority for Sulphotitanic Test for Morphin. C. A. Grau.—p. 560. Id. J. A. Sánchez.—p. 561.

Dislocation of Cervical Vertebra Without Cord Symptoms.—Jorge's roentgenograms show complete dislocation forward of the fifth cervical vertebra while the sixth is still in normal position, but there have been no symptoms on the part of the spinal cord during the six months since the fall causing the dislocation. Movements of the neck are painful, and Jorge is planning to have the man wear a collar to support the head as in a hammock and induce the necessary hyperextension. If this can be realized, the man of 35 may be able to regain partial earning capacity at least. If symptoms on the part of the spinal cord develop, surgical measures will of course be indicated at once.

Filaria in the Eye.—Parodi and Bonavia removed a filaria 11 cm. long from the conjunctiva of a woman of 62 who had presented symptoms in the right eye for four days. The filaria kept coiling and uncoiling and moving around, and after its removal kept up lively movements for three days until killed with alcohol. No microfilarias could be found in the blood, and the features of the parasite suggest that it is an undescribed species.

Siglo Médico, Madrid

July 17, 1920, **67**, No. 3475

- *Color Audition. V. Ribón (Bogotá).—p. 525.
- Successful Vaccine Therapy of Otitis. I. Fernández Seco.—p. 526. Cont'd.
- Epidemic Encephalitis. R. Cruchet (Bordeaux).—p. 527.
- Present Status of Fight Against Tuberculosis. A. Espina y Capo.—p. 529. Cont'd.

Colors Perceived from Sounds.—Ribón has published instances of color audition, as mentioned in THE JOURNAL at the time. He here quotes the words of a blind man who perceives certain colors with certain strains of music or other sounds. He urges others to report instances confirming the close connection between the psycho-optic and psycho-auditory centers.

Aug. 21, 1920, **67**, No. 3480

- *Enrichment of Sputum. A. Villegas.—p. 625.
- *Headache. F. Haro.—p. 627. Conc'n in No. 3481, p. 649.
- Acute Attacks of Cardiac Insufficiency from Abnormally High Blood Pressure. Elizagaray.—p. 629. Cont'n.

Aug. 28, 1920, **67**, No. 3481

- Silver Salvarsan in Therapeutics. J. S. Covisa and J. Bejarano.—p. 645. Conc'n in No. 3482, p. 671.

Enrichment of Sputum.—Villegas keeps the wide-mouth flask with the sputum at a temperature of 37 C. (98.6 F.) and examines it at the twenty-fourth, forty-eighth and the seventy-second hours. Part of the sputum is liquid then and nearly as clear as water. He dilutes to a tenth and centrifuges, and then examines under the microscope. In a recent series of twelve sputums examined, the number of bacteria had increased from one to over seventeen by this simple means.

Interpretation of Headache.—Haro defines the zones and regions of the head involved in headache, and the diseases or lesions that correspond to the different zones. It may give the first clue to the nature of the primary disease, especially pain in the vertex with syphilis, growing worse at night, and the frontotemporal pain sometimes observed with lung and heart disease, with iritis and in epidemic meningitis.

Archiv für Verdauungs-Krankheiten, Berlin

1920, **27**, No. 1

- *Causes of Death with Cirrhosis of Liver. E. Blumenau.—p. 1.
- *Study of Peristalsis. B. Zondek.—p. 18.
- *Etiology of Chronic Gastric Achylia. K. Faber.—p. 24.
- *The Later Tests for Occult Blood. I. Boas.—p. 37.

Causes of Death with Cirrhosis of the Liver.—Blumenau found 198 cases of cirrhosis of the liver among 12,761 necropsies, and 126 showed macroscopic cirrhosis. As a contribution to the pathologic physiology of the liver, he records the causes of death in this last group. In 19 per cent. the cirrhosis itself, or its direct consequences, were responsible. In another 19 per cent., the cardiovascular system must be incriminated, and arteriosclerosis in particular in 15.09 per cent. The youngest in this last group was 52, the oldest 68, showing the long survival possible with even advanced cirrhosis, and that the fatal outcome is often conditioned by some intercurrent disease. Erysipelas was responsible for ten cases and tuberculosis for 10.31 per cent., other infectious diseases bringing the total to 26.19 per cent. In 13.42 per cent. death had occurred from cancer, and in seven of the twenty-six cases in this group the primary cancer was in the liver. Kidney disease was responsible for only 2.4 per cent. of the total deaths. In the total 188 macroscopic and microscopic cases of cirrhosis of the liver, all but 18 per cent. were men. Blumenau mentions parenthetically Spanje's warning of the great losses of albumin when patients are repeatedly tapped. He estimates that one of his patients who had been tapped 158 times in the course of six years must have lost a total of albumin amounting to half his weight.

Peristalsis in the Large Intestine.—Zondek implanted a disk of celluloid, as large as his palm, in the abdominal wall of a rabbit, and watched through this abdominal window the play of peristalsis in the large intestine. The animals were kept permanently on their backs, and they all survived for several weeks. He was amazed at the lively play of the peristalsis in the colon, the waves about thirty seconds apart. He found further that eating food exerted the strongest stimulus on peristalsis, far surpassing that from stimulation of the vagus.

Etiology of Chronic Gastric Achylia.—Summarized when published elsewhere, July 3, 1920, p. 72.

Tests for Occult Blood.—Boas says that Snapper's spectroscopic method for determination of occult blood in the stomach content and feces is not so sensitive as some other methods, so that only positive findings are reliable until the technic is further improved. But he reiterates that the occult blood findings with a reliable method permit the diagnosis and differential diagnosis of cancer with a certainty not to be attained otherwise, as his thirty years of experience have demonstrated. The spectroscopic method gives identical findings with those of Gregersen's modification of the benzidin technic. Even 2 c.c. of blood introduced into the stomach gives the hemochromogen stripe in the spectroscope, which renders it possible to test in this way the reliability of any and every catalytic test. The simplicity and reliability of the Gregersen technic commend it to the general practitioner as decided progress in the diagnosis of cancer, but the chloral-alcohol-guaiac test is the most sensitive of all. The vegetable oxidases can be destroyed by boiling or with mineral acids, which do not affect hematin. In 282 cases of gastric cancer confirmed by operation, in four German clinics, occult blood was found in from 91.7 to 95.2 per cent. of the cases. Taken in connection with the clinical findings, it may prov decisive, although there is no absolutely pathognomonic sig of gastric cancer or ulcer. For the Gregersen technic, 0.0 gm. of benzidin is dissolved in 5 c.c. of 50 per cent. aceti acid. To this, he adds 0.1 gm. of barium peroxid for th catalyzer. The test is then applied as usual. The reactio is invariably negative in normal persons on a milk-vegetabl diet. Boas has both of the reagents for the Gregersen tes made up in tablet form, and applies the test on a porcelai dish or visiting card, instead of the slide used by Gregersen.

Deutsche Zeitschrift für Chirurgie, Leipzig

1920, **157**, No. 1-2

- *Diphtheria of Wounds. W. Löhr.—p. 1.
- *Intestinal Occlusion from Adhesions. M. Flesch-Thebesius.—p. 60.
- *Pseudo-Hernia after Fracture of Rib. F. Oehlecker.—p. 98.
- Paralysis of Abdominal Wall. F. Oehlecker.—p. 119.

Diphtheria of Wounds.—Löhr cites 122 surgical cases wit local development of diphtheria infection, especially in wound after resections. The surgical status was seemingly norma but in the course of recovery development of paralysis wa frequent. Serum treatment was attempted without avai except where intravenous injection was given, preceded b subcutaneous injection for antianaphylaxis. Dressings with antitoxin occasionally reduced the local phenomena. A bibliography of 148 papers on septic and dermal diphtheria is attached, in connection with which author discusses exhaustively the history of the subject. The bacteriologic conditions with wound diphtheria are much like those in bacilli carriers.

Intestinal Occlusion from Adhesions.—Flesch-Thebesius analyzes 368 cases of occlusion in Rehn's service, of which 162 were caused by peritoneal adhesions; 113 of which had a history of a previous laparotomy; and sixty-nine of these a previous appendectomy. Each group is discussed historically and clinically, and the theory advanced that aseptic processes in the peritoneal cavity are less conducive to intestinal bands than inflammatory or traumatic ones. Iodin in direct contact with intestinal serous membranes favors the development of adhesions; but the introduction of fluid fat into the peritoneal cavity which is said to act as a preventive, is no certain protection, and is liable to induce irritation. Bibliography of 128 articles.

Pseudohernia After Fracture of Rib.—Oehlecker observed a number of war cases where a unilateral, partial paralysis of the abdominal wall had been caused by the severing of intercostal nerves. The condition easily escapes observation, because the anesthesia of the skin in that locality is not noticed by the patient. The diagnosis is easy: letting the patient increase his abdominal tension and then testing the local sensibility. Surgeons often overlook the fact that the intercostal nerves VI to XII also supply the abdominal walls. Injury to these nerves should be avoided in thorax surgery, because the local paralysis, while not dangerous, leads to a reduced volume of expiration. Sudeck's operation (*Beitr. z. klin. Chir.* **25**:111) is recommended.

Zeitschrift für Kinderheilkunde, Berlin

Nov. 3, 1920, **27**, No. 1-2

*The Growth in Length of Infants. B. Waser.—p. 1.
*Growth of the Prematurely Born. C. Frankenstein.—p. 44.
*Feeding of the Newly Born. B. Schick.—p. 57.
*Passage of Salts Through Placenta. F. Edelstein and A. Ylppö.—p. 79.
Classification for Treatment and Teaching Purposes of Children in Orphan Asylums. E. Lazar.—p. 92.

Growth in Length of Infants in Health and Disease.—Waser's measurements are tabulated for a large number of infants at a Zurich asylum.

Influence of Diseases on Growth of the Prematurely Born.—Frankenstein writes from the Kaiserin House, the model institution for infants at Berlin, to describe the proportional growth of 100 prematurely born children up to the ninth year. In contrast to children born at term, the prematurely born display temporary and even chronic disturbance in the growth impulse after very mild acute intercurrent disease or nutritional derangement. There is not the rapid repair afterward which is the rule with other children, especially the growth in length which some regard as the main manifestation of the growth impulse. When the prematurely born escape exogenous injury during the first months of life, they usually develop until in a few years they cannot be distinguished from children born at term. But any injuries, even mild influenza or slight acute digestive disturbance may check and premanently impair their growth impulse so that they grow up substandard.

Feeding of the Newly Born.—Schick's third article on this subject is devoted to an account of the feeding of sixty-two prematurely born infants with human milk sweetened by addition of 17 gm. beet sugar to 100 gm. breast milk. By this means the infant is given the amount of calories needed in half the volume of food. This raises the sugar content of the breast milk from the normal 6.7 per cent. to 24 per cent. but it halves the amount of protein and salt. Hence this cannot be kept up for longer than from five to eight weeks, but for this period he regards the method as great progress for the feeding of weakly prematurely born. Then vomiting, loss of appetite and stationary weight call for a change, and substitution of sweetened full milk answers the purpose. He gives the details of nearly a dozen such cases long under observation.

Passage of Salts Through the Placenta.—In this research Edelstein and Ylppö demonstrated that the salts in the mother's serum do not pass through the placenta by the laws of osmosis alone. Some vital activity of the placenta cells seems to be the main factor; the fetal serum from the blood in the umbilical vein contains more of the diffusible salts than the mother's serum. Both the sodium and the potassium content is higher. On the other hand, the content of alcohol-soluble material is higher in the maternal than in the fetal serum. This they ascribe to the residual nitrogen in the mother's blood.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Oct. 9, 1920, **2**, No. 15

Clinical Forms of Pulmonary Tuberculosis. J. E. Stumpff.—p. 1377.
*Tuberculosis of the Skin. S. Mendes da Costa.—p. 1388.
*Relations Between Heart Autonomic Center and Heart Innervation. A. K. J. de Haas.—p. 1397.
*Action of Potassium Ions and Uranyl Ions on Isolated Perfused Rabbit Heart. E. H. Jannink and T. P. Feenstra.—p. 1406.

Tuberculosis of the Skin.—Da Costa enumerates a long list of tuberculous processes liable to affect the skin, and emphasizes that while treatment is essentially local, general strengthening measures are as indispensable here as with tuberculosis in internal organs. Lupus now, he says, is given over almost entirely to Finsen phototherapy.

Relation Between Autonomic Heart Center and Heart Innervation.—De Haas' numerous tracings show the effect of atropin, etc., in a case of heart block. He was impressed with the action of even minute doses of atropin by the mouth in inhibiting the functioning of the ventricle center while displaying no influence on the auricle beat.

Potassium Ions and the Surviving Heart.—In the research reported the surviving rabbit heart stopped beating when perfused with Ringer's fluid minus the potassium. If the potassium is replaced with uranyl, the heart continues to beat the same as if potassium had been added to the fluid.

Dec. 4, 1920, **2**, No. 23

*Pathogenesis of Gout. D. Klinkert.—p. 2457.
*Psychoses and the Internal Secretions. J. de Hartogh.—p. 2465.
Influence on Eye Muscles of Heat Stimulation of Labyrinth. F. H. Quix.—p. 2471.
*Furuncles on the Lip. O. Lanz.—p. 2475.

Pathogenesis of Gout.—Klinkert regards the nervous factors as the main ones in gout, and traces this idea through the history of gout, ascribing a minor rôle to uricacidemia. "It is impossible to explain the explosion of a gouty attack by any deposit of urates, but a discharge of accumulated nervous force might readily explain it, and explain further the symmetrical symptoms, and the shifting about of the symptoms." Garrod has reported a case in which application of local measures to the joint involved in the gouty attack cured it, but a violent attack of angina pectoris followed. Others have published cases in which the cure of the gout in the joint was followed at once by a pain in the bladder, with hematuria, and as this subsided the heart action became extremely irregular and months elapsed before the heart beat was strong and rhythmic again as before. Treatment of gout Klinkert reiterates, should not aim to cure the gouty joint too completely; the joint attacks are never dangerous. Flannel and patience are perhaps the best local measures, but every effort should be made to tranquillize and regulate the irritable nervous system, the real basis of the disturbances. "Moderation in everything, physical and mental, is the best preservative against gout."

Psychoses and Internal Secretions.—De Hartogh emphasizes the importance of the action of toxins in the causation of mental disturbances. These poisons may be of internal or external origin, and it is our task to discover and check the source of the toxins. In a certain proportion of cases they come from an upset of the balance of the endocrine glands. By tentative administration of thyroid or ovarian extract we may not only reveal the source of the toxins but be able to cure the psychosis by removing this source. He reports some instructive examples of psychoses. An emotional shock may be capable of modifying the secretions of one or more of the endocrine glands, just as we know that it is capable of inducing vasomotor, secretory and chemical changes. In an instructive case described the woman had a psychosis at two pregnancies both of which had terminated in a miscarriage and the disappointment was extreme. De Hartogh thinks that the corpus luteum was probably responsible for the recurring psychosis in this case. He gave thyroid treatment at first, but without benefit. A change to ovarian extract was followed by marked improvement and a complete cure, both at the first and at the second miscarriage.

Furuncle on the Lip.—Lanz preaches the importance of being wary with the knife in case of infectious processes on the lips. There is such a wealth of blood vessels and lymph vessels in the lips that the danger of driving pus cocci into the blood is exceptionally great. A furuncle on the lip should always be regarded and treated from the first as a serious matter, keeping the patient in bed, and insuring that he does not scratch or press on the lesion, for otherwise he might be in danger of forcing the pus cocci himself into the blood stream. "Treat a lip furuncle conservatively, with possibly a warm, 1:1,000 solution of salicylic acid. If the lesion has to be lanced, the necrotic center should be punctured with a fine actual cautery but without pressure. When the blood and lymph vessels have been opened with the knife, if they are obliterated at once with the thermocautery the danger of infecting the blood stream is reduced." He advises to be as prudent with a furuncle as with a malignant pustule. He has treated his seven patients with malignant pustule with conservative measures alone, without incising, and the lesions all healed under alcohol and salicylic dressings. Two in the group were veterinarians. In conclusion he warns physicians to be always on the alert not to let pus get on their hands. The danger for themselves is great but it is even greater for their patients. "Rubber gloves are more useful in the bag than an amputation knife which may never be needed." Casual contamination of the hands should be prevented by wearing ordinary gloves. He adds "Pus contamination of the physician's hand persists—nothwithstanding soap, scrubbing and mercuric chlorid—like the spot of blood on Lady Macbeth's hand, the 'damned spot' that would not 'out.'"

Hygiea, Stockholm

Nov. 16, 1920, **82**, No. 21

*Urine Test for Active Tuberculosis. K. Gramén.—p. 673.
Organization of a Bacteriology Laboratory. A. E. Bastman.—p. 681.
*Steinach's Research on the Puberty Gland. E. Abramson.—p. 686.

Urine Test for Active Tuberculosis.—Gramén has applied Wildbolz' auto-urine test to fifty tuberculous persons and to several controls and found it invariably positive in the tuberculous, regardless of the site of the tuberculous process. He urges further trial of the method with a larger material, as it seems very promising. The great drawback is the tedious evaporation of the urine required for the test. The technic was described in these columns, Aug. 9, 1919, p. 456, and Dec. 18, 1920, p. 1755.

Steinach's Research on the Secondary Sex Characters.—Abramson gives a summary of Steinach's publications from 1894 to date, with a number of illustrations from them, and comment.

Norsk Magazin for Lægevidenskaben, Christiania

December, 1920, **81**, No. 12

*Physiologic Healing of Superficial Wound. R. Ingebrigtsen.—p. 1153.
*Diabetic Coma. H. F. Høst.—p. 1162.
*Calomel Diuresis. H. F. Høst.—p. 1171.
*Ligation of Hepatic Artery. S. F. Holst.—p. 1182.
*Pituitary Body and Its Disorders. K. Motzfeldt.—p. 1194.

Healing of a Superficial Wound.—Ingebrigtsen has been applying Carrel and du Nouy's mathematical calculations to the healing of a superficial wound, and gives the details of his seven cases. They confirm Carrel's statements on the whole, but the healing proceeded from one to four days faster than according to the calculations, and in one case sixteen days sooner than it should have healed according to Carrel. He thinks that the only explanation of this can be that the methods of treatment he applied, exposure to the sun and dressing with a 3 per thousand solution of silver nitrate, are more effectual than the Dakin solution which only sterilizes and does not stimulate. Hence it is now the practice to treat all wounds in his service with the extremely simple application of a 3 per thousand silver nitrate dressing in combination with exposure to sunlight or electric light.

Diabetic Coma.—Høst found the sugar content of the blood 1.28 per cent. the day before the man of 53 died in diabetic coma. The body seemed suffering from lack of water; no veins could be seen and not a drop of blood could be drawn from several punctures in the elbow region, explaining the high concentration of the sugar in the blood. Only 15 c.c. of urine could be drawn although 2½ liters of physiologic saline had been injected fourteen hours before. He comments on the reduction in the output of urine which precedes the outbreak of coma, and the diuresis which follows the subsidence of coma. These and other facts cited suggest that insufficiency on the part of the kidneys is an important factor in the development of diabetic coma.

Calomel Diuresis.—Høst reports the case of a man of 18 who began to develop dropsy two months after an attack of pericarditis with cardiac insufficiency. No benefit was derived from the usual drugs, and finally calomel was given in 0.15 gm. doses three times a day, continued for several days at a time, to a total of 1.5; 2.5 and 5.1 gm. at each series. He noticed that when the temperature rose a little, the subsequent sweating aided in reducing the weight although the amount of urine might be a little less. Under the calomel, the chlorid output in the urine also increased, but the chlorid content of the blood did not change. Once the chlorid content of the urine was much increased under the calomel, although the urine total was not increased.

Ligation of Hepatic Artery.—Holst had to ligate the hepatic artery in the course of a resection of the stomach. The operation took four and a quarter hours and required 235 gm. of ether, but the man seemed to be convalescing well when he began to grow weak and died eight and a half days later. This was explained by necrosis of the left lobe; the right lobe had obtained nourishment from a small artery found in the ligamentum teres, and it seemed to be normal. It is evident that if the sound hepatic artery is ligated, there is liable to be necrosis of the liver; if collaterals have already developed, the risk is much less. The few cases of ligation of the hepatic artery on record are compared with this case.

The Pituitary Body and Its Disorders.—Motzfeldt gives illustrated descriptions of a case of combined acromegaly and diabetes, two of acromegaly alone, and two of dystrophia adiposogenitalis. In the two last mentioned, the sella turcica and visual field are normal. In the first case the diabetes subsided after an intercurrent typhoid fever, which seemed to have cured the diabetes completely. In all the three acromegaly patients the sella was enlarged, which suggests that the derangement in carbohydrate metabolism is the work of the hypophysis itself. The adiposogenital dystrophy seems to be more of a general endocrine disturbance.

Ugeskrift for Læger, Copenhagen

Nov. 25, 1920, **82**, No. 48

*Action of Sunlight on Syphilitic Eruption. C. Rasch.—p. 1475.
Syphilitic Cervical Spondylitis. A. Wimmer.—p. 1478.

Action of Sunlight on Syphilitic Eruption.—Rasch remarks that the case of which he gives illustrations testifies that sunlight or the pigmentation which it induces may have an inhibiting action on an extensive papulous syphilitic eruption of several months' standing. The whole body of the young woman was studded thick with the papules up to the line of the covered portions of the body. Above this, where the skin was sunburned, the skin was apparently normal. This suggests, he says, that the sunlight may be an accessory factor in the benefit from courses of treatment at the Arkansas Hot Springs, Aix, and similar resorts.

Dec. 2, 1920, **82**, No. 49

*Treatment of Torpid Ulcers. J. F. Fischer.—p. 1501.

Treatment of Torpid Ulcer.—Fischer reports excellent results from treatment of sores with a combination of animal tissue juices and secretions. He experimented in particular with pancreatic juice, pepsin and saliva, his choice finally falling on a mixture of serum, saliva, and extract of the pancreas, with 0.5 per cent. phenol. He applies it to the ulcer on a thick gauze compress moistened with the fluid.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 6 Chicago, Illinois February 5, 1921

THE FUTURE OF PRIVATE MEDICAL PRACTICE *

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The present condition or status of the private medical practitioner is one which differs from that of a few years ago. By private practitioner is meant the family physician. It must be admitted that he does not occupy the same position that he formerly enjoyed. In no other field of medical practice may be found the intimate relations between physician and patient. The qualified and conscientious family physician assumes responsibility for the members of the family in illness and injury, and safeguards them against unnecessary or meddlesome medical or surgical treatment. He is the councilor and adviser in the various problems of life that confront all parents and their children. He occupies a unique position of the greatest importance in the field of medical practice—a position that brings him true friends who, with few exceptions, are glad to make equal sacrifice for him. No other position in life affords as complete and satisfactory happiness.

I shall attempt to analyze the conditions which have lowered the efficiency and prominence of the private medical practitioner, and then to suggest measures which may restore him to the position which naturally belongs to him if the program for more efficient medical service to the public shall become successful.

APPARENT CAUSES OF DETERIORATION IN STATUS OF FAMILY PHYSICIAN

In the evolution of modern life, society has been and still is characterized by financial greed and by extravagant expenditures for luxuries and pleasures which appeal to the physical rather than to the spiritual man. The cities afford opportunity for display, social pleasures, and for possible success in a professional and financial way. This tempts migration of the professional and the business man, including the young men of the farm, from the country to the city. This migration has increased within the last few years in spite of the more livable conditions of village and rural life, through the advantages of rural free delivery, the interurban trolley and motor cars. At the present time more than half the population of the United States is urban. Thus there is an excess of physicians beyond the need of the city public, and a dearth of medical men to supply the need of the rural population. This breeds discontent and disappointment in the medical profession of the city, and the rural public suffers from the need of a sufficient number of doctors. The country physician lacks modern facilities for diagnosis and for the needed hospital treatment of his patients.

About forty-five years ago, Pasteur made discoveries in bacteriology which revolutionized surgery. The application of these discoveries in surgical operations by Lord Lister resulted in antiseptic surgery. From antiseptic surgery there developed the modern principle of asepsis which has brought so many blessings to mankind. The present status of general and special surgery is characterized by a technical skill which saves life and limb by a bold invasion of the body. This evolution in surgery extended beyond the mere saving of the immediate patient because it enabled the surgeon to study living morbid anatomy and to give the world a better knowledge of the causes and evolution of many organic diseases which had not been thoroughly understood. This opportunity necessarily developed qualified special pathologists in the ranks of the surgeons. If the surgeon does not acquire the needed knowledge of special pathology, he is not a real surgeon in the full meaning of the term. There have been and will be outstanding figures in surgery. These are comparatively few in number. They have justified their professional positions by manifestations of qualities of leadership marked by initiative in the elaboration of instruments, in the technic of operations, and in clinical and laboratory investigations. Aside from these, the rank and file of surgeons is made up of men with no greater intelligence and with no better medical training than the remainder of the profession. Therefore, not all surgeons are qualified in the full acceptance of the word, because a thorough knowledge of special pathology is quite as necessary as a highly developed technic and manual dexterity.

Successful operative surgery, with its spectacular life-saving results, appealed to the suffering public to seek surgical treatment for all manner and forms of disease. This great field for professional opportunity and, necessarily, of financial gain attracted medical graduates to surgery. The result has been unfortunate in many ways, including the application of surgery where it was not needed, and in the evolution of financial compensation far beyond that formerly given to the surgeon and in great contrast to that allotted to the general practitioner. The financial reward promised the successful surgeon, and the spectacular results of the application of operative measures have not only attracted men to the field of surgery and the specialties, but has also set them up as a profession apart from medicine, and the assumption on the part of many of them to be qualified diagnosticians of all conditions which afflict mankind. This assumption has been detrimental to the interests of the general practitioner and has invaded our medical schools, with the result that the

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* Read at a special meeting on "The Future of Medicine," North Side Branch, Chicago Medical Society, Dec. 2, 1920.

medical student is not properly taught. I think this is evident if one reads the discussions before societies and the character of curriculums of medical schools. "Surgical pathology," "surgical adbomen," "surgical peptic ulcer," "surgical goiter," "surgical rib" and the like are frequently used. This practice of the association of morbid anatomy and of disease with a form of treatment creates an erroneous impression in the minds of students and practitioners. It suggests treatment before the diagnosis is made

While evolution in surgery has taken place with the coincident conditions I have described, those physicians who have had the opportunity to take advantage of the knowledge given to the world by the investigations made by laboratory and clinical workers have been able to keep in the front rank of medical knowledge and practice. Lack of opportunity and peculiarities of environment have kept the general practitioner in the background. In general, he has been neglected and left to fight his own battles. Surgeons and physicians who have acquired enviable position and leadership have not had the vision or the unselfishness to plan ways and means for the improvement of the status of the general practitioner. As a result, he has sought the easiest way to attain the main object of his life; that is, the acquisition of sufficient financial remuneration to secure a decent living. It is not strange, therefore, that he should run after spectacular measures of cure in the treatment of his patients in the attempt to satisfy an ignorant public for this sort of treatment. Medical science has given us specific therapeutic products in the form of antitoxic serums, antiserums, chemicals, biochemicals, a very few specific bacterial antigens and a few drugs. These have been real life-saving measures. The average practitioner, ignorant of the principles of immunity and without opportunity to obtain the needed postgraduate study, has naturally accepted the alleged specific therapeutic aids offered him by commercial proprietary medical corporations luring him with printed propaganda characterized by misleading and untruthful statements.

Furthermore, the great advance made in methods of physical and functional diagnosis are of the greatest value to those members of the profession who may command them; but these new measures of diagnosis confuse the general practitioner because they are too technical for his comprehension and are usually unavailable. The laboratory workers and clinicians who have developed new efficient apparatus and methods of physical and functional diagnosis have failed to provide and describe the more simple apparatus and tests which, if made available, would give the general practitioner valuable and practical aids in his daily work. Many practitioners left without instrumental and laboratory facilities for diagnosis apparently believe that the brain, special senses and hands are no longer of use as diagnostic aids. My experience of years in a consultation and referred practice is that many practitioners neglect to make a physical examination which was formerly the practice with the majority of good men. As an instance in point, blood pressure instruments are the sole means utilized by many to obtain a knowledge of cardiovascular conditions. A careful physical and functional examination of the heart, always available, is neglected, while the knowledge obtained from the blood pressure is often misleading.

It may be seen, then, that neglect on the part of those who should have acted long ago in the interest of the general practitioner, and his own apathy, have developed a condition in the profession which is harmful to him and detrimental to the public.

The proposal of the statutory enactment of compulsory health insurance by many states has been a cause of much discontent, unrest and fear in the medical profession. The resulting uncertainty as to the future of the private practice of medicine has been and is a cause of lessened efficiency of the practitioner which is detrimental to him and to the patients he serves.

There is an increasing tendency on the part of the federal government and of the department of health of some states to establish clinics for the medical and surgical treatment of certain infectious diseases. The general practitioner is naturally jealous of federal or state paternalism in the treatment of disease. The whole profession welcomes and, with few exceptions, heartily cooperates in the effort of the state to prevent disease and injury. The subject of state medicine will be more fully discussed later on.

CORRECTION OF CONDITIONS FOR IMPROVEMENT OF STATUS OF GENERAL PRACTITIONER

Primarily, the correction of conditions for the improvement of the status of the general practitioner implies the relation of the medical profession to the lay public. Too often I think that we are apt to consider ourselves as separate from the public. The fact is that we are only a small part of the general public; in round numbers, there are about 150,000 licensed physicians in the United States, while the population approximates 110,000,000. In other words, there is about one physician to 800 laymen. If we are to consider anything which shall be of lasting benefit to the medical profession, it must afford the lay public equal consideration in relief from disease and injury. Therefore, in a consideration of the measures which must be instituted to improve the status of the private practitioner, we must keep in mind the welfare of the public.

In this connection it is well to remind ourselves of the privileges granted to us as a profession. We are likely to emphasize the fact that we, as the servants of the public, give service to the sick poor and to public institutions without financial remuneration. It is quite true that the medical profession is imposed upon in this regard. But it is not becoming to a profession which demands recognition as a learned and dignified body to boast of its great philanthropic service. The fact is that few of us appreciate the privileges we enjoy under the law. Those who are conscientious will not take advantage of these privileges. Those who are thoughtless, and certainly those who are not entirely honest, will do so. How many of us think of the fact that we may operate on a patient who is entirely ignorant of the reasons for the operation, or of how many patients take in full faith the drugs which we prescribe; while, if the result is disastrous, and especially if it is followed by exitus from the world, that no one will question the statement made in the certificate as to the cause of death? It is only in unusual conditions of death or in those associated with criminal processes that an inquisition is held. Any group of us may organize a hospital which, if properly conducted, is of great use to the community as well as to those who administer the hospital; but who is there to inquire into the manner in which the professional work of the hospital is conducted under the existing statutes? Under the law the physician is relieved from jury service; under the law he is privileged, with certain restrictions, sometimes embarrassing, to prescribe narcotic drugs and alcohol as therapeutic agents. I have cited these privileges as a reminder that as a privileged profession we should uphold the law as good citizens, never forgetting that we are a part of the general public.

The factors which will improve the conditions of country practice and which may attract physicians to the country include the fundamental improvement of the environment of the country doctor. Rural life must be made more attractive. This involves better living conditions, better schools and places of amusement. But of special importance is the need of facilities for the diagnosis and treatment of the rural population. Of the latter point I shall speak farther on.

What I have said of surgery in relation to general medicine was written without prejudice. I believe that the opinion expressed concerning the need of readjustment between the surgeons and the remainder of the medical profession will be acknowledged by all broad-minded members of the profession. This readjustment must accept the principle that medicine is the mother, and that general surgery and all of the specialties of surgery and medicine are her offspring. Medicine and surgery, including all of the specialties, must recognize their interrelations, and in operation must be coordinated as the cells and the organs of the body must be coordinated if a healthy organism is to exist. Surgeons of influence should correct the errors due to the too frequent application of the word "surgical" to morbid processes and conditions. Disease and its results should be studied, and when the morbid condition is correctly recognized, appropriate treatment may be given. This thought is in the mind, I am sure, of a good many surgeons and general practitioners. I feel justified in quoting from a letter written to me last July by Dr. William J. Mayo: "Surgery should be put back where it belongs, a means of mechanical therapy in conjunction with medicine, and should not continue in competition with the internist as it has in the past." This frank and rational statement is in keeping, I believe, with the present tendency of the profession. We must induce the surgeons to return to the medical fold and to cooperate in the attempt to improve the opportunities and the facilities for practice of the general practitioner that he may again occupy the important and fundamental position in the field of practice to which he belongs. In this connection, too, we must consider the inequality of the financial compensation of the surgeon and the physician, for it requires readjustment. How the problem may be solved must be studied and determined by a group of physicians, surgeons and specialists who will approach the subject with the desire to afford justice for all concerned, including the lay public.

RESPONSIBILITIES OF MEDICAL COLLEGES

Those who are responsible for the education of the medical student should readjust the curriculum for even greater training in the fundamental branches of medicine, and especially to add greater emphasis to applied science: to readjust the clinical curriculum, with emphasis to be placed on the training in general and special pathology, in physical and functional diagnosis, and to the training in the recognition of disease by actual contact with the patient. The student should be made to understand that the main problem of his present and future is the study of and recognition of morbid anatomy and modified physiology. The general principles of medicine, therapeutics, surgery and of the several specialties should be taught. The technic necessary in diagnostic methods, in surgery including the specialties, must receive adequate attention; but the main point should be kept in mind that the school is engaged in the attempt to turn out graduates who are well grounded in all of the fundamentals pertaining to the general practice of medicine. They cannot become surgeons or specialists until they shall have studied and practiced for a sufficient length of time to qualify themselves. The curriculum of most medical schools is faulty in that the attempt is made to teach the student too many alleged facts to the detriment of principles; this leads to a curriculum so overcrowded that the student receives a smattering of knowledge which is inadequate to fit him for efficient work in general medicine, and he is certainly not qualified to practice surgery or a specialty. The fifth or intern year corrects some of the faults by giving him the actual practical bedside training which should have been a greater part of the means of instruction in the third and fourth years.

We must secure the cooperation of those qualified to investigate and invent new diagnostic instruments and laboratory methods of diagnosis to supplement the published results of their work, so simply phrased that the average practitioner may understand and apply selected simple tests and methods in his diagnostic work. For example: The elaborate laboratory tests of the blood and urine, with prescribed diet and other required factors to arrive at a diagnosis of the function of the kidney, may be replaced by perfectly simple measures of examination easily within the command of the private physician which will afford him fundamental knowledge not otherwise obtainable. We must by some means make the private practitioner understand that a rational application of his brain, special senses and his hands will enable him to arrive at a diagnosis in the majority of the patients he serves. We must also try to induce him to keep written records of his patients. This will inculcate the habit of painstaking care and thoroughness in his practice. It does not take long to establish a reputation of thoroughness and efficiency in one's work. Efficient service will usually bring satisfactory financial returns. It must also be stated that thoroughness in diagnosis makes the problem of therapy a simple procedure. One who follows this practice will usually avoid the pitfalls attendant on the use of nostrums and psuedospecific antiserums, therapeutic bacterial antigens, and the like.

GROUP MEDICAL PRACTICE

During the last few years, group medicine, or diagnostic clinics, have become the vogue, especially in the smaller cities. Group practice is considered by most members of the profession as a distinct advance in the methods of medical practice. This is undoubtedly true so far as it pertains to the members of the profession forming the group and that part of the public sick and injured who receive service from the clinic. But if group practice is to succeed in the sense of improvement of medical service in any given community, then the policy pursued must include efficient service and fair dealing with the whole public, both lay and medical. Group practice must deal in a broad-minded, unselfish and sympathetic manner with the physician in the district which it serves. If he does not belong to the group he should be invited to profit by and through its facilities in diagnosis and otherwise, if he desires it. If, after diagnosis, the condition of the patient is such that he may continue in charge, he should have that right. If the character of the disease is such that the therapy requires greater technical skill than the family physician can give and which the group can furnish, then in due time the convalescent patient should be returned to him with such information as may aid him in the aftercare of his patient.

COMPULSORY HEALTH INSURANCE

Compulsory health insurance, I believe, would be unsatisfactory to the people it is intended to benefit. In the main, it is class legislation, which usually brings injustice to some other class than those it is intended to help. Under compulsory health insurance the chief sacrifice made in service and money would apparently fall upon the medical profession. It is intended to benefit the working class, many of whom earn as much or more in wages than the average annual income of the private practitioner. In my opinion, its alleged advantages to the laboring class do not solve the problem of better and more efficient medical service for the people whom it is intended to benefit. Its application will be more likely to degrade the members of the medical profession who become its servants. This derogatory influence on a part of the profession is most likely to be reflected on other physicians in the community, with the resulting deterioration of medical service to the whole population. There is an axiom which is related to all schemes intended to benefit the public health. It is this: The chief dependence for the conduct of the necessary ways and means to improve health and lengthen life must be placed on the medical profession. I think it may be said that the majority of the medical profession is opposed to the statutory enactment of compulsory health insurance.

STATE MEDICINE

Mention has been made of the tendency on the part of the federal government (U. S. Public Health Service) and of the departments of health of some states to establish clinics for the treatment of certain diseases. There may be rational grounds for this policy in sparsely populated regions of the country which are not provided with a sufficient number of resident physicians to care properly for the sick. With this exception there is no rational basis for this sort of paternalism on the part of the federal or of the state government. State medicine is naturally and properly concerned in the matter of public health relating to sanitation: air and water pollution, food contamination and adulteration, the prevention of the spread of communicable diseases, and the like. The state properly may standardize and enforce certain rules of procedure: notification, methods of disinfection, and the like, for the medical practitioner in the management of patients who suffer from communicable diseases; but the treatment must be left with the physician. Indeed, the administration of preventive medicine owes its success to the cooperation of the general practitioner with the sanitarian. Most qualified sanitarians know little or nothing and do not need to know anything of the practice of medicine. There is no doubt that a well organized clinic, properly conducted, will give more efficient medical and surgical service than may be rendered by individual physicians with poor facilities. But experience shows that centralized administration, either federal or state, of activities dealing with the health or with the treatment of the sick and injured, is likely to become bureaucratic and occasionally is subject to political debasement. Under our own government we may not depend with assurance that the honest and rational administration of any term of years will be followed by subsequent administrations. The state should take an active interest in the treatment of the sick and injured. This it may do as I shall attempt to show farther on, by aiding a community to secure facilities for the use of the local medical practitioners in the diagnosis and treatment of the sick and injured.

One may not dispose of the subject of compulsory health insurance and state medicine as I have done. Compulsory health insurance, especially, has many advocates, chiefly among the lay public. The friends of this measure will continue to urge legislative action in each state. Therefore, if the medical profession sincerely believes that compulsory health insurance and state medicine do not offer adequate measures to improve and give efficient medical service to the public, then the medical profession should oppose their enactment into law. This means action by a united profession guided by principles based on rational grounds that the measures proposed are wrong. This does not wholly meet the situation, even if united action may prove successful in the defeat of these measures. We should be able to offer a constructive program in substitution of one or both of these measures, which must also be approved and supported by the whole profession.

HEALTH CENTERS

In 1909, the legislature of Illinois placed on the statute books an enabling act which permits the people of any county, by referendum, to impose a tax upon themselves for the care of the dependent tuberculous patients in the community. At the present time forty-two of the 102 counties of the state have taken advantage of this law, with benefit to the sick tuberculous poor and to all of the people. At the beginning, some physicians believed erroneously that the administration of this act by any county would be harmful to them. I have been told by those who are apparently qualified by experience to know, that the medical profession in the counties which have taken advantage of this act wholly approve of it.

This successful application of the principle of voluntary self taxation by the voters of a county to pay for the necessary facilities for the prevention of and for the treatment of the tuberculous population affords the means of solution of the problem under discussion.

The extension of this principle to include the prevention and the treatment of all diseases, disabilities and injuries of a community is a feasible proposition. For its accomplishment it becomes necessary to specify the requisite principles and policies to be embodied in a bill to be presented to the legislature for an enabling act which will permit the voters of any suitable community to take advantage of the referendum and establish a health center.

The principles and policies involved in the establishment of a health center involve a discussion of the unit of population to which it is adaptable, its organization, its management, its financial support and its functions.

ADAPTABLE UNIT OF POPULATION

A population of from 50,000 to 200,000 within a geographic political territory is adaptable to the benefits which a health center affords. This population may be found in one or more city wards, in one or more townships, in a county, or in a district of two or more counties. A district of two or more counties may establish a health center for a comparatively large territory by an organization which will provide a principal hospital at the most accessible locality, with subcenters and small hospitals at other points in the district.

ORGANIZATION OF CENTER

The organization embraces the erection of a modern hospital or the adaptation of an existing hospital with provision for all sick and injured who require hospital care, including maternity and tuberculosis patients, and those suffering from scarlet fever, diphtheria, measles and the like; the minimum capacity to provide one bed for each unit of 500 of the population; adequately equipped diagnostic and clinical laboratories of chemistry, pathology, bacteriology, serology and radiology; a personnel of a qualified superintendent, assistants, clinical and medical social nurses and laboratory technicians; a medical and health reference and circulating library; suitable rooms for medical and social welfare meetings, and adequate provision for an outpatient and diagnostic clinic.

MANAGEMENT OF CENTER

The responsibility for the business management should be vested in a board of trustees or commissioners, of whom one should be a practitioner of medicine, elected by the voters of the district or appointed by the county judge or other officer for stated periods of service. The trustees should manage the property of the center, provide for its upkeep, direct its finances, secure the application of the proper annual tax rate for the district in support of the center, fix the salaries of all employees, and perform other like duties.

The responsibility for the medical management should be placed in a board composed of local medical practitioners and surgeons appointed by the ward (branch), county or district medical society. The medical board should be responsible for the organization of the medical practitioners embraced in the center, with the object of establishing unity of action and just dealing with all members of the profession and the public; establish rules and regulations in cooperation with the superintendent of the center for the conduct of the professional work of the hospital and diagnostic center; make specifications for the medical and health literature for the library and cooperate with school boards and with state or municipal health authorities in the promotion of health inspection of schoolchildren, in instruction of pupils in personal and general hygiene, and in the proper application of physical training of children and other like duties.

Joint action of the board of trustees and of the medical board will be necessary in many instances, such as the selection of the superintendent of the center, and the employment of laboratory technicians.

FINANCIAL SUPPORT OF CENTER

By virtue of the enabling act and of the referendum, the people of a community may provide for an annual tax or for an issue of bonds to pay for the primary cost of the buildings, equipment and the like in the organization of the center and for the maintenance and administration of the center. The state should subsidize the project, especially the first cost of construction or adaptation of the necessary buildings for the hospital, the laboratories and administration, and for adequate equipment. The state should also make an annual subsidy to aid in the maintenance and administration of the center. The amount of the subsidy should be small compared with the whole cost, but the principle governing the state subsidy should be elastic enough to permit the establishment of health centers in pioneer and relatively poor communities by liberal financial state aid. The benefits which the center affords will be available to all the people of the district. The sick and injured poor will receive free or partial pay service in the diagnostic center and when necessary in the hospital. The well-to-do will pay for hospital board, lodging, laboratory tests and the like. The financial income for this service from patients able to pay will make the diagnostic center and hospital largely self supporting. As the work of the center develops and its efficiency improves, the per capita cost deficit should diminish. Sickness, especially persistent chronic types, is the most potent cause of poverty. Therefore, lessened morbidity will eventuate in fewer people unable to pay for their hospital care and for the services of a physician. The efficient administration of a center should result in a gradually lessened tax on the people it serves.

In the discussion of the finances of the center, it is advisable to express at this time the necessity of the recognition of the principle that the fee of the physician or surgeon for services rendered the sick and injured of the territory embraced in the center in their homes, in the diagnostic center and in the hospital belongs to him. The chief reason for the organization of health centers is to afford the public more efficient medical and surgical service by providing the medical practitioner facilities for the diagnosis and treatment of his patients. As a tax payer he joins with the patient in securing these facilities, and the fee properly belongs to him. It is only in those communities in which there is a sparse population with too few local medical practitioners to care for all the sick and injured that an established health center should maintain a salaried staff to provide hospital professional treatment. In this event the fees would be collected by and used to support the center.

FUNCTIONS OF THE HEALTH CENTER

The chief function of the center is to promote community health. This it does by providing the medical profession of the territory with available adequate facilities for diagnosis and hospital treatment of all patients who require it. The medical social service personnel affords valuable aid to the physicians in the care of patients and convalescents in their homes, in prenatal and maternity care, and in infant and child welfare. Facilities are afforded through the center and the medical board for the adequate inspection of schoolchildren, for the correction of remediable physical defects, for the physical education and training of pupils, and for other like benefits. The center provides facilities, including an organized medical profession for adequate public health work in the community. In this connection a principle should be recognized which concerns the legal relation of the state to the functions of the center. As the center will be a most valuable agency in public health work, the state department of health should standardize the type and plans of hospitals, laboratories and equipment for the sake of uniformity of construction and efficiency of service. In addition to their use in the diagnostic clinic, the laboratories should be recognized as branches of the central laboratory of the department of health. The work of the public health personnel of the center should be standardized by the department of health. Field officers of the department of health should inspect the work done by and should promote the cooperation and efficient health work of the public health personnel of the center. Experience shows that health promotion work is done best if it is administered by the people benefited, provided standards of work are furnished them, and provided these standards are maintained by the inquisitorial watchfulness of a higher authoritative body.

As the representative body of the organized profession, the state medical society should formulate standard rules and regulations for the uniform action of the county and district medical societies regarding their relations to the health centers. These relations include the appointment or election by the county or district medical society of the medical board of management of the center, the promotion of postgraduate medical work in the center, the compilation of a uniform rational fee bill, and other objects which require uniformity of action. The branch, county or district medical society should be left free to administer its own medical affairs. At the annual meeting of the state medical society, problems relating to the medical conduct of health centers will be live and interesting subjects for discussion.

CONCLUSION

In this discussion I have not mentioned the attempts which have been made to establish health or community centers based on principles and policies which were intended to provide adequate medical surgical treatment of residents of rural districts and of other individuals. Attention is invited to a bill introduced into the senate of the state of New York by Mr. Sage in March, 1920. In my opinion this bill does not give sufficient consideration to the welfare of the medical profession. By this I mean that its provisions emphasize centralization of administration through the state department of health. On the other hand, I have attempted to discuss principles and policies in the establishment of health centers which will promote the public welfare and at the same time will provide facilities for the diagnosis and treatment of patients by the medical profession, and which will stimulate postgraduate study and professional improvement. These provisions should improve the conditions of medical practice in rural and even in other districts to such a degree that members of the medical profession will be attracted to settle in such favored localities.

If the medical profession approves of the suggestions made for the establishment of health centers under the principles and policies enumerated, we shall have a rational basis and argument for more complete organization of the profession. However, one must recognize that unselfish, understanding, broad-minded and sympathetic leadership in the ranks of the medical profession of every community is a prerequisite to the successful solution of the problem involved in the title of this paper.

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Mosquitoes and the Destinies of Armies.—The rôle played by the mosquito in shaping the destinies of the British Salonika force may be partly realized from the fact that the total admissions to hospitals for malaria during the years 1916, 1917 and 1918 amounted to 161,560. Expressed as a ratio per thousand troops, this number is equivalent to 1,053 per thousand, the ratios for the respective years being 331, 353 and 369 per thousand. These figures, large as they are, do not represent the whole incidence of malaria, since they include only admissions to general hospitals, stationary hospitals and casualty clearing stations.—A. G. Phear, *Lancet*, July 10, 1920.

ULCER OF THE JEJUNUM FOLLOWING GASTRO-ENTEROSTOMY *

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Ulcer of the jejunum following gastro-enterostomy is caused by gastro-enterostomy. Even the most ardent advocates of this operation must admit the causal relation. The manner in which it produces the ulcer has been the subject of considerable discussion. A jejunal ulcer is rarely found except after gastro-enterostomy, though sometimes it occurs after diseases that destroy the efficiency of the pyloric portion of the stomach or that interfere with the normal character of the gastric or duodenal secretion. Oviatt [1] says: "Peptic ulcer of the jejunum is rare; usually following the operation of gastro-jejunostomy. . . . It has never been reported following the operation of pyloroplasty or gastroduodenostomy for benign conditions."

Jejunal ulcer, however, has been known to occur without any previous operation. Robert C. Bryan [2] of Richmond reports such an ulcer which perforated and caused death. Bryan's patient was a man in whom there was marked disease of the stomach and duodenum; he thinks that the pathologic condition of the stomach and duodenum prevented the proper protection of the jejunum.

W. T. Terry [3] of San Francisco reports operating in three cases of jejunal ulcer following gastro-enterostomy which occurred in his practice between 1914 and 1918. In none of these three cases was the gastro-enterostomy opening closed, and in one a recurrence of the jejunal ulcer demanded a third operation, while in another the clinical symptoms show strong probability of a recurrence of the ulcer. Such an experience in the practice of one surgeon within four years is very significant. The cases of Terry are carefully reported, and he arrives at the conclusion that the chief cause of jejunal ulcer following gastro-enterostomy is the fact that the acid gastric juice is poured into the jejunum, which is accustomed to alkaline contents.

While there can be no doubt that gastro-enterostomy causes ulcer of the jejunum, the manner in which it does this has been given various interpretations. It seems most probable that the theory of the ulcer's being due to the dumping of the acid gastric juice into the jejunum is correct. There is no viscus of the body in which we can permanently alter the physiology by changing from a strongly alkaline to an acid medium, or vice versa, without causing derangement of function. The urinary bladder, for instance, is accustomed to urine that is acid, and a change to alkaline urine for a considerable length of time produces irritation and eventually cystitis. If the acidity of the gastric juice is greatly lowered, even though the reaction may not be changed, symptoms are usually produced. It seems, then, that instead of magnifying the importance of technical errors of the operation, we can more justly regard the violation of a broad physiologic principle as the cause of jejunal ulcer. This, too, is borne out by the fact that jejunal ulcer is rarely if ever observed after pyloroplasty, and that gastro-enterostomy after cicatricial obstruction of the pylorus invariably gives the best results. Thus, Balfour[4] says, "The best results after gastro-enterostomy occur when there is stenosis of the pylorus."

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* Read before the Southern Surgical Association, Hot Springs, Va., Dec. 16, 1920.

[1] Oviatt, C. W., in Bryant, J. D., and Buck, A. H.: American Practice of Surgery, New York, William Wood & Co. **7**: 718.

[2] Bryan, R. C.: Surg., Gynec. & Obst. **22**: 279 (March) 1916.

[3] Terry, W. I.: Ulcer of Jejunum Following Gastrojejunostomy, J. A. M. A. **75**: 219 (July 24) 1920.

This clinical observation can be explained by the fact that in cicatricial stenosis of the pylorus no gastric juice enters the duodenum through the pylorus, but the stomach contents are emptied entirely through the gastro-enterostomy stoma. Before the gastro-enterostomy was performed, the powerful contractions of the stomach would force a meager amount of gastric contents through the stenosed pylorus; but after the gastro-enterostomy, the stomach can empty itself easily without the necessity of such strong contractions. Consequently, the stenosis becomes complete when not subjected to the pressure from strong peristalsis. Such pressure is impossible when there is a leak at the gastro-enterostomy opening. This complete stenosis prevents the lowering of the alkalinity of the duodenal contents by the passage of gastric juice through the pylorus, so the duodenal secretion is delivered at the stoma of the gastro-enterostomy with its maximum alkalinity, and can readily neutralize the acidity of the gastric juice and protect the jejunum from the deleterious effects of the acid. This result is not obtained by a temporary closure of the pylorus because, as is well known, it is difficult or impossible to occlude the pylorus artificially. When the pylorus opens after an infolding or a ligature, the acid gastric juice again enters the duodenum, lowers the alkalinity of the duodenal contents, and so prevents the protection of the jejunal mucosa at the stoma of the gastro-enterostomy.

Naturally, alteration of gastric juice in which acidity is increased or diminished, or change in duodenal secretion will have a pronounced effect. It is possible to imagine a condition in which the alkalinity of the duodenal contents is so low that it cannot overcome the acidity of the gastric juice until the jejunum is reached. This may account for those rare cases of ulcer of the jejunum that do not follow gastro-enterostomy, as reported by Bryan.

The frequency of ulcers in the pyloric end of the stomach and in the adjacent duodenum has not been fully explained. The work by T. B. Reeves[5] of the Mayo Clinic, on the blood supply of the stomach and duodenum in relation to ulcer, throws some light on this subject. Reeves shows that the anatomic arrangement of the arteries along the lesser curvature of the stomach and throughout the first inch of the duodenum predisposes to thrombosis and renders these vessels very likely to be occluded by emboli. Undoubtedly, the chief direct cause of ulcers of the stomach and duodenum is sepsis, which probably comes, as Rosenow has so frequently demonstrated, from hematogenous infection with streptococci. It is highly probable that for every gastric or duodenal ulcer that persists for months or years, there are many other lesions in this region that heal readily. It is also probable that at the time of the origin of the ulcer, the hematogenous infection produced irritation or inflammation in the gallbladder, appendix, pancreas, kidneys and other organs. These viscera usually recover and may completely throw off the evidence of infection. If the gastric or duodenal ulcer persists, it may erroneously be regarded as having been the sole lesion, when in all probability it is merely a survival of multiple lesions.

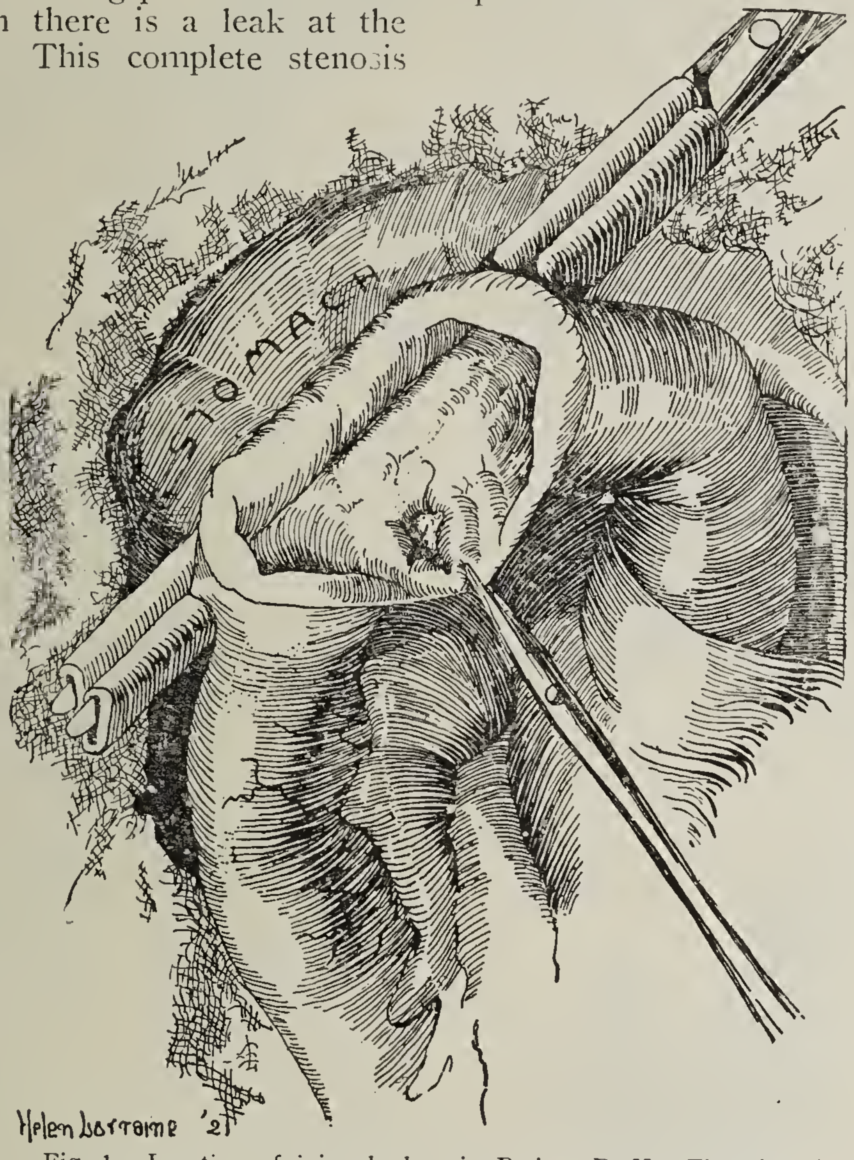

Fig. 1.—Location of jejunal ulcer in Patient B. V. The ulcer is about opposite the opening into the stomach and has penetrated into the mesentery of the jejunum.

In ulcer of the jejunum the etiology appears to be different. We are not surprised at the erosions which a gastric fistula, for instance, causes on the skin, because the skin has but little natural resistance against the acid gastric juice. A fecal fistula high up in the small intestine also produces ulceration on a cutaneous surface. This happens because nature has not prepared the skin for constant contact with these body juices, which in their normal surroundings produce no reaction. Why, then, should we marvel when the normal jejunum, accustomed to an alkaline medium, protests against the acid gastric juice, any more than when ulcers are produced on normal skin by the constant flowing over it of either gastric juice or succus entericus?

The lesser causes of jejunal ulcer are too greatly emphasized. Nonabsorbable sutures undoubtedly predispose to ulceration at the site of a gastro-enterostomy. The use of clamps or any unusual trauma, the turning in of too much tissue and interference with the blood supply, are all direct causes of jejunal ulcer; but even when all these things are eliminated, jejunal ulcer still follows gastro-enterostomy, though in a smaller proportion of cases.

If we have a patient with a large scar on the leg, we know that the slightest trauma to this scar will result in slow healing. A scratch that elsewhere in the body may be repaired perfectly will often on such a scar produce an ugly ulcer. Infection is difficult to overcome in such tissue. It is true that the immediate trauma over this scar is the direct cause of the ulcer, but we should not disregard the fact that such a trauma elsewhere would not produce an ulcer. The use of clamps, and of linen or silk sutures, and even slight interference with the blood supply, elsewhere in the gastro-intestinal tract rarely give rise to symptoms. Though the pyloroplasty of Finney is performed with silk, and though intestinal sutures are usually of silk or linen, we do not hear of nonabsorbable sutures or the use of clamps in these regions causing ulcers or bad results.

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[4] Balfour, D. C.: Surg., Gynec. & Obst. **24**: 731 (June) 1917.
[5] Reeves, T. B.: Surg., Gynec. & Obst. **33**: 374 (April) 1920.

The probable explanation is that the changed physiology in the jejunum caused by the gastro-enterostomy weakens the resistance of its tissues, and that traumas or nonabsorbable sutures that are easily taken care of elsewhere cannot be borne here.

A jejunal ulcer often occurs around the margin of the gastro-enterostomy opening. This, probably, is because the mucosa of the jejunum nearest this opening is least protected from the effects of the gastric juice. Its resistance, therefore, is lower, and the trauma or the suturing, particularly if there is the added insult of nonabsorbable sutures, causes the ulcer. It is interesting, however, to find that in none of Terry's three "cases were any retained sutures found, although search was made for them."

The ulceration may occur where the current of gastric juice strikes the wall of the jejunum opposite the stoma. In such ulcers in a region where the blood supply of the jejunum is unimpaired in any way, it seems that no other interpretation can be put on the cause of the ulcer than that it is due to the effect of the gastric juice. In the following case the ulcer occurred in this location.

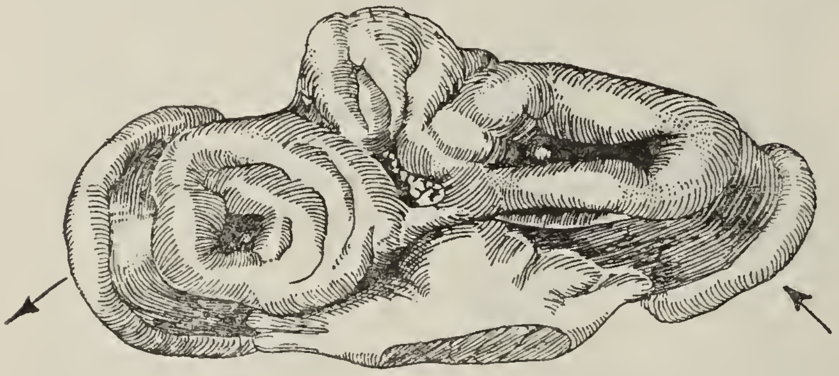
Fig. 2.—Specimen containing jejunal ulcer after resection of the jejunum (Patient B. V.).

REPORT OF CASE

B. V., a man, aged 41, white, entered the hospital, May 27, 1914, suffering on the right side of the abdomen with severe pain which came on suddenly. The pain seemed chiefly over the right iliac fossa. A muscle splitting operation over the appendix showed it somewhat inflamed, though not sufficiently inflamed to account for the severe pain. The appendix was removed, and an incision was made over the gallbladder region. A duodenal ulcer was found, which had perforated to the peritoneum and was plastered over with the gallbladder. The ulcer was folded in, and a posterior gastro-enterostomy was performed without clamps. The patient did well for a few months, and then began suffering from hunger pains and abdominal discomfort. An operation, Aug. 8, 1916, revealed many adhesions about the pylorus and gallbladder, with a marked scar at the site of the duodenal ulcer. The gastro-enterostomy opening, which had contracted considerably, was enlarged, chromic catgut being employed for sutures. For about two years the patient did very well. Then he had hunger pains and general abdominal discomfort. After clinical examination by Drs. Call and Porter and roentgenographic examination by Dr. Fred Hodges, a diagnosis of jejunal ulcer was made. A third operation was performed, Jan. 30, 1920. The gastro-enterostomy was disconnected and the stomach opening was closed. A perforating ulcer was found in the jejunum on the mesenteric border (Fig. 1). It had opened into the mesentery of the jejunum. The ulcer was about one-half inch in diameter and was opposite the stoma of the gastro-enterostomy opening. The affected portion of the jejunum which contained the ulcer was resected (Fig. 2) and united by the end-to-end method. The new pyloroplasty was performed. At the site of the old duodenal ulcer there was considerable scar tissue, most of which was excised. The gallbladder was very thick and adherent, but contained no stones. It was not removed. The patient suffered some pain shortly after the operation. This pain was occasionally better, but recurred at intervals, and was quite severe. It was partially relieved by food and alkalis. A roentgenographic examination disclosed marked retention in the stomach, with many adhesions around the pylorus and duodenum, and the possibility of an ulcer. The patient was again operated on, Dec. 6, 1920, and the gallbladder was found thick and universally adherent. There was an ulcer just to the gastric side of the pylorus, on the lesser border of the stomach. This had perforated into the gastrohepatic omentum and formed a little cavity about one-half inch in diameter. The anterior wall of this cavity was formed by the adherent gallbladder. The gallbladder was removed in the usual way. The margins of the ulcer were disinfected with the cautery, and the ulcer was excised. The cavity was disinfected with a piece of gauze soaked in pure phenol (carbolic acid), and its walls were carefully dissected away. The tissues were mobilized and the cavity was closed. The opening of the ulcer was enlarged by a short incision into the stomach, inward and slightly downward. The wound was closed by interrupted sutures of tanned catgut for the mucosa and two layers of continuous linen sutures. The patient made a satisfactory operative recovery.

COMMENT

A recurrence of this ulcer just on the gastric side of the pylorus was probably due to the fact that closure of the gastro-enterostomy opening suddenly switched all of the gastric juice over tissue that had poor resistance because of the scar tissue from the previous infiltrating ulcer and a subsequent pyloroplasty, while the diseased gallbladder, which was markedly adherent at previous operations, still remained as a focus of infection.

RESULTS OF GASTRO-ENTEROSTOMY

If, then, the physiology of the jejunum is so upset by gastro-enterostomy, why is gastro-enterostomy generally considered a satisfactory operation in duodenal or gastric ulcer? If any considerable number of gastro-enterostomies for gastric or jejunal ulcer with an open pylorus are followed up, the results will usually be found far from satisfactory. If the ulcer is the chief or the sole surviving lesion, we have a right to expect a permanent and complete cure in most cases. That this is not true, however, can be testified to by many internists, whom the patients with gastro-enterostomies are more prone to consult than the surgeon. Thus, Frank Smithies,[6] who was formerly gastro-enterologist at the Mayo Clinic and is now at the Augustana Hospital in Chicago, has reported his observations of 273 patients on whom gastro-enterostomy was performed. His paper was not intended primarily as critical of the beneficial results of gastro-enterostomy, but his statistics show that of this entire number only 20.9 per cent. of the patients were clinically complaint free, while twenty-eight, or 80 per cent., of the duodenal ulcer patients on whom gastro-enterostomy had been performed had pain or distress, and many of them had other symptoms, such as gas, nausea or vomiting.

These symptoms do not usually follow gastro-enterostomy at once. It is only after continual perversion of the physiology of the jejunum that nature protests. It is probable that many jejunal ulcers following gastro-enterostomy never come to operation, and it is even more probable that for every patient who has a jejunal ulcer, there are several others who have hyperemia or irritation of the jejunum causing marked symptoms. In this way, then, we can account for the late results in Smithies' report, showing only 20.9 per cent. of the patients complaint free after gastro-enterostomy. Doubtless some patients with unusual resistance can overcome the unphysiologic handicap of a gastro-enterostomy, and in this way we may account for the 20.9 per cent. who remained complaint free after gastro-enterostomy. All of us know patients who go through life with many handicaps and without complaint, whereas the same conditions in others will produce pronounced symptoms. This fact, however, should not justify unphysiologic surgical procedures.

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[6] Smithies, Frank: Surg., Gynec. & Obst. 26: 275 (March) 1918.

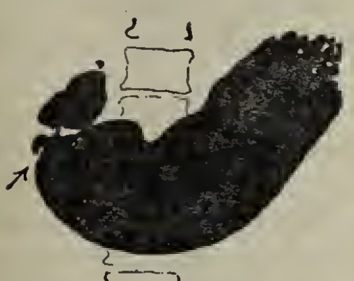

Fig. 3 (Mr. M. L. S.).—Constant prepyloric filling defect (ulcer) shown at arrow. Tracing from roentgenogram taken a few days before pyloroplasty, which was done May 6, 1919.

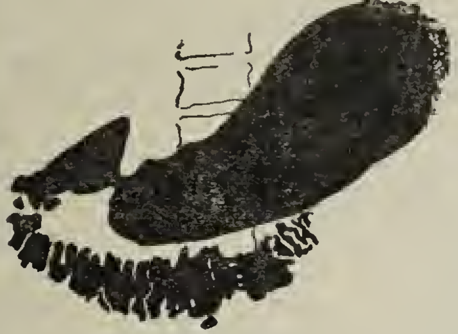

Fig. 4 (Mr. M. L. S.).—Tracing from roentgenogram, taken Nov. 25, 1920. Note the excellent pyloric sphincter and duodenal cap. There is no filling defect. The patient is complaint free.

INDICATIONS FOR GASTRO-ENTEROSTOMY AND FOR PYLOROPLASTY

That there is a distinct field for gastro-enterostomy is obvious:

1. When there is cicatricial stenosis of the pylorus and duodenum so marked that the duodenum cannot be returned to normal and no bleeding, gastro-enterostomy gives excellent results for the reasons already explained.
2. When there is a subacute perforation of the duodenum with such extensive leukocytic infiltration that its walls will not hold sutures, eventually stenosis is almost certain to occur. Here the tissues will not hold sutures, and pyloroplasty should not be done.
3. In obstruction of the pylorus from inoperable malignant growths, gastro-enterostomy is, of course, the proper operation.

In most of the other cases, whether the ulcer is located in the body of the stomach or elsewhere, or when pyloric stenosis is confined to a narrow band of tissue, pyloroplasty is indicated. Occasionally the location of the ulcer demands a pylorectomy. When the ulcer is in the duodenum and is an inch or more from the pylorus, excision of the ulcer transversely and suturing of the wound in this direction, as practiced by Judd, gives excellent results. In such a location the ulcer may be treated without reference to the stomach or pylorus.

TECHNIC

W. J. Mayo[7] says that when operating for gastrojejunal ulcer, "We now cut off the gastro-jejunostomy, close the stomach and jejunum and make a pyloroplasty after the method of Finney." Apparently this procedure has given satisfactory results in his hands, whereas, in two of the three cases reported by Terry, there appeared to be a recurrence of the jejunal ulcer when the gastro-enterostomy opening was not closed. It seems logical to conclude that if a pyloroplasty is the proper procedure for the cure of a jejunal ulcer following gastro-enterostomy, the pyloroplasty in the first instance would have been excellent prophylactic treatment for jejunal ulcer.

Elsewhere[8] I have reported a new pyloroplasty which seems to have the advantages of simplicity and of restoration of tissues to their physiologic normal. It should be remembered, however, that the origin of a gastric or duodenal ulcer is probably from hematogenous infection, and the ulcer is frequently accompanied by other lesions, such as cholecystitis, which produce adhesions. It is even more necessary in pyloroplasty to remove a diseased gallbladder or to prevent the formation of firm adhesions than it is after gastro-enterostomy, because the normal peristalsis in the region of the pylorus will cause a tugging on adhesions that will produce pain; whereas, in gastro-enterostomy, the necessity for even normal peristalsis at the pylorus is diminished and the tugging on these adhesions is reduced to a minimum. It must be emphasized, then, that in performing a pyloroplasty a diseased and adherent gallbladder should be removed, but with as little trauma as possible, and the raw surfaces and the tube to the cystic duct if a tube is used should be fully covered with fat and omentum. The patient also should lie chiefly on his left side for several days after the operation to prevent the duodenum from being drawn up to the liver.

Since the first publication on this pyloroplasty, in which eleven cases were reported, a few changes have been made in the technic. Instead of a single suture approximating the two ends of the incision, a second suture is placed not more than one-half inch above this. These two sutures, when tied at the same time and held up, bring the anterior wall of the pylorus away from the posterior wall and at the same time make suturing of the wound in the duodenum easier than if only one suture was placed or if the second suture was placed farther up. The second change in technic is that the second row of sutures merely approximates the cut edges of the peritoneal and muscular coats. Formerly an effort was made to invert tissue with this row. If this was done, the third row of sutures, also inverting tissue, made too much of a lump. By merely approximating the cut edges with the second row, as in suturing the skin, and inverting the tissues with the third row of sutures, but little of the edges of the incision is turned in and a smoother wound results. A mattress suture of fine tanned catgut is

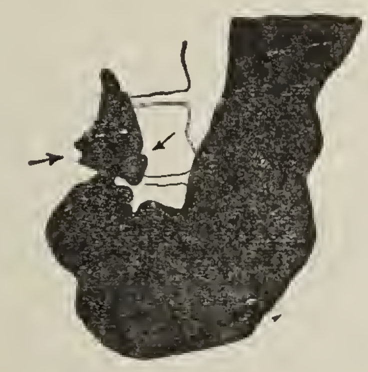

Fig. 5 (Miss E. D. H.).—Tracing from roentgenogram taken shortly before pyloroplasty, which was done July 3, 1918. Arrows show the constant filling defect in the duodenal cap, where there was a duodenal ulcer.

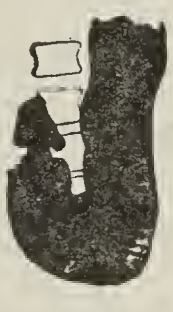

Fig. 6 (Miss E. D. H.).—Tracing from roentgenogram taken Nov. 16, 1918, which shows a perfect duodenal cap. Roentgenogram taken Dec. 5, 1920, shows virtually the same picture. The patient is complaint free. The pylorus seems merely a little wider than it was before the pyloroplasty.

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[7] Mayo, W. J., in discussion on article by Dr. Terry (Footnote 3) J. A. M. A. **75**: 221 (July 24) 1920.

[8] Horsley, J. S.: A New Operation for Duodenal and Gastric Ulcer, J. A. M. A. **73**: 575 (Aug. 23) 1919.

placed at the point of greatest tension after the three rows have been inserted, and with the long ends of this the omentum is brought up over the suture line. It should also be emphasized that the teats of tissue at the two ends of the incision after the completion of the second row of sutures should be well turned in by beginning the third row of sutures a long distance from the teat and inverting a considerable quantity of the tissue. The suture then comes nearer the edges of the wound at its middle and again diverges at the upper extremity, turning in a large amount of tissue here.

RESULTS

I have performed twenty-four of these pyloroplasties since the first one in April, 1918. During this time I have performed four gastro-enterostomies, one operation of Judd for duodenal ulcer 1½ inches from the pylorus, and two pylorectomies. All of these operations were for ulcer except two of the gastro-enterostomies, which were for cancer. I believe that this represents about the correct proportion of pyloroplasties to gastro-enterostomies. Of the twenty-four pyloroplasties, three deaths occurred in the first twelve cases. Two of these deaths have been fully discussed in the original communication, and the third death, which was in the twelfth case, resulted from uremia. It was thought that the ulcer was the focus of infection for the nephritis the patient had. He died of uremia five days after the operation. Postmortem examination revealed the stomach and pylorus in excellent condition. Probably none of these deaths would occur at present. There were no deaths in the last half of the series.

Figures 3, 4, 5 and 6 are tracings from roentgenograms of two patients, showing the condition before operation and the normal physiologic stomach resulting from the pyloroplasty.

For the first few months after a pyloroplasty, the results are similar to those after gastro-enterostomy. It is only as the length of time after the operation increases that the advantages of the pyloroplasty begin to appear.

Anthrax and Shaving Brushes.—Because of the continued occurrence of cases of anthrax due to infected shaving brushes, the Public Health Service has issued a circular letter of warning to state and local health authorities and others concerned. It seems that the suggestions made by that service in 1918, recommending the sterilization of all brushes in trade channels, have not been complied with. In order to avoid danger from this source, any brushes which do not bear the name or the trade make of the manufacturer should be regarded with suspicion and returned to the dealer from whom they were purchased, or thoroughly disinfected before use.

TRANSFUSION OF CITRATED BLOOD*

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In view of the fact that transfusions of citrated blood are becoming more and more a common practice, and that the reports of the efficacy of this method indicate that it is one of the most valuable of our therapeutic measures, we have attempted to perfect a simple and satisfactory apparatus.

In order that it may be of value to the physician who performs only an occasional transfusion (such as an emergency might bring forth) the method must be simple, safe and expedient.

In the past, mainly two methods of injection of citrated blood have been used: (1) the gravity method, and (2) the three-way method with syringe. In the gravity method the blood is usually collected from the donor into an open vessel containing a solution of sodium citrate. This is then transferred to another vessel, which is connected to the needle in the patient's vein by means of a long rubber tube. Then by elevating the container the blood is allowed to run into the vein of the recipient by means of its own weight.

The main objections to this method have been the lack of control of injection and the excessive length of tubing necessary to secure the proper amount of gravity. Several observers have suggested that the tubing might be an important factor in the causation of transfusion reactions. Another even greater objection is the danger of contamination from the outside air.

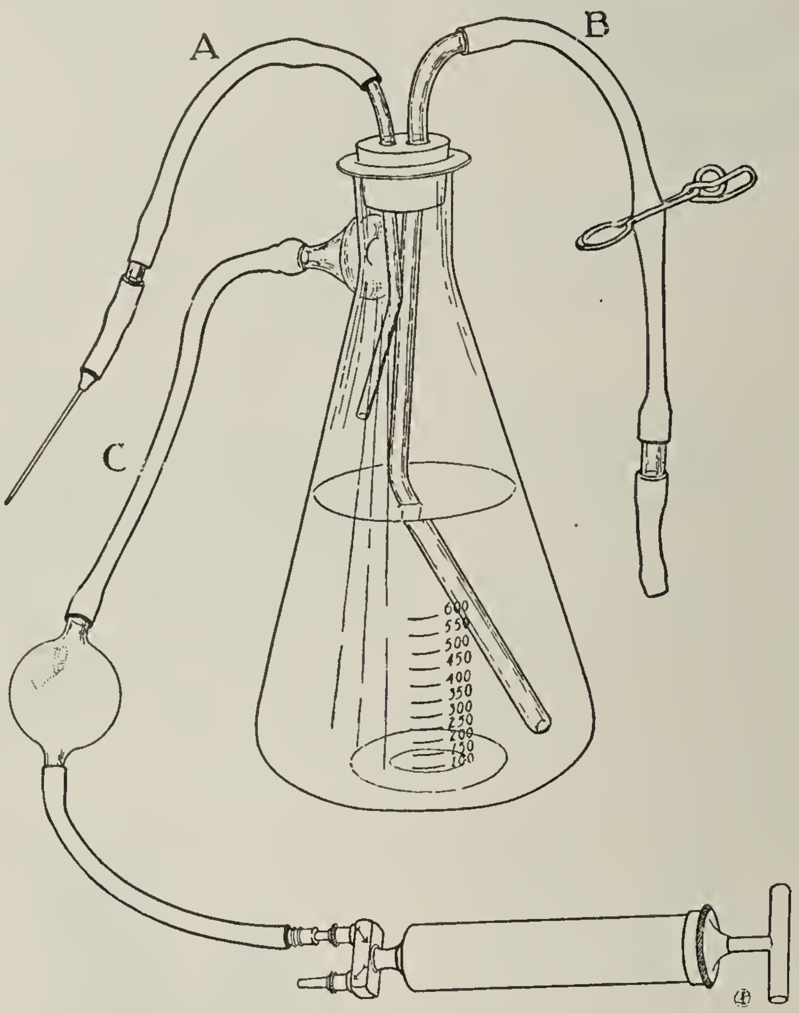

Fig. 1.—Arrangement of apparatus for receiving blood from donor. Note the direction of the arrows on the pump and compare with the direction of arrows in Figure 2. This arrangement produces a partial vacuum within the bottle. A very small amount of vacuum is all that is necessary.

In the three-way method with syringe, the blood is also collected in an open flask. The apparatus consists of two long pieces of rubber tubing connected to a 50 c.c. syringe by means of a Y-shaped glass tube or a three-way stopcock. The free end of one piece of rubber tubing is placed in the flask containing the citrated blood, and the free end of the second rubber tubing is connected to the needle in the recipient's vein. The blood is drawn into the syringe, the tube to the flask is clamped and the tube to the recipient is opened, and the syringe is emptied. This procedure is repeated until the blood is injected. When the three-way stopcock is used, the blood is directed into the proper channel by the turning of the stopcock.

This method has obviated one of the objections to the first or gravity method, namely, that of regulating the rate of flow, but again offers the objection that it is impossible to prevent contamination from the outside air. It is clumsy, it requires considerable assistance, and the blood must flow through a large amount of apparatus. Furthermore, the tubes must be long; and if the three-way stopcock is used there is frequently considerable leakage around the valve and the small holes in the cock are very liable to become plugged. One of the greatest annoyances in this method is the tendency for the plunger of the syringe to stick. Forcing the blood through the small holes in the stopcock undoubtedly has a tendency to break down the red cells, and this also may be a factor in the production of reactions.

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The apparatus which we have devised, we believe, obviates many of the objections of the methods mentioned above. It is rapid, safe, simple and compact; easily sterilized and cleaned, and eliminates contamination from the outside air. The blood runs through a minimum length of rubber tubing, which is of large caliber. It is quickly collected into a flask containing a solution of sodium citrate. This is done by means of a partial vacuum within the bottle. Then by reversing the syringe the blood is injected into the patient in a uniform, steady stream at any desired rate under positive pressure within the bottle.

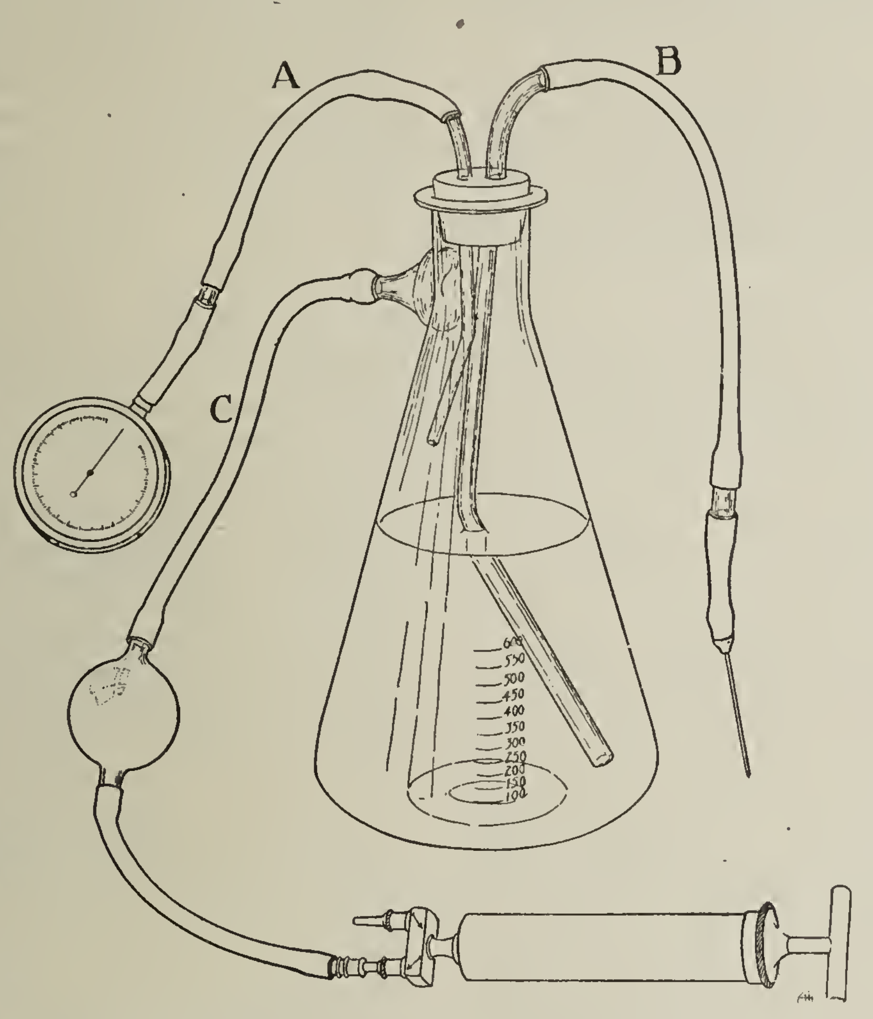

Fig. 2.—Arrangement of apparatus for injecting blood into the recipient. Note the direction of arrows and pump and compare with Figure 1. This arrangement produces positive pressure within the flask. Keeping the manometer between 70 and 100 mm. gives the most satisfactory flow.

Before the apparatus is described, a brief discussion of the preparation of the patient, donor and solutions for the operation would not be amiss. On the morning of the day of transfusion the patient is given a light breakfast and a simple enema. Both donor and recipient are grouped by the Minot modification of the Moss method. A Wassermann test is secured from the donor, and he is asked to report without breakfast. The sodium citrate solution is prepared from a chemically pure product in freshly distilled water. This is a 1.5 per cent. solution, and of this 20 c.c. is used for each 100 c.c. of blood which is to be transfused.

DETAILED DESCRIPTION OF APPARATUS

The details of the construction of the apparatus are well shown in the accompanying illustrations. As can be seen, little material is required which the average practitioner does not already have in his equipment.

The reversible pump which we use was secured from a chest aspiration set. The manometer, which is desirable but not absolutely necessary, can be taken from any spring sphygmomanometer, and is of value only in determining pressure within the bottle.

The remainder of the apparatus consists of a liter flask with a small neck and a wide, flat bottom. A filter flask such as is shown in the sketch is satisfactory, but any Erlenmeyer flask may be used. There are two short tubes, *A* and *C*, and one long tube, *B*. The long tube *B* inside the flask should be bent at such an angle that its lower end may extend to the outer edge of the bottom of the flask. This tube aids in mixing the blood with the citrate solution, since the end acts as a fixed point when the flask is gently agitated.

One of the short tubes, *A*, leads from the donor's arm; the second short tube, *C*, is attached to the pump; while through the long tube, *B*, the blood is forced into the vein of the recipient.

Care should be taken that the rubber stopper is well fitted to the bottle and that the glass tubes are well fitted to the holes through which they pass. The small glass bulb inserted in the short tube *C* between the pump and the bottle is filled with sterile cotton. This prevents the injection of particles into the flask.

The amount of sodium citrate solution necessary is measured into a sterile graduate, the tube *B* to the recipient is clamped, and the sodium citrate solution is drawn into the flask through the tube *A* by means of a partial vacuum produced within it. This indicates further whether the pump is applied in the proper manner and will preclude any possibility of injecting air into the donor's vein. At the same time it rinses the receiving tube with a citrate solution, which helps prevent clotting.

To the end of tube *A* a large 16-gage needle is applied. As large a needle as possible should be used, but with our apparatus, on account of the suction, a much smaller one may be used if necessary. The inside of all needles should be carefully polished with Bon Ami or similar preparations preceding sterilization, as we have found that the blood flows much more freely when the needles are so cleaned.

We are using a blood pressure apparatus as a tourniquet on the donor's arm, which is an excellent method for regulating the pressure so as to get the maximum flow of blood. We have found that a pressure slightly lower than the donor's diastolic pressure usually gives the maximum flow of blood.

The needle connected with tube *A* is introduced into the vein of the donor, and at the same time a small amount of suction is applied. As the blood flows, the flask is gently agitated. When the desired amount is obtained, the needle is withdrawn and is immediately placed into a small amount of citrate solution which is drawn up through the tube, thereby cleansing this part of the system. The needle is now removed and the spring manometer is attached in its place.

The pump is now disconnected and reversed (the direction is indicated by arrows in the illustrations). Air is pumped into the flask, forcing the blood through the tube *B* going to the recipient, filling this part of the system. When the air has all been expelled from tube *B* it is clamped, and the needle is inserted into the patient's vein. The clamp is removed and the blood is injected by producing positive pressure in the flask.

The blood should be injected at the rate of 100 c.c. every six minutes, i. e., 500 c.c. in a half hour. The pressure that is necessary to do this depends on the size of the needle used and the pressure within the vein. By the use of the manometer this can be easily determined and subsequently kept at the optimum point. It is usually in the neighborhood of from 70 to 100 mm. of mercury.

After transfusion has been completed, the apparatus can be cleaned by reversing the pump, producing suction and drawing water through both tubes.

We believe that except in cases of great depletion by hemorrhage, small amounts of blood frequently given are preferable to larger amounts given at longer intervals, about 300 to 500 c.c. being the amount usually used.

The advantages of the apparatus are that:

1. It is simple, compact and safe.
2. It is entirely closed and thereby prevents contamination from outside sources.
3. A minimum amount of apparatus is required, and it is easily constructed from instruments in common use.
4. It is easily operated by one person.
5. It provides a uniform, steady flow of blood.
6. The possibilities of accident during manipulation are at a minimum.

The method in our hands has proved to be easier of preparation and much easier of application than other methods.

Note.—Since this article was written, we have come across an article by O. H. Robertson[1] in which there is a description of a similar apparatus. We therefore cannot claim priority, although our work was done independently from and in complete ignorance of his. However, there are several additional convenient features on our apparatus which are of definite value.

INTERPRETATION OF WASSERMANN REACTION OF BLOOD SERUM IN MENTAL DISEASES

INDICATIONS FOR ANTISYPHILITIC THERAPY

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The prevailing opinion among medical men that a positive Wassermann reaction of the blood serum always means syphilis, and that therefore immediate antisyphilitic treatment should be instituted, cannot, in the field of mental disease, be always strictly adhered to. While in certain of the psychoses syphilis may be regarded as the definite etiologic factor, by far the greater percentage of cases owe their development to conditions far removed from *Spirochaeta pallida*. In these cases the presence of a positive blood Wassermann reaction is indicative of syphilis simply as an incidental condition in no wise contributing to the mental disorder, and hence, so far as the psychosis is concerned, does not demand antisyphilitic therapy.

In order definitely to establish a guide for the treatment of mental diseases in which there is a positive Wassermann reaction of the blood serum, from the patients now under treatment at the State Hospital for the Insane, we have selected groups of cases illustrating each of the foregoing types, and have outlined the indications as to treatment in each group.

That all controversy may be eliminated in the matter of case selection and reliability of serologic findings, the cases noted have been taken from our routine admissions and the laboratory findings have been interpreted by a competent pathologist.

From the standpoint of syphilis as the exciting cause of mental diseases, individual cases fall most naturally into one of two groups: (1) cases which, while showing a strongly positive Wassermann reaction of the blood serum, do not present clinical, neurologic or spinal fluid serologic evidences of neurosyphilis: (2) cases which, irrespective of the Wassermann reaction of the blood serum, show clinical, neurologic and spinal fluid serologic signs of syphilis of the central nervous system.

In Group 1 should be placed three types of cases: (*a*) psychoses in which syphilitic infection antedates the development of mental disease; (*b*) psychoses in which the mental disease antedates the syphilitic infection, and (*c*) epilepsy, mental deficiency and psychopathic constitutional inferiority, with syphilitic infection either hereditary or acquired.

CASES IN GROUP 1

Case 1.—*Psychosis in which syphilitic infection antedated the development of mental disease.*—F. B., a woman, aged 29, in whose family there was alcoholism on the maternal side, was of average mentality as a child, but was inclined to be incorrigible and emotionally unstable. At puberty she showed signs of moral imbecility. At the age of 15 she gave birth to an illegitimate child. She married at 17, had a miscarriage shortly afterward, and there were no subsequent pregnancies. Divorced at 23, she married again at 27, and had been living with her present husband only a few months.

The condition had been of a few months' duration, and these symptoms were present:

Psychic: Delusions that were mobile, absurd, loosely systematized and paranoid, having their foundation on auditory hallucinations; general emotional indifference with morbid irritability; defective judgment, but no intellectual enfeeblement.

Neurologic: Patellar reflexes slightly decreased but equal. Otherwise negative.

Physical: Cicatrix of the anterior surface of the left leg just below the knee, the site of an old syphilitic ulcer.

Serologic: Blood serum Wassermann reaction, strongly positive; spinal fluid, negative.

The diagnosis was: dementia praecox with syphilis.

Case 2.—*Psychosis in which the mental disease antedated the syphilitic infection.*—F. E., a woman, aged 40, whose family history was negative, was first admitted to the hospital at the age of 15 years. She had been furloughed and readmitted seven times. On each admission the symptoms were:

Psychic: Psychomotor excitement; flight of ideas; emotional exaltation; morbid euphoria and irritability; erotic tendencies; delusions of an unfixed, unsystematized expansive type.

Neurologic and Physical: Negative.

Serologic: Blood and spinal fluid, negative. During the interval preceding her present admission, which extended over a period of eleven years, she married, gave birth to one child, and on her return to the hospital presented the same psychic, clinical and neurologic picture, to which had been added a strongly positive Wassermann reaction of the blood serum.

The diagnosis was: manic-depressive insanity of the manic type.

Case 3.—*Epilepsy, mental deficiency and psychopathic constitutional inferiority, with syphilitic infection either hereditary or acquired.*—F. H., a man, aged 35, in whose family there was mental disease on the maternal side, and of whose early life no accurate history was obtainable, received a common school education and is said to have been epileptic for a number of years. He was addicted to the excessive use of alcohol and had syphilitic infection. Eighteen months previous to admission, he was said to have suffered from malarial fever, which was followed by a condition of emotional depression persisting for several months. During this period, there was a gradual alteration in the conduct of the patient with marked accentuation of the epileptic make-up, and three weeks previous to admission, he became hyperactive, and showed flight of ideas and emotional excitement, together with delusions of somewhat expansive and unsystematized nature. He became destructive to furniture and clothing, and was homicidal.

The patient showed the typical mental make-up of an epileptic. He suffered from epileptic convulsions which were grand mal in type, severe in character, and occasionally followed by periods of excitement and confusion. The Wassermann reaction of the blood serum was + +. Other findings were negative. The diagnosis was: epileptic psychosis.

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[1] Robertson, O. H.: Brit. M. J. 1: 477 (April 27) 1918.

The foregoing cases are illustrative of quite a large group of patients continually being received into the hospitals for the insane and in which syphilis is given by the committing physician as the cause of the psychosis, so that relatives and friends are often led to believe that recovery from the mental disorder will follow antisyphilitic treatment. Nothing could be more erroneous. These patients may suffer from general systemic syphilis, but they do not have neurosyphilis, for syphilis of the central nervous system gives definite neurologic signs and, as a rule, definite spinal fluid reactions; hence the fallacy of hope of antisyphilitic treatment accomplishing anything so far as psychic manifestations are concerned. The patient presenting a distinct history of syphilitic infection, together with the clinical evidences of systemic syphilis and a positive blood Wassermann reaction, should receive antisyphilitic therapy; but a positive blood Wassermann reaction alone does not indicate antisyphilitic treatment, nor should one expect from it any great mental improvement in these types of cases.

CASES IN GROUP 2

In the group of cases in which, irrespective of the Wassermann reaction of the blood serum, there are clinical, neurologic and spinal fluid serologic signs of syphilis of the central nervous system, should be placed these two types: (*a*) psychoses in which syphilitic infection is limited to the vascular and meningovascular processes of the brain and spinal cord, and presenting the neurologic and spinal fluid serologic evidences of cerebral, cerebrospinal or spinal syphilis, and (*b*) diseases of the brain and spinal cord in which syphilitic infection has involved the parenchyma of these organs and showing the neurologic and spinal fluid serologic signs of paresis or tabes dorsalis.

Case 4.—*Psychosis in which syphilitic infection is limited to the vascular and meningovascular processes of the brain and spinal cord, and presenting the neurologic and spinal fluid serologic evidences of cerebral, cerebrospinal or spinal syphilis.*—J. F., a man, aged 58, in whose family there was the history of psychosis on the maternal side, was admitted with the history of mental disorder extending over a period of two years, beginning with a convulsion followed by coma, edema of the lower extremities and paralysis of the right arm. Partial restoration of functions took place fairly promptly, but mental symptoms appeared and gradually progressed. Syphilitic infection was positively denied.

These symptoms were present:

Psychic: General mental retardation and slowing of thought processes; temporal disorientation; inadequate perception; both anterograde and retrograde amnesia, and emotional indifference with mild delusions of a mobile and somewhat expansive type; personality fairly well preserved with moderate degree of insight.

Physical and Neurologic: General physical enfeeblement; cardiac hypertrophy; systolic murmur at apex transmitted toward the axilla. Blood pressure; systolic, 210 mm.; diastolic, 176 mm.; spinal fluid pressure, 26 mm. Pupils equal, reacting normally to light and accommodation; patellar reflexes unequal, right exaggerated. Speech slow and slurring; impairment of muscular coordination of the upper extremities. Hand grips unequal, right markedly weakened. Impairment of motion of right leg.

Serologic: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, strongly positive.

The diagnosis was: cerebral syphilis of endarteritic type.

Case 5.—*Disease of the brain and spinal cord in which syphilitic infection involved the parenchyma of these organs and showing the neurologic and spinal fluid serologic signs of paresis.*—F. C., a man, aged 55, whose family history was unobtainable and the data of his personal history unreliable, was an Austrian laborer addicted to the excessive use of alcohol until about one year previous to admission. Venereal diseases were denied. Mental symptoms were first noticed four weeks prior to admission. The patient complained of facial neuralgia, became confused, and was incoherent in conversation, delusional and assaultive. On advise of his physician, all his teeth were extracted without benefit. He was committed after attempting to kill his wife.

The symptoms present were:

Psychic: General intellectual enfeeblement with emotional disturbances and delusions of a changeable nature somewhat expansive and paranoid in type.

Neurologic: Speech defect, reduplication of syllables in test phrases; sluggish reaction of pupils to light; positive Romberg's sign; incoordination of muscles of upper extremities; tremors of hands; absence of patellar reflexes.

Serologic: Blood Wassermann test, negative; spinal fluid Wassermann test, positive.

The diagnosis was: general paresis.

The second group of cases presents a great stumbling block to the neurologist and psychiatrist. The etiologic factor is identical in each type, but anatomically the location of the lesion is markedly different. In cerebral, cerebrospinal and spinal syphilis, we are dealing with active specific lesions of the meningovascular structures of the brain and spinal cord, while in paresis and tabes dorsalis, the spirochete has invaded structures far removed from the vascular channels; the parenchyma of the brain and cord have become involved, and nerve cells and communicating fibers have been destroyed.

The success of treatment of these conditions depends on the ability to reach the foci of infection, destroy the invading spirochete and repair the damage done to invaded structures. In parenchymatous syphilis of the central nervous system this is impossible, for the walls of the capillaries offer decided obstruction to the entrance into the pericapillary and perineuronal spaces of the ions of metals of which recognized antisyphilitic agents consist; and, irrespective of the method of administration, these therapeutic remedies fail to reach the foci of infection, and hence parasyphilis of the nervous system presents a hopeless prognosis. It should be borne in mind that in tabes dorsalis and general paresis there is a natural tendency on the part of the disease to stay its progress for a time in occasional cases. These periods of remission are often mistaken for results obtained from treatment. It has been the experience, however, of one of us (H. V. P.), in more than fifty cases of parenchymatous neurosyphilis in which intensive treatment was given by arsphenamin administered intravenously, intraspinally and intraventricularly, supplemented by mercury and the iodids, that no lasting results were obtained from the treatment, and that each patient finally succumbed to the disease.

Theoretically, meningovascular neurosyphilis should present a good possibility of cure; and results of antisyphilitic therapy in cerebral, cerebrospinal and spinal syphilis bear out this theory, and in these cases antisyphiltic treatment should be pushed to the limit. The discouraging feature of many of these cases, however, is the fact that when these patients are first seen by the neurologist and psychiatrist, the disease has reached the stage in which the rôle of syphilis exists in the past so far as treatment is concerned, and hence in many instances, while the progress of the disease is stayed, a cure cannot be effected.

CONCLUSIONS

1. A positive Wassermann reaction of the blood serum alone indicates nothing further than that the individual has come in some manner in contact with syphilis, either hereditary or acquired. It does not mean that the mental disorder from which he suffers is due to syphilis.

2. A diagnosis of neurosyphilis should be based on definite neurologic signs and spinal fluid reactions, irrespective of the readings of the blood serum.

3. Psychoses in which there is a positive Wassermann reaction of the blood serum, but showing no other serologic, neurologic or clinical evidences of syphilis do not demand antisyphilitic treatment for the reason that such treatment will not modify the mental condition; furthermore, neurosyphilis is seldom, if ever, superimposed on a well developed psychosis.

4. General systemic syphilis as shown by a history of infection, clinical signs and positive Wassermann reaction of the blood serum should be treated as such, but not with the view of favorably influencing the psychosis.

5. Antisyphilitic treatment avails nothing in well advanced cases of general paresis or tabes dorsalis.

6. Cerebral, cerebrospinal and spinal syphilis are amenable to treatment and antisyphilitic therapy should be pushed to the limit.

7. Successful treatment of neurosyphilis resolves itself into the early recognition and therapeusis of the infection, and lies largely in the hands of the general practitioner and syphilographer; all syphilitics should be kept under routine observation for a period of at least ten years in order that vigorous treatment may be instituted at the first signs of involvement of the central nervous system.

EXPERIMENTAL TRANSMISSION OF YELLOW FEVER

CASES OCCURRING IN VERA CRUZ IN 1920, TOGETHER WITH THE ISOLATION OF LEPTOSPIRA ICTEROIDES

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During July, 1920, the special commission appointed to conduct an antiplague campaign in Vera Cruz received information that some cases of yellow fever had appeared in that port. The continued absence of yellow fever from the city for many years, and the presence in recent years of malaria, made it seem desirable to the head of the commission, Dr. D. Octaviano González Fabela, to secure bacteriologic proof that the disease was yellow fever. The clinical evidence was without doubt in favor of that disease, and the recent work of Dr. Noguchi,[1] of the Rockefeller Institute in New York, made us hopeful that such a bacteriologic investigation might be of interest with regard to the etiologic relation of *Leptospira icteroides* to yellow fever.

A party was formed, consisting of Dr. González Fabela, as head, Dr. Julián González Méndez, and myself, the latter as bacteriologist of the committee. I began by making intraperitoneal inoculations with the blood from patients into guinea-pigs of various sizes, which were then observed very carefully. A little later Dr. Julián González Méndez and I continued the investigations, which finally resulted in the isolation and cultivation of *Leptospira icteroides* of Noguchi and in its confirmation as the etiologic agent of yellow fever.

The most significant of these early experiments are to form the substance of this paper. In only two cases out of the fourteen studied was transmission to guinea-pigs successful. Later, by injecting larger quantities of blood and using young guinea-pigs, rendered more susceptible to inoculation, the number of transmissions was larger (as many as three guinea-pigs becoming infected out of seven inoculated), but the clinical characteristics and temperature curves differed in no way from those of the early experiments reported here. The later experiments will be recorded in a separate paper.

A greater part of the work, and especially the clinical part, has been done in collaboration with Mr. Mauro Loyo, and later with that of Dr. Juan Solórzano Morfín, Dr. Carlos Rodríguez Mendoza, and Dr. Alfredo Iglesias. I wish to express here my gratitude to these gentlemen and also to Dr. Malda and Dr. Pruneda, the president and secretary, respectively, of the Departamento de Salubridad General de la República, and to Dr. Graham Casasús, the chief of the yellow fever commission.

The experiments are recorded under the heads: (1) transmission of yellow fever to the guinea-pig; (2) passage of yellow fever in the guinea-pig; (3) reproduction of yellow fever in guinea-pigs by means of cultures.

CERTAIN CHARACTERISTICS OF YELLOW FEVER

Although the symptoms and the anatomic and pathologic lesions of yellow fever are well known, I desire to emphasize a few points. Yellow fever is unique in presenting such marked analogy in species so widely separated as man and the guinea-pig. Moreover, there are some lesions encountered by Pareja and Noguchi with great frequency in the Guayaquil epidemic which have been seldom observed by Vera Cruz physicians, at least, in the present epidemic. The following notes are not presented as the last word on the subject; on the contrary, it is to be hoped that a more profound study of the disease, especially in its mild forms, such as are usual in children, will modify and complete these data in such a way as to make possible the diagnosis of types of yellow fever which today pass unnoticed.

The most characteristic and constant symptoms, both in man and in the guinea-pig, are fever, icterus, hemorrhages and urinary disturbances. The onset of fever is sometimes accompanied by intense chills, simulating the chills of malaria, but frequently there is a rise in temperature without any previous disturbances of any kind; especially is this true in children. As a rule the temperature is higher during the first days, reaching sometimes 40 C. (104 F.) or more, but there are mild ambulatory forms, which I believe to be more frequent than is generally supposed, in which it does not pass 37.5 to 38 C. (from 99.5 to 100.4 F.). These forms, as I have said, are extraordinarily frequent in children; indeed, children are often not sick enough to be kept in bed, and diagnosis in such cases is so difficult that yellow fever is not suspected, and sick persons are allowed to go about unrestricted and thus spread the disease. Such attacks are nevertheless sufficient to establish a more or less lasting immunity. The fever tends to diminish after the third day; in the present epidemic in Vera Cruz, however, this fall in temperature has not had any relation to the severity of the disease, as French authors have for some years stated. Frequently, after the sixth or seventh day of the disease, there is hypothermia, the temperature gradually falling until death. This phenomenon has also been observed in the guinea-pig by Dr. García Rendón. Indeed, it will be found by comparison of the temperature curves in guinea-pigs that they have the same characteristics as those in man. Jaundice is intense, as a rule, and appears at the earliest on the third or fourth day of illness, increasing rapidly for a few days and disappearing slowly. In some cases jaundice is very slight, and no definite relation can be said to exist between the intensity of jaundice and the severity of the disease. On the other hand, bile pigments can be found in considerable quantity in the urine and in the organs in all cases of yellow fever. The duration of jaundice is difficult to determine: in some cases the pigmentation of the skin and urine lasts for four to five weeks, in some jaundice disappears within seven to ten days after the onset of fever. In summary, it may be said that only in the very mild cases can any relation between fever and icterus and the degree of severity of disease be demonstrated; in severe cases neither the one nor the other has any relation to severity.

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[1] Noguchi, Hideyo: J. Exper. Med. **29**: 547, 565, 585 (June) 1919; **30**: 1, 9, 13, 87, 95 (Aug.) 1919; **30**: 401 (Oct.) 1919; **31**: 135, 159 (Feb.) 1920; **32**: 381 (Oct.) 1920.

Hemorrhages are constant: in the lung they occur in the form of small areas of extravasation; in the stomach and small intestine, hemorrhages are at times so abundant as to fill the entire cavity and produce melena and the classic symptom of black vomit; the last is not so frequent as might be supposed. In the liver, hemorrhages are regularly less abundant and are found around the vessels. Hemorrhages of the large intestine and kidney are less common, but the latter occasionally presents large infarcts. Epistaxis and subcutaneous hemorrhages are encountered rarely; the latter has been observed in the guinea-pig by Dr. García Rendón.

Urinary disturbances are also constant. During the first days of illness the urine diminishes in quantity, particularly from the third to the fourth day, and more in severe than in mild cases, although in the latter the amount of urine secreted may not be more than from 200 to 300 c.c. It may be said that this symptom bears a relation to the severity of the disease. In patients who recover, the urine approximates the normal from the second week, the increase to normal being either gradual or in the form of a polyuric crisis. Albumin appears in the urine from the third to the fourth day, has a tendency to increase during the two or three days following, and then diminishes until its complete disappearance, sometimes within from three to four weeks. The increase in albumin varies in different patients, sometimes being intense in a mild case and slight in a severe case. During the present epidemic in Vera Cruz, patients have been observed in whose urine albumin could be found in small quantity only on one day, merely a trace being present two or three days later.

Of the pathologic and anatomic lesions, those of the liver and kidney are characteristic. The fatty degeneration of the liver is early and extensive, varying, of course, with the duration of the disease and its severity. I wish to note here that neither in patients nor in guinea-pigs have the Vera Cruz physicians found the abundance of necrotic areas described by Pareja and Noguchi in yellow fever in Guayaquil. In the kidneys the glomeruli are more or less congested, the epithelia of the contorted renal tubules always show degeneration in the cytoplasm, and the lumina are filled with hyaline and granular casts; occasionally there are hemorrhagic infarcts. I have already mentioned the almost constant presence of hemorrhagic areas in the lungs.

TRANSMISSION OF YELLOW FEVER TO THE GUINEA-PIG

The first experiments comprised fourteen guinea-pigs, inoculated intraperitoneally with blood of yellow fever patients taken directly from the vein on the second or third day of illness. The amount of blood injected into the guinea-pigs varied from 1 to 3 c.c. The animals were isolated in small cages protected by a fine metallic mesh and carefully observed from twenty-five to thirty days, temperatures being taken morning and afternoon. Of these fourteen guinea-pigs, two, Nos. 9 and 14, became infected. As I have already said, we later secured a larger percentage of positive transmissions by rendering the guinea-pigs susceptible by underfeeding, increasing the quantity of blood injected, choosing young animals, etc.

The first guinea-pig in which we succeeded in inducing yellow fever, No. 9, was inoculated with blood from the patient Leandro López, a native of Ixtlán, Nayarit, 20 years old. The patient was admitted to the hospital (Aquiles Serdán), July 20, 1920, on the third day of illness. He was discharged, recovered, August 6. There was albumin on the second day, and rather marked icterus appeared on the third day. When discharged the patient still showed slight jaundice, but there was no albumin present and had been none for a week previous to discharge.

Guinea-Pig 9, black and yellow, had a slight rise of temperature on the day following inoculation, but the temperature remained within normal limits for the following two days, the animal appearing well. At the end of the fourth day the animal had intense initial chill, and the temperature rose abruptly to 40 C., remaining high during three days (39.5 C. with fluctuations below this point). The temperature became normal on the fifth and sixth days of the disease, was 39.6 in the afternoon of July 29, and then gradually fell until the time of death. This animal was not used for inoculating culture mediums or for making passage to other animals during the early days of disease, but a few hours before death we inoculated two guinea-pigs and set up cultures with Noguchi's special medium, without, however, obtaining any positive results. Slight icterus appeared on the fourth day of illness, and melena on the fifth day. During the early days the animal ate well, and the urine passed during a twenty-four hour period was normal in amount; for three days preceding death, however, when the temperature was going down, there was anorexia, and the quantity of urine was diminished.

Necropsy revealed the typical lesions of yellow fever. The liver was somewhat yellowish and very friable. The lungs contained abundant punctiform hemorrhages, and the intestine and stomach profuse hemorrhages. The skin and viscera were mildly jaundiced. The total duration of the disease in this animal, from inoculation until death, was eleven days.

The second positive transmission was obtained in Guinea-Pig 14, inoculated intraperitoneally, July 27, with 2.5 c.c. of blood taken from the vein of patient Casimiro Garcia on the second day of his illness.

In Guinea-Pig 14, as in Guinea-Pig 9, there was a rise in temperature on the day following the inoculation. This rise in temperature has been found to occur in all instances in which human blood was inoculated, and is due, we believe, to its absorption. The temperature was normal from the third day after inoculation until the afternoon of the fifth day, when there was an abrupt rise without initial chill, as in the case of the preceding guinea-pig. The temperature rose slightly on the following day, and on the next, the seventh day after inoculation; it began to fall the afternoon of the seventh day and continued slowly dropping until the day before death, when there was a slight rise. Jaundice appeared during the fourth day of the disease. It was first slight, and then rapidly increased as the temperature fell. At the time of death the animal was intensely yellow; the skin, mucous membranes, and especially the conjunctivae, were deeply jaundiced. Like the first guinea-pig, this animal ate well, notwithstanding the fever, until the time of appearance of jaundice; the amount of urine diminished rapidly from the same day, and melena appeared almost simultaneously. Death occurred on the seventh day of illness.

At necropsy there was intense jaundice of the skin and organs, particularly the liver, which was small and greenish yellow. The stomach was completely distended with blood, as were also the small intestine and kidneys. There were also abundant hemorrhagic areas in the lungs. Sections of the liver showed fatty degeneration of all the cellular elements, especially in the vicinity of the blood vessels. There was also marked fatty degeneration of the kidneys; the glomerular capsules were vacuolated and the renal tubules full of casts.

The total duration of illness in this animal was eleven days, of which four days comprised the period of incubation. At the time when we noticed icterus, that is, on the fourth day of the disease, I took 2 c.c. of blood from the heart for inoculation into another guinea-pig and for setting up cultures in the Noguchi medium, as well as in a medium containing less agar. Positive results were obtained both in the animal inoculation and in the cultures.

PASSAGE OF YELLOW FEVER IN GUINEA-PIGS

Once the experimental disease had been induced in the guinea-pig, the preservation of the virus through successive passages in the same animal was assured.

Guinea-Pig 14 was bled, Aug. 3, 1920, and 0.25 c.c. of the heart blood inoculated intraperitoneally into another guinea-pig. Dark-field examination of the blood was negative. As in the previous animals, the temperature rose slightly immediately after the inoculation for a short period. At the end of the third day the temperature was slightly below normal, and the animal had a mild chill. The temperature began to rise on the fourth day, reaching its maximum in the morning of the fifth day, and then descending rapidly until death, which occurred on the seventh day after inoculation. Jaundice appeared almost suddenly on the sixth day, and was accompanied by loss of appetite and complete suppression of the urine. The skin was olive green, and the conjunctivae were intensely yellow. The animal, with hair ruffled, remained huddled in the corner of the cage from the time when the temperature began to rise.

The animal was bled from the heart, and the blood used for inoculation of another guinea-pig and for cultivation. This blood showed numerous leptospiras when examined under the dark-field microscope, as did also film preparations of liver and spleen. Necropsy revealed, besides the lesions already described in other animals, intense icterus of the organs.

Aug. 9, 1920, a third guinea-pig of this series was inoculated with 0.25 c.c. of blood from the second guinea-pig, drawn immediately after death from the heart. As in all the previous animals, there was a slight rise in temperature on the day following inoculation, and a very pronounced rise on the first day of disease (after an incubation period of three and one-half days). It remained high (41.1 C.), with fluctuations downward, until the third day of disease, when jaundice and abundant melena appeared; then it fell to below normal and continued to fall during the days preceding death, which occurred on the fifth day of the illness. It is evident that death in hypothermia is frequent, at least in animals. Necropsy revealed extensive hemorrhages, especially in the large intestine.

The animal was bled from the heart the day before the appearance of jaundice, and the blood inoculated into two other guinea-pigs and also into culture mediums. Examination of the blood under the dark-field microscope was negative.

Of the two guinea-pigs comprising this fourth passage, one was sent to the Instituto Bacteriológico in Mexico City, where the series is being continued. The symptoms and lesions of these two animals were identical with those of previous passages. In the animal which was kept in Vera Cruz, we observed for the first time the epistaxis described by Noguchi.

REPRODUCTION OF YELLOW FEVER IN GUINEA-PIGS BY MEANS OF CULTURES

Aug. 19, 1920, a small guinea-pig was inoculated intraperitoneally with 0.25 c.c. of culture of *Leptospira icteroides*. There was no initial rise of temperature immediately after inoculation as in the case of animals inoculated with blood from human cases or from other guinea-pigs. At the end of the second day the temperature fell slightly, but subsequently rose to 39.1 C. It then fell and continued to fall until death, on the second day of illness. Microscopic examination of the blood of this animal revealed the presence of *Leptospira icteroides* in large numbers, as did also films of the liver and kidneys. Pure cultures of the organism were obtained in this instance.

September 8, another guinea-pig was intraperitoneally inoculated with a culture of *Leptospira icteroides* 20 days old. This was the first animal in which we observed a daily intermittent type of fever with morning paroxysm. This type of temperature curve shows the impossibility of making a diagnosis of the disease from the temperature curve alone. Jaundice appeared on the third day of illness and increased until the time of death. The pathologic lesions were identical with those of the previous experimental animals, and the blood and smears of the viscera contained numerous organisms. Pure cultures were obtained.

The same culture inoculated in the foregoing experiment was used for inoculation into another guinea-pig, September 20, that is, twelve days later, when the culture was 5 weeks old. The object of this experiment was to determine whether there was any change in the virulence of the culture, and whether the same type of remittent fever would be induced. The temperature curve, however, was analogous to that described in previous inoculated animals, and the virulence of the culture proved to have been undiminished. Jaundice appeared on the third day of illness, and death occurred on the fifth day. The lesions were identical with the others already described.

CONCLUSIONS

Yellow fever has been transmitted experimentally to the guinea-pig by injecting intraperitoneally the blood of patients taken during the third or fourth day of illness.

Pure cultures of *Leptospira icteroides* have been obtained with the blood either from yellow fever patients or experimentally infected guinea-pigs, by using the culture medium and technic described by Noguchi. The organism isolated in Vera Cruz has the same characteristics as that isolated by Noguchi in Guayaquil.

The experimental disease has been transmitted in indefinite series by means of inoculations in the manner described in this paper. The passage of the leptospira through the guinea-pig enhanced its virulence for this animal, and the period of incubation and the duration of the disease has been markedly shortened by passages.

The cultures of the organism are pathogenic for the guinea-pig, and the disease is reproduced by means of cultures with all its characteristics.

Up to the present time we have not had a single guinea-pig which recovered, perhaps owing to the fact that the cultures used were not old enough. The experimental disease induced in the guinea-pig is analogous in its symptoms and lesions with the natural disease in man. It is rare that an experimental disease is so similar to the natural disease.

Subsequent experiments, in which positive transmission was obtained in three out of seven cases by using young guinea-pigs rendered susceptible by underfeeding just previous to the injection of blood and by injecting a large quantity of blood (from 2 to 3 c.c. in most instances), will be reported later. Fatigue also renders the guinea-pig more susceptible to infection.

STOOLS AND THEIR RELATION TO THE FEEDING IN INFANTS[1]*

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Stools are best examined in the napkins in which they are passed. When the napkin is unfolded, the consistency can readily be observed. Unless the stool is very firm, it will adhere to the napkin when unfolded, exposing the central portion. If the stool is firm, a wooden tongue depressor may be passed through it in order to expose the central portion.

NUMBER OF STOOLS

Breast-fed babies usually have from two to four stools a day. Bottle-fed babies have one or two, and a great many would skip a day if not for a laxative. As a rule, the number of stools varies with the consistency. If there is one stool a day it is usually formed, and if there are three or more, they are likely to be soft or even watery.

Frequent stools are simply the result of increased peristalsis. When fecal matter of an irritating variety enters the intestine, peristalsis is at once speeded up in order to discharge the irritating material. If a stool is acid or alkaline enough to excoriate the buttocks, it will also undoubtedly inflame the mucous membrane of the large intestine. This often happens in the fermentative type of indigestion.

The presence of casein curds in the intestine may also cause increased peristalsis. The curds are often large and tough, and act as foreign bodies. I recently saw a baby that was on a formula containing 1 per cent. of fat and 2 per cent. of protein. The stools were frequent and consisted of large casein curds and mucus with a little soap. When the ingredients of the formula were boiled, with no other change, the curds disappeared and the number of stools immediately returned to normal.

When the intestinal mucous membrane is irritated, there is invariably produced for protection, as in the case of any other mucous membrane, an abnormal quantity of mucus. The cause of the increase in peristalsis being the same as for the increase of mucus, we usually observe mucus in all frequent movements.

REACTION

Infant stools are usually acid. The best way to test the reaction is to place a bit of litmus paper on the moist stool. As the paper gathers moisture, the blue litmus becomes pink if the stool is acid, and the red turns blue if alkaline. If the stool is dry a drop of water may be placed on a smooth part of it and the litmus paper applied. Most stools are acid because of the greater proportion of fat and carbohydrate to protein in the food. If the food contains little fat and sugar and much protein, as in skimmed milk, the stool is usually alkaline. Breast milk stools are almost always acid. So nearly neutral are most well digested cow's milk stools, that it is difficult to determine the reaction with litmus paper.

As urine is usually present on the same napkin as the stool, care must be taken to test the reaction of the stool and not that of the urine. For this reason the central portion of the stool should be selected.

THE STARVATION STOOL

Starvation stools are small, usually few, sticky, and very dark. They are composed mostly of detritus, bacteria and mucus, and are very dark because of the concentration of the bile pigments. They appear smooth and shiny when spread out. Starvation stools are the result of too little food material entering the small intestine, owing to either the nature of the food, vomiting, or inability to swallow enough food. It is a sign of insufficient feeding rather than of indigestion. Meconium corresponds so closely to the starvation stool, both as to cause and appearance, that it ought to come under the same caption.

HIGH PROTEIN STOOL

The high protein stool is the result of a small proportion of fat and a high proportion of protein in the food rather than of too much protein, and is not a mark of an indigestion. Its most characteristic feature is the shiny surface produced when the tongue depressor is passed through it. This shine must be differentiated from the glistening appearance of mucus, and also from the natural moisture of all freshly passed stools due to their watery content. The high protein stool is dull on the outside where the napkin rests against it. The most typical high protein stools are produced from feedings of fat-free milk, undiluted, and boiled hard for three minutes. When passed, they are semiformed and often watery. They dry out rapidly, producing the characteristic appearance. They usually number from two to five a day. They are always a shade of olive green, either a little yellowish or brownish. On fat-free lactic acid milk, the stools are usually some light shade of brown.

The high protein stools, besides showing the gloss, are very smooth when rubbed out with the tongue depressor. They are particularly homogeneous in appearance. They also appear to be transparent, the nap of the cloth being visible through the thin part of the stool. The consistency is very similar to that of cold petrolatum.

If a baby has a diarrhea and is fed boiled, fat-free milk, the typical high protein stool is usually passed. If the diarrhea were of the infectious type or due to a severe fermentation, the stools would continue to be watery, with mucus and possibly blood. A high protein stool would almost positively rule out a diarrhea of an infectious nature. It would tend to show that the loose stools were originally due to a mild fat or carbohydrate indigestion or else some parenteral disturbance. High protein stools on a fat-free milk diet are a sign of a healthy rather than a diseased intestine, and in the great majority of cases a small amount of fat can be given without causing any disturbance.

If the food contains a little fat and a great deal of protein, the stool will lose the characteristic olive green and the transparency, the smoothness and gloss remaining. A small amount of fat in the food will render the stool opaque and grayish; but if a fair amount of protein is present, the gloss will remain. This glossy appearance when the stool is spread out is due to a preponderance of protein matter over that of fat. By protein matter is meant the solid particles left in the stool derived from the protein in the food. As the fat is increased and the protein decreased, a point is reached when the stool loses the gloss and becomes dull when spread out with the stick. The dull stool is the soap stool.

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[1] From the outpatient department of the Children's Hospital.
* Read before the New England Pediatric Society, Nov. 12, 1920.

CASEIN CURDS

Cow's milk casein coagulates in the infant's stomach into masses that vary in size from a pea to a hen's egg and even larger. Boiling virtually prevents their formation. Barley water, lime water or sodium citrate may also prevent their formation to some extent. When the curds are formed, fat and a little carbohydrate are enclosed in their meshes. The curds are digested slowly in the intestine, some being so large and tough that they do not have time to become wholly digested before they are expelled with a stool.

Casein curds are colored on the outside like the rest of the stool. When they are picked out and rolled with the tongue depressor on the napkin, the color rubs off and the central portion is found to be clear white. If the baby is fed unboiled fat-free milk, the stool will often consist of casein curds and mucus, the mucus being caused presumably from irritation. If the fat-free milk has been boiled, the stool will be of the high protein type described above. Casein curds are rarely found in a high protein stool. If uncooked whole milk or dilutions of whole milk are fed, the casein curds are found embedded in stools composed mostly of soaps.

Casein curds are frequently found in the last stages of digestion. This happens when the curd has become almost disintegrated in the intestine. It is found as a small, slimy, yellowish mass resembling mucus, and when burned smells like keratin. They usually occur in stools in which typical casein curds are found, but sometimes they are found alone. If a stool with casein curds remains in a warm room, the curds are apt to disintegrate and digest themselves, leaving slimy masses.

The casein in breast milk does not form casein curds, both because of the small amount of casein, and also because of the ability of the baby to take better care of the human variety of casein.

SOAP STOOLS

Fat is taken by the baby as neutral fat. This is broken down into fatty acids which unite with bases, readily accessible in the intestine, forming soaps. The form of fat when absorbed by the intestine is soaps and possibly also fatty acids. The intestine absorbs most of these fatty acids and soaps, but a small proportion passes out as a stool. Theoretically, if a baby takes nothing but fat in the food, he ought to pass stools containing nothing but soaps. As a matter of fact, when the baby is fed on a formula containing from 2.5 to 3 per cent. of fat and 1 per cent. or less of protein, practically nothing is found in the stools but soaps when examined with the low power of the microscope. Detritus, bacteria, salt crystals and matter from the intestinal secretions is either so small in amount or so finely divided that it forms an inconsiderable factor in the low power field. The protein matter in a soap stool and in the high protein stool appears as irregular masses, not resembling bacteria, detritus or crystals, and of various colors—yellow, green and brown.

If some carbohydrate is added to the fat, the carbohydrate will be digested and absorbed and add nothing to the stool. Again, theoretically, if a little protein is added to the food (for example, 0.25 per cent, and cooked to prevent curd formation), it will be digested and mostly absorbed because the baby needs it to sustain life. So little will be left that when a bit of the stool is heated with acetic acid and sudan III stain, nothing is seen in the field but fatty acid globules formed from the soaps. Very little other solid matter is visible with the low power. As more and more protein is added to the food, we finally come to the point at which an excess over what the body needs is found in the stools. This is represented mostly on the slide as the part of the solid matter that does not break down into globules with heat and acetic acid.

I shall assume that the normal soap stool contains soaps and protein matter, the proportion varying with the relative amount of fat and protein in the food. If the fat in the formula is high and the protein low, we shall get a typical soap stool, provided there is no indigestion. Such a soap stool is formed and of very light color. They are usually dry and constipated. Some are so dry and white that they resemble the stool of a dog that has been eating bones. Soap stools rarely number more than two a day. They are acid in reaction, sometimes almost neutral. When spread out they appear smooth and dull. On microscopic examination, no neutral fat or fatty acids are found; but on being heated with acetic acid, almost every particle of solid matter is found to be changed to globules of fatty acids, formed from the soaps. As the protein in the food is increased and the fat decreased, there will be found more and more solid matter on the slide that will not break down with heat and acetic acid. This raises the question of the value of the microscopic examination of the stool for soaps. It has usually been considered that when the microscopic field was "loaded" with globules, i. e., virtually all the solid matter changed to globules of fatty acids, the baby was not taking care of the fat very well, or might be on the edge of an acute exacerbation of a chronic fat intolerance. If the baby were taking a formula composed of 3 per cent. of fat and 1 per cent. of protein, we should expect to find little else besides soaps in the stool. If the fat in the food should be kept at 3 per cent. and the protein raised to 2.5 per cent., we should get a different picture microscopically. We should find that only one third or one half of the solid matter was changed to globules, the remaining solid matter being derived from the protein in the food. Just as much soap will be passed in the day, but on microscopic examination it will seem much less because it is scattered and separated by the increased amount of protein matter. Microscopic examination of a stool for soaps without considering the formula is just as misleading as trying to estimate the red count in a fresh blood smear by comparison with the white cells without first having made a white count.

When milk is ingested by the infant, small, soft curds form very quickly, composed mostly of fat. These vary in size from extremely small particles to pea or even olive sized masses, and are always seen when a baby vomits milk. Ordinarily, these masses of fat pass through the pylorus and are broken down into fatty acids and soaps, forming the typical soap stool. If there is any sort of indigestion present, mucus is secreted in excess, mixing with the stool. This mixture of mucus with the stool produces all varieties of abnormal forms. If the mucus is well mixed with the rest of the stool, the granular soap stool results. If a great deal of mucus is present in the intestine it surrounds the masses of fat curds as they enter from the pylorus, interfering with their proper digestion and absorption.

The granular soap stool differs from the normal soap stool in that the surface is granular when spread out with the stick. The granules are small masses of soaps surrounded by mucus. They may be very minute or as large as pinheads. The larger granules are macroscopic, but nevertheless are small fat curds surrounded by mucus. If a small bit of granular stool is placed between two slides and spread out to transparency, it will be noticed that clear mucous spaces surround small, opaque areas. On the addition of acetic acid and heating, it will be noticed that the globules of fatty acids appear in groups marking the location of the original small curd or granule.

The curdy stool is easily recognized by the larger soft white masses. There is always a large amount of mucus in these stools, the mucus surrounding the curds —in fact, it is probably because of the presence of the mucus that the curds exist—the curds being masses of ordinary soaps separated from each other by mucus which had been secreted in great abundance because of some sort of indigestion—not always fat indigestion, by any means. When a bit of curdy stool is placed between two slides, a large proportion is found to be clear mucus. Breast milk stools are usually of this variety, curdy with mucus. The mucus is probably secreted in large amount because of the irritation caused by the abundant fatty acids. Mistakes are often made in the interpretation of loose, curdy stools. Because they are full of fat curds it is supposed that there must be a fat indigestion. The curds are the result of some indigestion or irritation rather than the cause.

Neutral fat is rarely present in stools, and when found is a grave symptom indicating a serious condition of fat intolerance. In most instances when it is found, it is proved later to be not from the milk but from castor oil, olive oil, or some ointment used on the baby. Fatty acids are not uncommonly found. Breast milk stools contain them frequently and are not considered pathologic. When found in cow's milk stools, it signifies impaired fat absorption. Stools containing free fatty acid globules almost always contain also many fat curds and a great deal of mucus. In considering fatty acids it must be remembered that formic, acetic, butyric, lactic, succinic acid, etc., are fatty acids or derivatives of them, as well as stearic and oleic and palmitic acid. Formic acid, acetic acid, etc., are lower in the series, more irritating to the mucous membrane, and soluble in the watery content of the stool, not appearing on microscopic examination. Stearic, oleic and palmitic acids are very complex and high in the series, are insoluble in water, presenting themselves as oily, colorless globules, and are easily distinguishable as red or orange globules when stained with sudan III. In examining a stool for fatty acids, we look only for globules. Finding none, we presume that that particular phase of fat indigestion is not present. But the stool may be very acid from the presence of fatty acids lower in the series that do not form globules but are in solution, and clinically it makes little difference whether the higher or lower fatty acids are present.

CARBOHYDRATE STOOLS

Starches are readily stained with dilute tincture of iodin or Lugol's solution. The particles of undigested starch stain blue or black. Stools containing much fermented starch are loose, acid, light brown, and excoriating, and contain much mucus. In fact, these stools are often mistaken for mucus. This type of stool is most likely to be found in babies having indigestion from certain of the starchy proprietary foods. Small brownish specks are often found in normal stools, representing the indigestible cellulose envelops of cereal foods.

Indigestion of sugar presents no typical stool. Stools resulting from sugar fermentation are frequent, very acid and excoriating, and often watery. The solid parts are usually full of small air bubbles formed by the chemical decomposition. These may be demonstrated by pressing out some of the stool between a slide and cover glass and examining with the low power. The stools are usually green because of the action of the acids on the bile pigments. Stools from sucrose or lactose fermentation are green, while those from maltose-dextrin preparations are brown. Mead's dextrimaltose does not color the stools as dark brown as most of the other maltose-dextrin preparations.

BLOOD IN STOOLS

Blood swallowed or blood from a gastric or intestinal lesion renders the stool dark purplish, almost black. In extreme constipation, the scybala may excoriate the rectum and anus, producing mucus and blood which adheres to the outside of the stool.

Polyps and fissures in the rectum and anus also occasionally account for streaks of blood in the stool. Intussusception produces blood and mucus without fecal matter. Blood from the rectum occurs fairly often in hemorrhagic disease of the new-born.

Blood may be found in the stools also in infectious diarrhea. The blood comes from small ulcerations in the walls of the colon, and appears as small specks or streaks, or larger blotches of bright red blood. It is always accompanied by mucus, which is produced in the same location as the blood.

COLOR

Breast milk stools are yellow to orange. Very young babies have the faculty of passing orange colored stools even when fed cow's milk. After the third month the stools become grayish even if the formula remains unchanged. Very rarely does a baby older than 5 months pass orange colored stools when on artificial feeding.

Light Colored Stools.—Stools containing no bile or colorless forms of bile are very light, almost white. Many forms of soap stools are very light. Unchanged bismuth renders the stool a very pale color. The crystals of bismuth can be made out on microscopic examination.

Dark Colored Stools.—Meconium is very dark brown or green, almost black. Starvation stools are similar. Blood from high up in the gastro-intestinal tract gives the stool a very dark purplish color, sometimes actually black. Medication containing iron will render the stool a greenish black. Changed bismuth makes the stool a dark slate blue, almost a gray black. Charcoal medication and argyrol in the nose or throat will make the stool black.

Green Stools.—Green stools are held in great horror by the laity. The number of stools, however, their consistency, and the presence of mucus and blood are of much more importance than the green color. Most soap stools turn green on the outside when allowed to stand for a few hours. This is due to the oxidation of the bile salts from bilirubin to biliverdin, and becomes more marked when the stool is wet with urine. High protein stools are usually olive green, but are not abnormal on that account.

Pink Stools.—Urates from the urine often color the napkin pink, somewhat resembling blood. Certain oxidation products of bile from the stools will sometimes produce a pink color on the napkin just around the stool. This may also resemble blood.

Brown Stools.—Stools are brown from maltose-dextrin preparations. The greater the proportion of maltose, the deeper the brown. Starch in the diet will render the stool brown. Meat, meat juices, broths and vegetables will do the same thing. Fat-free milk sometimes gives a brown shade to the stool.

ODOR

The odor of stools is so variable that it cannot be depended on as a help in the examination. Breast milk stools usually smell sour. High protein stools usually smell foul or cheesy. Mucus gives a musty odor. Butyric, lactic and acetic acid, and so on, have their own peculiar odors. The urine often smells worse than the stool after both have stood a day in the napkin.

BACTERIA

Bacteria play an important part in the digestive processes and in certain diseased conditions of the digestive tract. Their presence must be considered as part of the physiology of digestion. We know almost nothing about their action in health, and, except in one or two instances, very little about their action in disease.

Consideration of such bodies as membrane, pus, undigested food particles, worms and foreign bodies has been purposely omitted as beyond the scope of this paper.

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PROLONGED ANURIA

REPORT OF A CASE *

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Prevost and Dumas,[1] in 1823, while working with nephrectomized dogs, were the first to point out an increase of urea in the blood. Babington,[2] working with Bright [3] in 1836, showed that this retention of nitrogenous bodies is closely related to kidney defects and to the production of uremia. While anuria or an absolute retention produces an excess of the nitrogenous bodies in the blood, it gives a very different clinical picture from that of convulsions due to uremia described by Bright. In contrast to the convulsive patient with uremia, the patient with anuria is generally quite comfortable; his intellect is clear, convulsive symptoms are rare, edema is slight or absent, and gastro-intestinal symptoms are mild. Ascoli [4] termed the anorexia, the progressive asthenia and the terminal stupor seen in these patients urinary poisoning, and distinguished it from uremia. The condition is due to a rather sudden complete retention of all substances normally excreted by the kidney, in contrast to the more selective gradual retention in most cases of uremia. No matter what the cause, mercuric chlorid poisoning, removal of all kidney tissue, or complete ureteral obstruction, the symptoms are the same. Hewlett,[5] in an endeavor to determine the part played by urea in the production of asthenic symptoms, took large amounts of urea by mouth, and when the urea in the blood reached 160 mg. for each 100 c.c. asthenic symptoms set in.

FUNCTIONAL FINDINGS

Patients with anuria often show a surprisingly high urea content in the blood. Myers and Fine [6] report a case of anuria following mercuric chlorid poisoning with 368 mg. of blood urea and 33.3 mg. of creatinin for each 100 c.c. After decapsulation of the kidneys, the creatinin dropped from 33.3 mg. to 14.8 mg. Uremic symptoms did not appear until shortly before death.

High blood urea concentration is a reliable sign of defective kidney elimination. Fourteen of eighteen patients with high blood urea observed by Folin and Denis [7] died in the hospital or shortly afterward. Normally creatinin, which should average from 1 mg. to 3 mg. for each 100 c.c. of blood, is readily eliminated by the kidney; a retention in most cases means a serious kidney defect. In a series of patients studied by Chace and Myers,[8] all who had creatinin above 5 mg. died soon afterward.

Only a small amount of functioning kidney tissue is necessary to life, as is shown by patients with polycystic kidneys who live quite comfortably even though their kidneys are almost completely destroyed. Mosenthal and Lewis [9] cite a case of polycystic kidneys in which the blood urea was 118 mg. with only a perceptible trace of phenolsulphonephthalein in two hours. Fifteen months later the blood urea and phenolsulphonephthalein were unchanged and the patient was working every day.

Much experimental work has been done to show the return of kidney function after the removal of the obstruction to the urinary stream. Keith and Pulford [10] were able to demonstrate that kidneys excreted urea and phenolsulphonephthalein normally after a ureteral obstruction of seven days' duration was removed. Johnson [11] proved that kidneys obstructed for more than fourteen days do not return to normal. Rautenberg [12] found that a kidney did not function after three weeks of complete ureteral obstruction. He holds that there may be temporary recovery, but eventually the renal tubules atrophy. Bainbridge [13] has shown that the secreting power of a kidney steadily diminishes after ureteral obstruction, but that it is not completely lost after two months.

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* From the Mayo Clinic.

[1] Prevost and Dumas, quoted by Schwartz, Harold, and McGill, Caroline: Blood Urea Determinations in Two Hundred and Eleven Cases, Arch. Int. Med. **17**: 42-77 (Jan.) 1916.

[2] Babington, quoted by Bright (Footnote 3).

[3] Bright, R.: Cases and Observations, Illustrative of Renal Disease Accompanied with the Secretion of Albuminous Urine, Guy's Hosp. Rep. **1**: 338-400, 1836.

[4] Ascoli, quoted by Rowntree, L. G.: Uremia: Etiology, Types and Diagnosis, J. Iowa State M. Soc. **7**: -5 (Jan.) 1917.

[5] Hewlett, A. W., in discussion on nephritis, abstr., J. A. M. A. **67**: 939 (Sept. 23) 1916.

[6] Myers, V. C., and Fine, M. S.: Nonprotein Nitrogenous Compounds of the Blood in Nephritis, with Special Reference to Creatinine and Uric Acid, J. Biol. Chem. **20**: 391-402, 1915.

[7] Folin, Otto, and Denis, W.: On the Creatinin and Creatin Content of Blood, J. Biol. Chem. **17**: 487-491, 1914.

[8] Chace, A. F., and Myers, V. C.: The Value of Recent Laboratory Tests in the Diagnosis and Treatment of Nephritis, J. A. M. A. **67**: 929-932 (Sept. 23) 1916.

[9] Mosenthal, H. O., and Lewis, D. S.: A Comparative Study of Tests for Renal Function, J. A. M. A. **67**: 933-938 (Sept. 23) 1916.

[10] Keith, N. M., and Pulford, D. S., Jr.: Experimental Hydronephrosis: Functional and Anatomic Changes in the Kidney Following Partial Ureteral Obstruction, Arch. Int. Med. **20**: 853-878 (Dec.) 1917.

[11] Johnson, R. A.: Renal Function in Experimental Hydronephrosis, J. Exper. Med. **28**: 193-212 (Aug.) 1918.

[12] Rautenberg, E.: Die Folgen des zeitweiligen Ureterverschlusses, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **16**: 431-475, 1906.

[13] Bainbridge, F. A.: The Effects of Ligature of One Ureter, J. Path. & Bacteriol. **11**: 421-425. 1906.

CLINICAL COURSE

Diarrhea, a common symptom in uremia, is not an accompaniment of anuria. Vomiting is rare and patients do not perspire, as was noted by both Egers [14] and Schwengers [15] in patients with anuria; this is unfortunate, as it excludes one of the most important channels of elimination. Cases of anuria of long standing are not unusual. Frank [16] reports a case of anuria following nephrectomy for tuberculosis in which the patient passed only a few ounces of urine in twenty-six days. In this case the cessation of the urinary output affected the respiration, which dropped to twelve a minute, and later to eight and six. Russel [17] reports cases of twenty and thirty days' standing in which the patients recovered, and others of twenty-five and twenty-two days in which the patients died.

PATHOLOGY

Legueu [18] says with reference to absolute retention, "Anuria does not occur except in patients who live with one kidney only." In the majority of cases there is either a congenital absence of one kidney, or one kidney is destroyed or functionally useless. In an analysis of thirty cases which were proved at necropsy, Legueu found that one kidney was absent in three, destroyed by stones in twenty, and the ureter obliterated in six. Morris,[19] in a similar analysis of twenty-eight cases, found that one kidney was absent in six, atrophied in eight, destroyed by stones in eleven and by hydatid cyst in one, and enlarged in two cases.

In the thirty cases reviewed by Legueu in which operation was performed, the functioning kidney was obstructed by calculi in the pelvis in seven, and the ureter was obliterated in twenty-three. In fifty-six cases in which operation was not performed there were sixteen recoveries (28.5 per cent.). In one the secretion recommenced on the third day after onset, in ten between the fifth and tenth, in three between the tenth and fifteenth, and in two after a still longer period. Twenty-three of the forty deaths occurred between the fifth and fifteenth days, one on the fourth day, and the others after the sixteenth day.

Morris reviewed forty-eight cases of anuria in which operation was not performed and forty-nine cases in which operation was performed; thirty-eight (79.1 per cent.) of the forty-eight patients died, and twenty-five (51 per cent.) of the forty-nine recovered. The operation consisted in removing the obstruction to the urinary stream, in most cases ureterolithotomy or pelviolithotomy. Frank,[20] after having decapsulated a kidney without benefit, experimented with animals and found that decapsulation of the obstructed kidney is absolutely useless. Morris holds that when the working kidney is hydronephrotic, the patient with obstructive anuria has a much better chance than otherwise. He says, "The presence of a hydronephrotic tumor indicates the continuation of urinary secretion, imperfect certainly, but still sufficient to prolong life and therefore it forms an important element in the prognosis." Roberts [21] cites a case of obstructive anuria of ten days' duration with an increasing tumor in the left iliac fossa; recovery took place following a spasm of kidney colic simultaneous with the disappearance of the tumor. Russel reports a case of anuria lasting twenty days which terminated by the discharge of 10 liters of urine in twenty-four hours. A year later the patient died, and at necropsy a double hydronephrosis with calculi in the pelvis of both kidneys was found.

Most investigators report a primary hydronephrosis following complete ureteral obstruction. Barney [22] found this in thirty-two of thirty-three dogs with uni-

BLOOD AND URINE

	Twenty-Four Hour									Each 100 C.c. of Blood								
Date, 1920	Fluid Intake, C.c.	Urine, C.c.	Specific Gravity	Reaction	Albumin	Sugar	Erythrocytes	Pus	Carbon Dioxid per Cent. by Volume	Uric Acid, Mg.	Creatinin, Mg.	Urea, Mg.	Two Hour Phenolsulphonephthalein	Systolic Blood Pressure	Diastolic Blood Pressure	Hemoglobin, per Cent.	Erythrocysts, Millions	Leukocysts, Thousands
10/ 1	.....	.....	.....	.....	...	...	...	...	....	....	3.3	130						
10/ 4	.....	.....	1.004	Acid	2	0	1	3	....	....	3.3	126	0	178	106	62	3.8	9.0
10/ 6	.....	550	1.002	Acid	1	0	1	3										
10/ 9	.....	1,200	1.002	Acid	2	0	1	3										
10/13	.....	1,100	.....	.....	...	...	...	...	....	....	5.0	304	5					
10/15	1,520	606	1.006	Acid	2	0	2	1										
10/16	1,680	1,100																
10/17	1,290	500																
10/18	1,110	60	.....	.....	...	...	...	...	....	....	....	....	....	184	90	54	2.02	4.4
10/19	1,770	150	.....	.....	...	...	...	...	40									
10/20	4,000	0																
10/21	2,300	0																
10/22	780	0																
10/23	1,290	0																
10/24	960	25	.....	.....	...	...	...	...	....	7.7	18.8	244	....	....	....	20		
10/25	390	0	.....	.....	...	...	...	...	....	....	....	....	....	190	100			
10/26	1,705	0																
10/27	630	0	.....	.....	...	...	...	...	....	....	....	.. .	....	200	100			
10/28	1,680	0																
10/29	1,600	0	.....	.....	...	...	...	...	....	....	26.6	521						
10/30	870	0																
10/31	960	0																
11/ 1	480	0	.....	.....	...	...	...	...	32	11.2	26.4	527						
11/ 2	1,680	7 hr. 540	.....	.....	...	...	...	...	....	....	....	....	....	172	98			
11/ 3	3,360	3,300	1.010	Acid	2	0	...	...	....	....	20.3	379	Faint trace	154	90	36	2.63	10.2
11/ 4	2,900	*																
11/ 5	.....	*	.....	.....	...	...	...	...	....	....	....	....	....	108	58			
11/ 6	.....	*																
11/ 7	.....	*	.....	.....	...	...	...	...	....	....	....	....	....	84	58			

* Urine drained into dressings.

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[14] Egers: Zehntägige Anurie nach doppelseitigem Ureterenverschluss durch Steine, Deutsch. med. Wchnschr. **10**: 131-133, 1884.

[15] Schwengers, H.: I, Anuria completa in Folge von Verschluss des rechten Ureter durch ein Concrement bei vollständigem Mangel einer linken Niere, Berl. klin. Wchnschr. **18**: 481-484, 1881.

[16] Frank, Louis: Anuria After Unilateral Nephrectomy, Ann. Surg. **69**: 286-290 (March) 1919.

[17] Russel, quoted by Egers (Footnote 14).

[18] Legueu, F.: De l'anurie calculeuse, Ann. d. mal. d. org. gén.-urin. **13**: 865-910, 1895.

[19] Morris, H.: Surgical Diseases of the Kidney and Ureter, Including Injuries, Malformations and Misplacements, London, Cassell **2**, 1901.

[20] Frank, Louis: Anuria Due to Unilateral Calculous Obstruction, South. S. & Gynec. Tr. **27**: 434-491, 1914.

[21] Roberts, quoted by Morris (Footnote 19).

[22] Barney, J. D.: The Effects of Ureteral Ligation, Experimental and Clinical, Surg., Gynec. & Obst. **15**: 290-295, 1912.

lateral ligation of the ureters. In fifteen instances collected by him of ligation of the ureters during the course of operation, hydronephrosis developed in twelve. Caulk[23] found no instances of primary atrophy in twenty-five experimental ligations in dogs. Beer[24] showed that atrophy and shrinkage of the hydronephrotic sac set in after three weeks.

A case of pure urinary poisoning observed in the Mayo Clinic resulted from a long standing, complete obstruction of a single functioning kidney. The case is of interest, not only because of the exceptionally large amount of nitrogenous waste products found in the blood, but also on account of the rapid onset of elimination after a long standing complete urinary retention had been relieved.

REPORT OF CASE

Mrs. S. H. D. (Case A 335972), aged 60, entered the Mayo Clinic, Sept. 30, 1920, complaining of frequency of micturition and dysuria. Her family history was unimportant except that her father had died of diabetes and one brother had died of "kidney trouble." She had had five children and two miscarriages prior to the last pregnancy. She passed the menopause at her forty-eighth year. Three months before examination she had begun to have dull, intermittent pain in the left side of the abdomen. Moderate anorexia and slight dyspnea on exertion commenced at this time. A hematuria lasting two days occurred one month before and recurred after one week. The second attack lasted seven days. The patient was passing small amounts of urine every half hour when she arrived at the clinic, and had lost 20 pounds in weight during the previous four months.

The routine physical examination was negative except for slight thickening of the radial and brachial arteries. The systolic blood pressure was 176 mm. and the diastolic 106 mm. The eye grounds were negative. The tonsils were small and showed no evidence of infection. The teeth had been removed several years before. Roentgenograms of the urinary tract and the Wassermann test were negative. A single specimen of urine had a specific gravity of 1.002, with an acid reaction, a small amount of albumin, a few red blood cells, and many pus cells. There was no return of phenolsulphonephthalein in two hours after its intravenous injection. The blood urea was 130 mg. and the creatinin was 3.3 mg. for each 100 c.c. of blood.

The cystoscopic examination was made, October 2. The bladder was not irritable and had a capacity of 150 c.c. Neither meatus was seen. In the region of the left meatus was a small pocket, on the border of which was a sessile growth having an inflammatory appearance, 1 by 3 cm., and surrounded by a stellate area of scar tissue. A mild reaction followed the cystoscopic examination. The patient was encouraged to take as much fluid by mouth as possible. Physiologic sodium chlorid solution and 5 per cent. glucose were given subcutaneously, intravenously and by rectum. Hot packs were used, but perspiration could not be induced and the packs were discontinued on the fourth day. The daily excretion of urine varied between 400 and 1,200 c.c., until October 18, when only 60 c.c. were excreted. A slightly tender mass in the region of the left kidney was felt at this time. Between October 19 and November 2 the only urine excreted was 25 c.c., October 25. Edema of the eyelids appeared, October 22, and gradually increased during the next week. The patient remained clear mentally. Her appetite was poor and she vomited moderately, especially during the early part of her stay in the hospital. October 25, it was noted that the mass in her left side was distinctly larger. A generalized toxic dermatitis appeared, October 30, and subsided the following day. The blood urea gradually rose until November 1, when it was 527 mg. for each 100 c.c. of blood. The creatinin increased from 3.3 mg., October 1, to 18.8 mg., October 23, and October 28 it reached 26.6 mg. for each 100 c.c. The carbon dioxid content of the plasma, which was 40 per cent. by volume, October 19, dropped to 32 per cent. by volume, November 1. Methylene blue was given by mouth, October 31, and November 1 a second cystoscopic examination was made, in an unsuccessful attempt to locate the cause of the obstruction. The ureteral orifices were not seen. The inflammatory mass in the region of the left ureter had somewhat subsided since the first examination, and appeared as a small area of granulation tissue. Even though the definite cause and the location of the obstruction were unknown, it was thought best to give the patient the benefit of an exploratory operation with drainage of the kidneys if possible.

Operation was performed, November 3, under light ether anesthesia. The left kidney was found to be three times normal in size, definitely congested, and swollen, but hydronephrosis was not found. Decapsulation and pelviotomy were performed. A rubber tube was fastened in the pelvis. Urine was not found. The right kidney was small, contracted and sclerotic, not more than 5 cm. in its greatest diameter, and having the appearance of a functionless kidney. During the first seven hours following operation, 540 c.c. of urine was excreted. This urine had a specific gravity of 1.011. On the following day, November 4, 3,300 c.c. was passed. The urine was distinctly colored by the methylene blue taken four days previously, and had a specific gravity of 1.110. It contained 12.87 gm. of urea, 0.714 gm. of uric acid, and 2.3 gm. of creatinin.

For the first two days after the operation the patient was brighter, her appetite improved, and the edema disappeared. By November 3 the blood urea had fallen to 379 mg. and the creatinin to 20.3 mg. for each 100 c.c. This improvement was of short duration; the patient became drowsy on the third day. On the fourth day breathing became irregular and labored and the drowsiness increased, although when the patient was aroused she was clear mentally and well oriented. Death ensued on the fifth day. Necropsy was not obtained.

COMMENT

The most striking feature of this case is the remarkably clear intellect of the patient throughout the course of the disease. She was calm, mentally alert, and at most times quite comfortable. During the first few days of retention she was nauseated and vomited and, as in other such cases, it was impossible to induce perspiration. She had very little appetite; she was fairly active during the first part of her stay in the hospital, but became weak later and remained in bed most of the time. She became stuporous only a few hours before her death. The blood urea at one time of 528 mg. for each 100 c.c. shows that it is possible to have an extremely high concentration without the production of uremic symptoms. The blood urea and creatinin determinations twenty-four hours after drainage of the pelvis of the kidney, and the amount of fluid excreted in the first twenty-four hours, show a rapid restoration of function which is unusual, considering the long period of inactivity. Following shorter periods of obstruction, complete function may be readily resumed.

The lack of evidence pointing to the cause or location of the occlusion, and the low kidney function prior to the retention in combination with the extremely high blood nitrogen findings, make an operation in the present case a source of last resort. An early operation is undoubtedly the desirable course in this type of case, if the obstruction is located or the nature of the process is known.

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[23] Caulk, J. R., and Fisher, R. F.: Experimental Study of the Effect of Ureteral Ligation with Particular Reference to Its Occlusion During Pelvic Operation; Preliminary Report, Tr. Am. Assn. Gen.-Urin. Surg. **10**: 72-81, 1915.

[24] Beer, E.: Experimental Study of the Effects of Ureteral Obstruction on Kidney Function and Structure, Am. J. Urol. **8**: 171-176, 1912.

Antivivisection Means Hatred of Knowledge.—The roots of the antivivisection propaganda spring from a hatred of new knowledge, of the restless inquisitiveness which compels experimental inquiry into the mechanics of the animal body.—*Lancet*, Dec. 11, 1920.

GASTRIC ANALYSIS

I. FUNDAMENTAL PRINCIPLES *

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So much has been written on gastric analysis, and we have been so constantly engaged on this subject, that until some conclusions were permissible, we did not allow ourselves to deduce conclusions on evidence that appeared incomplete. There are, however, so many misconceptions regarding gastric analysis and the points that are to be noted in interpretation, that we propose, in a short series of articles, to cover the essential points in this study.

In the first place, we have heard an amount of criticism regarding the value of gastric analysis which is out of all proportion to the knowledge that many of these critics can possibly possess. The same critics mercilessly condemned the fallacies of the roentgen ray. One of us can well recall, a number of years ago, the statement of Béclère, professor of roentgenology at the University of Paris, who, inveighing against the critics of this then comparatively new method of internal diagnosis, said: "The x-ray never lies; it simply penetrates bodies in inverse proportion to their atomic weight—it is not the x-ray which is at fault, it is our interpretation which is at fault." This is, after all, a human failing and not altogether misunderstood by any practitioner of medicine. Only a year later, Haudek, in 1913, was so bold as to make the assertion, in the presence of one of us, that all the fundamental principles regarding the roentgen-ray study of the alimentary tract were already laid down, and he looked for only comparative details in the future. With the exception of air and gas injection in the abdomen, this prediction has been curiously correct.

It is precisely the same thing regarding gastric analysis—the more we study this subject, the more we are convinced of one definite point, and that is that properly performed gastric analysis always represents clearly gastric work or the sum total of gastric work; and when mistakes are made, it is due to an inability on our part to interpret that response. Today, we are clearly in a position to say:

1. The roentgen ray can clearly delineate the form, position, contour and mobility, as well as the motor activity of the stomach. It then follows that any disease which alters the form, position, contour, mobility or motor activity of the stomach can be detected with the roentgen ray. On the other hand, as is the case in so many instances of purely functional disturbances, in the whole group of acute and chronic inflammations, as well as in those organic diseases which have not produced sufficient alteration to be recognizable with the roentgen ray, such as early mucous ulcer and beginning neoplasm, this method has no value. This in our experience is the main fault with the literature, namely, the inability to discriminate between the limitations of the roentgen-ray examination and that of gastric analysis. The foregoing statement, in our opinion, is a perfectly fair one and recognizes the inestimable value of the roentgen-ray examination when properly performed.

2. On the other hand, gastric analysis is simply a measure of gastric work. It is simply the sum total of secretory and motor work of the stomach on the particular substance that has been introduced as a test. And it simply reveals the sum total of secretory and motor work plus any exudate or transudate which might be contributed by any existing pathologic lesion. As we see gastric analysis, it is simply a measure of three important points: (*a*) gastric motor function as shown by the duration of digestion manifested after the administration of a certain test meal: (*b*) secretory function which is the sum total of all the factors, extragastric and intragastric, making up the secretory curve, and finally (*c*) the determination of evidence of pathologic condition of the stomach, such as mucus, pus, blood, bacteria, organic acids or protein, which in themselves are either contributed by the lesion, or are occasioned by it. It follows, therefore, that any disease which alters gastric motor function or gastric secretory function, or which contributes some peculiar pathologic product to the gastric secretion, should be recognizable by means of gastric analysis. And if a condition occurs which does none of these things, we cannot expect it to be discernible by means of gastric analysis. We do not expect to delineate changes in form, mobility or contour, even the evidence of changes in peristaltic function, unless those changes induce disturbances along one of the three lines mentioned.

FUNCTIONS OF STOMACH

Before we consider the details of gastric analysis, we must have clearly outlined the functions of the stomach. These might be thus enumerated:

Clearly, the most important function is that of food preparation rather than food digestion. Functionally and anatomically divided into two parts, the fundus and antrum, we might call the fundus the secretory chamber and the antrum the great motor mechanism of the stomach. The acid secretion is formed in the fundus—the antrum is clearly the mechanical comminuter of food—so that all three varieties of foodstuffs: carbohydrates, fats and proteins, are mechanically subdivided. Chemical digestion, however, is initiated to only a limited extent—pronounced with proteins, almost negligible with fats and carbohydrates. It is true that the connective tissue binding fat cells and muscle fibers is swollen and dissolved, while protein digestion is carried through the first stages of protein hydrolysis, but the fundamental fact remains that the small bowel is the great digesting organ and the stomach the great safeguard as well as the organ preparing the food for digestion. In our studies on normal digestion with every variety of foodstuff, the extraordinary factor of safety shown by the normal stomach, as well as its ability to prepare the most diverse substances, is a factor worthy of mention. This property is clearly lost in disease, as we shall discuss later. Its function being, therefore, food preparation, the measure of food preparation is a measure of gastric function, and we have no truer evidence of so-called functional analysis than we have in gastric analysis. In fact, gastric analysis is a measure of simply two fundamental points: one, gastric function—secretory and motor—and the other pathologic, through alterations in function and through the addition of products that do not belong to normal function.

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* From the Department of Physiological Chemistry, Jefferson Medical College.

* The expenses of the investigations on which this article is based were defrayed by funds furnished by Mrs. M. H. Henderson.

NORMAL STANDARDS

Another factor that has served to complicate gastric analysis hopelessly is the question of a normal mean or standard for comparison. There is no communication to our knoweldge which clearly points out the limits of normal and pathologic gastric function, and the determination of the healthy mean and its variations is one of the necessary corner stones for a rational system of gastric analysis. We have been told that such and such acid grades are normal and certain grades abnormal; that such and such evacuation figures are normal, others abnormal; and it was precisely because of this uncertainty as to normal values that we devoted the last six years to studying normal digestion, in order to arrive at some basis for the measure of normal function.

Let us for a moment consider how broad are the variations in health. For instance, in the digestion of pork and pork products [1] in healthy men in thirty-one different tests on ten different subjects, individuals with a rapid emptying type of stomach showed an average evacuation time for pork products of two and three-fourths hours, while those with slow stomachs revealed an evacuation time of three hours and forty minutes on the average. This included roast pork, sausage, ham (boiled, fried, minced and baked), bacon, scrapple and pork chops, with the most rapid evacuation in two hours with roast pork and minced ham, respectively, and the slowest evacuation in five and one-half hours with 250 gm. of roast pork. With beef products [2] in more than seventy complete experiments on twenty-five different subjects, the administration of 100 gm. of beef products gave, on the average, in fast stomachs two hours and thirty-five minutes, and in slow stomachs three hours and twenty-five minutes. These tests included roast beef, beef steak, hamburger steak, stewed beef, corned beef, dried beef, liver, frankfurters, sweetbreads and tripe, with the most rapid evacuation time two hours with well done roast beef and well done hamburger steak, and the slowest evacuation four and one-half hours with beef tongue, but actually from five and one-half to six hours with 250 gm. of stewed beef and well done roast beef. Fourteen tests were performed on lamb,[3] with the fast stomachs showing two and one-half hours as an average, and the slow stomachs three hours and twenty minutes. These included roast and stewed lamb, lamb chops, sheep brains, with the most rapid evacuation one and three-fourths hours with roast lamb in one instance, and the slowest evacuation four hours with stewed lamb.

Again, the digestion of egg [4] in every form was tested: raw; soft boiled; hard boiled; scrambled; fried; omelet; deviled and pickled eggs; soft cooked and hen's eggs; duck eggs; turkey eggs; frozen hen's eggs, cold storage eggs and combinations of milk and eggs; bacon and eggs; French toast; Chinese pidan eggs, and orange albumin. In ninety-two complete experiments, the fast stomach (forty-four) showed an average of two hours and fifteen minutes; and forty-eight of the subjects, representing slow stomachs, revealed an average of three hours and five minutes. The fastest evacuation recorded was the raw white, in one hour. The slowest was soft boiled; cold storage; scrambled; scrambled with excess of fat; hard boiled, and even soft boiled, all of which in certain individuals recorded an evacuation time of three and one-half hours. In one case, a Chinese pidan egg required four and three-fourths hours. Plain hot tea or coffee did not delay evacuation, whereas cocoa markedly delayed the emptying of the stomach. Candies [5] depress the acidity and may delay evacuation.

Two things are apparent from these studies which emphasize the necessity of revising our ideas of gastric analysis, namely, that there is unquestionably no fixed mean; but just as there are J stomachs and steer horn stomachs and every variation of these two extremes normally on the roentgen-ray screen, so there are normally fast and slow stomachs. These remarks simply serve to emphasize the marked normal variations in evacuation time, without which knowledge it is impossible to deduce any pathologic data. It is obviously absurd to draw conclusions regarding gastric evacuation time when our information is incomplete regarding the normal variations that may occur; and yet we have seen in many contributions hard and fast rules regarding this very subject. In a future contribution on the first important essential in gastric analysis, the determination of the evacuation time, this point will be thoroughly discussed.

The same thing is true of gastric acidity. Some time ago, we pointed out the marked normal variations in acidity, and in this series of observations, extending over a period of six years, we have noted the most diverse acidities. Only one conclusion is permissible at this point, namely, that the conception of high acid values must be entirely changed if we are to compare pathologic variations with the normal variations in health. This subject is too lengthy to discuss at this time. On the other hand, our studies have emphasized the great value of subacidities from a pathologic point of view.

TEST MEAL

One of the greatest drawbacks in gastric analysis is the lack of standardization. Every variety of test meal has been proposed, from the simplest which we proposed, namely, water, which has been used by Austin as a test meal, to the most complex meals destined to throw light on gastric function. Nothing in our opinion could produce a more perplexing result than a multiplicity of test meals. If the purpose of a test meal is to show gastric-evacuation secretory work and the presence of pathologic products, certainly the latter point is defeated by the complex meals suggested by continental writers, in which all evidence of food retention, evidence of previous meals, and the presence of pathologic products is hopelessly lost in the meat fats and carbohydrates composing these meals. If the purpose of a meal is simply to impose a given load on the stomach, the simpler that load is the more readily shall we be able to deduce pathologic findings. With a water meal, for instance, the withdrawal of anything but water and gastric secretion is pathologic, and with the administration of an Ewald meal, the withdrawal of anything but bread and secretion is pathologic. So, again, a fundamental principle must be a test load of sufficient simplicity to produce gastric work and at the same time reveal its variations. It must be accessible, of an average short evacuation time, and must not interfere with the detection of pathologic products. We see no reason, owing to the simplicity, accessibility, stimulating power and particularly our knowledge of its value—

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[1] Smith, C. A.; Fishback, H. R.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **49**: 204 (July) 1919.

[2] Fishback, H. R.; Smith, C. A.; Bergeim, Olaf; Lichtenthaeler, R. A.; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **49**: 174 (July) 1919.

[3] Fishback, H. R.; Smith, C. A.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **49**: 222 (July) 1919.

[4] Miller, R. J.; Fowler, H. L.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **49**: 254 (July) 1919.

[5] Miller, R. J.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **53**: 65 (Aug.) 1920.

both normal and pathologic—for setting aside the classical Ewald meal. A fixed test load, simple and accessible, readily withdrawn and capable of showing both secretory and motor variations as well as pathologic products, is a sine qua non as the basis for intelligent analysis of the stomach.

GASTRIC CYCLES

We must realize that gastric digestion is a constantly changing series of cycles, and that in the normal individual these cycles succeed one another, the digestive cycles, in response to the ingestion of food, being succeeded by interdigestive or rest cycles. The chemistry of these two cycles, the digestive and the interdigestive, is totally different. Therefore, it is essential that we form definite conclusions regarding the evolution and composition of these cycles. The fasting stomach shows phenomena totally different from the digesting stomach as to the type and quantity of secretion, the total and free acid figures, the amount of regurgitation, etc., all of which will be separately discussed in a succeeding article. One thing is clear: The stomach is never at rest, and there is always to be found in that organ an active secretion in health. Furthermore, the sequence of the digestive and interdigestive phases is profoundly altered in disease, factors which we shall have occasion to discuss later.

GASTRIC MECHANISM

Gastric analysis clearly demonstrates the action of certain mechanisms. 1. By a certain form of test meal it is possible to demonstrate clinically the importance of the psychic secretion. This has already been pointed out in a previous communication.[6] 2. There is clearly a chemical curve which can be demonstrated in a different way but which emphasizes the great importance of the chemical secretion in all gastric responses. Furthermore, we have been able to demonstrate the importance of the duodenal regurgitant mechanism, not only in controlling gastric acidity during the digestive phase, but also in contributing to the altered secretion found in the resting stomach. These factors will be discussed in detail; but one thing is clear—we have only begun to realize the possibilities of gastric analysis.

SUMMARY AND CONCLUSIONS

1. Gastric analysis has for its specific object the determination of gastric function and the detection of alterations in that function as well as pathologic products that might be added to it.
2. The specimen removed represents the sum total of all the factors, secretory, motor and pathologic, each one of which is capable of analysis.
3. Disease alters gastric function, either secretory or motor or both, and may reveal itself by the addition of its own specific products (pus, blood, mucus, etc.).
4. Gastric analysis does not reveal changes in form, position, contour or mobility of the stomach. The determination of such factors belongs to the province of the roentgen ray. It does reveal conditions which alter gastric work, that is to say, its motor or secretory function. It is precisely on this principle that the value of gastric analysis rests.
5. Gastric analysis, therefore, has three important functions: (*a*) the determination of evacuation time or motor activity; (*b*) the determination of secretory activity and work, and (*c*) the presence of pathologic products which offer a clue to the type of disease present.
6. It is essential that we begin with an absolute conception of normal gastric work or the response of the normal stomach to digestion before we begin to formulate principles regarding the interpretation of disease variations.
7. Evidence has been offered to show the marked variations of evacuation in health, and the same thing is true of the secretory variations. Our studies have emphasized the minor importance of high acidities and the increased importance of low acidities in disease.
8. Standardization of test meals is absolutely essential to a satisfactory understanding and interpretation of variation in health and disease. There is absolutely no value in complexity of test meals, which only introduces confusion to a subject already sufficiently complex.
9. It is essential that we realize the normal sequence of the digestive and interdigestive or rest phases, in order that we may detect the variations which occur in disease.

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[6] Miller, R. J.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **52**: 1 (May) 1920.

MENTAL DISORDERS IN CHILDREN FOLLOWING EPIDEMIC ENCEPHALITIS *

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Epidemic encephalitis (encephalitis lethargica) was at first regarded as an acute infectious disease, involving chiefly the central nervous system, running a more or less classical course and terminating either in death or in complete recovery. Once the acute period of the disease was over, the patient was expected to enter on an uneventful convalescence, and make a complete recovery.

As time went on and these cases were followed up, it was evident that the early optimism regarding a complete recovery from this disease was hardly justifiable. Instead of a thorough restitution to normal, it was found that many of the patients had been left with one or more neurologic complications, resembling virtually every conceivable neurologic disorder.[1]

Furthermore, it was found that those patients who had made an apparently complete somatic recovery not infrequently showed some striking forms of abnormal behavior.[2] When one considers the profound structural alterations found in the necropsy material, the marked ectodermic degeneration and the intense mesodermic inflammation, one wonders that there ever should have been any optimism in regard to a complete and thorough recovery. Any brain that had been the seat of such pathologic lesion as was found in those cases coming to necropsy could not be expected to function as well after as before it was diseased. Many nerve cells were lost to the economy of the individual, and in their stead there came ectodermic scar tissue and possibly mesodermic tissue, if the original inflammatory reaction was sufficiently intense.

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* From the Psychopathic Service, Bellevue Hospital.

[1] Abrahamson, Isador: The Chronicity in Lethargic Encephalitis, Arch. Neurol. & Psychiat. **4**: 428 (Oct.) 1920.

[2] Happ, W. M. and Blackfan, K. D.: Insomnia Following Acute Epidemic (Lethargic) Encephalitis in Children, J. A. M. A. **75**: 1337 (Nov. 13) 1920.

For the last six months we have had occasion to study a group of children who had had epidemic encephalitis and who had subsequently shown sufficient mental disorder to warrant their family physicians sending them for observation to the psychopathic wards of Bellevue Hospital. These patients have all had definite attacks of the disease, and they all showed a more or less uniform mental disorder after their apparent recovery from the acute phase of their illness.

Their ages varied from 5 to 14½ years, and there were four boys and two girls. Their physical condition was such as to lead one to believe that there was no further action of the infectious agent, and that the disease process had come to a standstill. Their temperature, pulse, respiration, blood pictures and urine examinations were all within the limits of what might be considered as normal. The Wassermann reaction in each case was negative.

Their mental status was characterized by purposeless, impulsive motor acts, marked irritability, definite attention disorders, distractibility and changing variable mood, inadequate and inconsistent emotional reactions, marked insomnia and, in two cases, precocious sexual feelings and intense eroticisms.

REPORT OF CASES

Case 1.—*History.*—R. M., schoolboy, aged 8 years, of American parentage, admitted, Oct. 16, 1920, discharged, Nov. 23, whose family history was negative, had been a normal, full term baby, well developed. He was very bright at school and was fully one year ahead in his school grade. He was sent to Bellevue Hospital with a note from his attending physician which stated that the patient was suffering from "a defect condition following encephalitis lethargica." From the rather meager facts obtained from the parents, the patient was suddenly taken ill about twelve weeks before admission and had an attack of fever, lethargy and eye palsies, which had lasted for about two weeks. The patient was apparently making a fairly satisfactory recovery when, two weeks before admission, he became quite impulsive, restless, could not sleep at night, shouted at the top of his voice, wet and soiled himself, and would strike any one trying to take care of him.

Examination.—On admission, he was very restless, noisy, shouted most of the time, could not stand still, pulled at the chairs, kicked any one trying to approach him, expectorated on every one, and wet and soiled himself. It was impossible to make a thorough mental examination, because of his wild restlessness and lack of cooperation. At night he shouted at the top of his voice, but it was difficult to grasp his words, as his speech was definitely unintelligible and there was definite dysarthria.

Physically, he presented a well developed and fairly well preserved condition; his pupils reacted well, although they were widely dilated; at times there seemed to be weakness of his right external rectus muscle; there was increased tonicity of the muscles on the right side of the body, and there was an accentuation of all deep reflexes, most marked on the right side. There was a doubtful right Babinski reflex. The heart and lungs were negative; pulse, 88; respirations, 24; temperature, 100. The urine showed a trace of albumin. The blood Wassermann test was negative.

Treatment and Course.—For the first week the patient was very restless, could not sleep, shouted most of the time, ate little, and expectorated on every one trying to care for him. His speech was incoherent and disconnected, and was very indistinct. He would throw his arms in all sorts of gestures, and he seemed to be in a state of psychomotor tension. He had to be placed in a dry pack.

At the end of a week he began to show definite improvement. He became more accessible and amenable to care and attention. He slept a few hours during the night and began to walk. He was transferred to the convalescent ward and there he immediately applied himself to occupational therapy. His speech gradually cleared. At the end of a month it was possible to make a Binet test on him, and he rated 8 years with an intelligence quotient of 100 per cent.

His convalescence continued uneventfully until his discharge, when he showed a normal physical condition and an improved mental state. He still was somewhat irritable, rather impulsive, and tired very rapidly. He was transferred to a convalescent home.

Case 2.—*History.*—A. G., a schoolboy, aged 8½ years, white, New York, was brought to the hospital by his mother, June 11, 1920, because he was irritable, impulsive, destructive and unmanageable at home. The parents, Lithuanians, were in good health, as were two brothers and one sister. The history was negative for two generations. The patient was a full term baby, and labor was of normal duration and delivery was spontaneous. He had measles at 1 year of age, and whooping cough at 2 years. He began to walk and to talk at the proper age. He was bright at school, and reached Grade 2 B at 8½ years of age. He was described by the mother as being an average child, in his physical as well as his mental condition. The present illness dated back to the latter part of December, 1919, when he was sent home from school because of high fever. He vomited the same evening and complained of intense frontal headache. On the following day he became delirious, his eyes became crossed, and he complained of diplopia. His neck became stiff and he became paralyzed in both lower extremities. A physician diagnosed the case as "sleeping sickness" (epidemic encephalitis). He was in bed for three months. His spastic paralysis began to improve at the end of a month, so that in March, 1920, he began to walk. His diplopia also began to improve at the end of a month, but his eyes continued to remain crossed and he still had diplopia.

His mental condition was different since his illness. He became quite overactive, quarrelsome, picked at his teeth and lips continually, and would lead his mother a wild goose chase. He could not be kept at school because of his restlessness, impulsive acts and his tendency to ape the other pupils. He talked incessantly but incoherently, fabricated freely, and could not be trusted with anything. He could not sleep and would frequently jump out of bed. He complained of headache and of pain in the back of the neck.

Examination.—He was examined at the Vanderbilt Clinic, May 7, 1920. There he showed a constant restlessness; he could not stand still, picked at his teeth, nose and legs, blew his nose incessantly, talked continuously and in an incoherent, rambling manner, imitated the other patients, and stood and walked with his head bent forward, resembling a paralysis agitans case. All equilibratory tests were normal. Skilled acts were performed normally. He showed abnormal involuntary movements in head, shoulders and arms. All reflexes were active and of normal type. The muscle status was normal. No abnormal associated movements were seen. General sensibility was intact throughout. The pupils were equal and reacted well both to light and to accommodation; there was diplopia and weakness of the right eye. There was a left facial weakness; otherwise the cranial nerves were intact. The cardiovalvular and respiratory tracts were normal. The blood Wassermann test was negative. The case was there diagnosed as epidemic encephalitis (meningo-encephalitis). During the last two months the mother had noticed that the patient was showing sexual precocity. He tried to have intercourse with his sister, and would often ask his mother to have intercourse with him. He frequently would have erections.

At Bellevue Hospital he showed a well developed, well nourished condition. The pupils were equal, regular, and reacted very promptly both to light and to accommodation. There was moderate right internal strabismus. The eye grounds showed moderate congestion of the veins, but the arteries were normal and the outlines of the disk were clear and the nerve heads appeared pink. All reflexes were of the normal type. The heart and lungs were negative. Sensations were intact. There were no cerebellar lesion signs. The speech was slurring and at times somewhat explosive. The teeth were in good condition. The tonsils were small and ragged; the nose showed deviation of the septum to the right and a mucoid discharge in the right naris. The right ear was normal, and the left ear drum was slightly retracted. Roentgenographic examination of the skull revealed a marked development of the postauricular portion of the skull, with a very narrow base; the sella turcica was normal in size, shape and outline; there was no retardation of the bony development, and no evidence of increased intracranial pressure. The blood Wassermann test was negative. The urine showed no albumin and no casts.

On the Stanford scale he reached the mental age of 6 years, 4 months, with an intelligence quotient of 79 per cent.

Treatment and Course.—During his entire residence, the patient was careless about his personal appearance; he would often run about the ward in a nude state. He would pick at his nose, lips and teeth until they bled, and his face was full of abrasions. He aped all the other patients and would not infrequently strike them. To the examiners he was impudent and very voluble; he would carry tales to the physicians, etc. He ate very well. His sleep was frequently disturbed by nightmares. He would often jump out of bed and run in terror to the nurses. He at first slept very little at night, but when he was kept from sleeping during the day, he slept fairly well at night. It was frequently necessary to give him wet packs and baths, or to place him in restraining sheets; sedatives were administered very rarely.

His stream of mental activity was of an incoherent, rather rambling nature, never showing any true flight of ideas. He spoke in a lisping, indistinct, slurring, loud and rapid manner. His attention was fleeting. He showed marked physical overactivity and restlessness, would run about the ward, jumping from chairs to table and to the floor, annoying patients and irritating those about him. His general mood was variable and unstable.

There were periods, lasting from six to twenty-four hours, when he would appear quite depressed, timid and retiring. But, as a whole, he was elated, defiant and expansive. His emotional reactions were brisk; he often became excited. His sexual feeling was quite apparent. There were frequent erections and he would always follow the women nurses and female visitors. His emotional tone was generally raised, and mood appearance was that of great tension. At times it seemed as if there were hallucinatory reactions present, and yet, throughout the entire period of observation, it was impossible to establish real hallucinations or delusions.

He was correctly oriented in all fields. His memory for recent events was good, and for remote events was also good. His retention was somewhat impaired, but that was due essentially to his lack of concentration and attention. His attention was distractible and scattered, and he undoubtedly seemed to have thinking difficulty.

The treatment consisted in moderate occupational activity, keeping the patient awake in the daytime and occasionally placing him in a pack or restraining sheet.

He was discharged, Sept. 5, 1920, to the custody of his mother. September 15, he was returned to the hospital. The mother stated that he was destructive, unmanageable, would keep the other children from sleep, and could not be controlled at home. Since his return, he presented the same physical signs noted on his first admission, while mentally he was noisy; he fought with the other children, shouted and screamed at the top of his voice, annoyed the aged and helpless patients, expectorated at nurses, used most abusive and profane languge, fabricated freely, and seemed to be laboring under constant psychomotor tension. He was committed, September 24, to the Manhattan State Hospital on Ward's Island.

Case 3.—*History.*—M. B., a boy, aged 10 years white, of Jewish parentage, admitted, Sept. 17, 1920, whose parents and two sisters were living and in good health, and in whose family there was no history of nervous or mental disease, had been a full term baby and labor had been normal. His infancy and childhood were that of the average person. He began to walk at 1 year and to talk at 10 months. He was very bright at school, reaching the 6 B grade at 10 years of age. He had measles at 4 years, and influenza in 1918. In April, 1920, he suddenly became drowsy, would not talk, and had some fever. A physician diagnosed his illness as "sleeping sickness" (epidemic encephalitis). The physician who was in attendance had had an unusually large number of cases of this disease and he described the sickness as having run a characteristic subfebrile course, with apathy and drowsiness but without any paralysis, and lasting for two weeks. Following his apparent recovery, the patient became rather restless; he could not remain in one place for any length of time. He became rather filthy in his habits; he expectorated on the floor and on the walls. He was easily frightened. His sleep was disturbed; he could not sleep for longer than two or three hours. He would jump from bed and run in terror to his parents. He then began to show marked eroticism; he would have frequent erections, would hang on his mother, and was very attentive to his sisters. He was referred to the hospital by his physician.

Examination.—At Bellevue Hospital, he presented a well developed, well nourished physical condition. The heart and lungs were negative. All the cranial nerves were intact. The pupils were widely dilated, and reacted well. All reflexes were preserved and were of the normal type. Sensations were intact. There was no evidence of any paralysis. Speech was somewhat slurring and explosive. The blood Wassermann test was negative. Mentally, he presented a condition of silly, psychomotor unrest, impulsive acts, and marked eroticism. He was uncleanly in his personal appearance. He would interfere with the other patients, playing pranks on them. Toward the examiners, he was rather agreeable, voluable and accessible. He ate sufficiently. Occasionally it was necessary to give him a pack. He spoke spontaneously, but the content was not confined to any trend. He was rambling and discursive, speaking in a loud, rapid tone. His physical activity was very brisk and impulsive, jumping about the place, running from one room to another. He never expressed any delusions or hallucinations. He was correctly oriented in all fields; memory and retention tests were good. His general mood was variable and changing. While the greater part of the time he was cheerful and elated, there were times when he appeared rather depressed. He always greeted his relatives and visitors in a pleasant, mild manner, and seemed to benefit from their visits. He showed a strong sexual feeling; there were frequent erections, and he displayed greatd affection toward the female nurses. His mood appearance was that of tension. His attention was scattered and distracted; he often expressed feelings of insufficiency. His school knowledge was good.

His sleep was frequently disturbed, and he would often run from bed in a state of excitement. On the whole, however, he slept fairly well at night when he was prevented from sleeping in the day time.

He left the hospital, Oct. 2, 1920, considerably improved.

Case 4.—*History.*—A. N., a girl, aged 5 years, brought to the Mental Hygiene Clinic of Bellevue Hospital, July 30, 1920, for examination, was said by the mother to be the youngest of seven children, the first two of whom had been stillborn; otherwise the family history was negative. The patient was a full term child, delivery was normal, and she had been breast fed for fifteen months. She walked at 13 months and talked at 15 months. She had had whooping cough, chickenpox and diphtheria without residuals of any kind as far as could be ascertained. She had never attended school. Her disposition prior to the present illness was described as being that of a quiet, well-behaved child. In September, 1919, she was treated at Bellevue Hospital for prolapse of the rectum. No abnormalities of conduct were observed at that time. In the latter part of January, 1920, the patient slept continuously for fifty-nine hours and then became delirious, reacting to both visual and auditory hallucinations. She was very much confused. The delirium lasted for two weeks, during which time she was treated at home. Following this, after a short period of insomnia, drowsiness developed and she was admitted to the children's medical ward of Bellevue Hospital, March 2, 1920.

Examination.—On admission she was drowsy and sleepy. Physically, she presented dilatation of the left pupil; both pupils reacted sluggishly to light; there was slight internal strabismus of the left eye. In addition, weakness of the right face was observed. She also presented an ataxia of both arms, with coarse choreiform tremor. The spinal fluid was clear and contained 25 lymphocytes and a trace of globulin; the Wassermann reaction was negative. The blood Wassermann was also negative. The blood count revealed 3,240,000 red blood corpuscles and 6,200 white blood corpuscles. The hemoglobin was 75 per cent. (Sahli). The differential blood count revealed: polymorphonuclear leukocytes, 48 per cent.; transitionals, 4 per cent.; small lymphocytes, 39 per cent.; large lymphocytes, 8 per cent., and eosinophils, 1 per cent.

A roentgenogram of the head revealed nothing pathologic. The patient continued to sleep, but the neurologic manifestations remained stationary until April 6, when she became much brighter, and the ataxia and choreiform movements were less marked.

Further History.—She was discharged, April 22, 1920, as a case of encephalitis lethargica. She was returned to the hospital, May 19, with a history that since being at home she had shown a complete change of disposition: she was disobedient, restless, sleepless and mischievous.

She was overtalkative and quite irritable, throwing anything within her reach and frequently tearing her own clothes. She slept poorly; her appetite, however, remained fairly good. Later she teased and scratched the other children and was taken to the City Hospital at Blackwell's Island, where she remained five weeks, with very little improvement in her conduct. The mother brought her to the clinic with the complaint that she could no longer care for her at home because of her conduct. On examination she was bright and alert; when questioned, she admitted that what her mother had said was true, but gave no explanation for her conduct.

She was quite clear, and there was no evidence of any psychotic manifestation or intelligence defect. Physically her general condition was good, and she was normally developed for her age. The general physical and neurologic examination was negative.

She reported again one week later, with the history that she had been very restless, striking the other children and sleeping very little at night. She was admitted to the Psychopathic Service of Bellevue Hospital for observation.

During her residence here, she showed a manic-like reaction, in that when awake she was very restless and mischievous, pulling things from tables and often teasing the other patients. When spoken to, she was always friendly and docile, very affectionate, and she liked to be petted. At times she would admit being unruly, and again would deny this. When not allowed her own way, she would bite, scratch, swear and kick at any one within reach. She often tore her clothing in her anger. At night she was especially restless, jumping on top of the beds or crawling beneath them. When held in bed, she would bite and scratch the nurses. After several hours of this restlessness and usually after a pack, she fell asleep and slept through the night.

Her conduct and sleep gradually improved at night, under the influence of warm packs, but there was very little change in her conduct during the day. She was discharged to the care of her mother, Sept. 15, 1920, and has since been placed in a convalescent home for children.

Case 5.—*History.*—W. R., a boy, aged 14½ years, white, of American parentage, examined at the mental hygiene clinic, Nov. 24, 1920, whose family history was negative for two generations, had been a full term child with normal delivery. He walked and talked at the usual age. He had measles at 4 years. He had been very bright in school, and at present was in his second year in high school. He had always been of a quiet and obedient disposition. During the first and second weeks of January, 1920, he was treated for "walking typhoid," and was very restless; his temperature ranged between 101 and 104 during this time, and continued at 100 for about three months. For about a month he was drowsy and slept a great deal. When aroused, he was dull and answered questions sluggishly. Since this time he had been sleepless at night; during the day he was mischievous, talkative, elated, singing and whistling, drowsy and sleepy.

For the last two months he had fatigued easily, especially in walking, and his left lower extremity gave way under him. At the same time a coarse tremor involving the left hand developed and had been present ever since. He was treated for chorea until recently, but the tremor had persisted. He was brought to the clinic for treatment of the tremor and general weakness and sleeplessness.

Examination.—Physically, he was well nourished and well developed. His heart and lungs were negative. The cranial nerves were all intact, except that there was some weakness of the left side of the face. The pupils were moderately dilated, and reacted well. The eye grounds were normal. All deep reflexes were active, except that those on the left side were less so than those on the right, and there was a noticeable weakness in the left upper and lower extremities as compared with the right. The superficial reflexes were active and normal in character. Sensation was intact. There was present a coarse, rhythmical tremor, involving the left hand but chiefly the thumb and forefinger. The speech showed no defect. The blood Wassermann test was negative.

Mentally, he was alert, bright and somewhat elated, but not noticeably overactive. He was able to tell of his illness and to describe his symptoms. He said that instead of feeling sleepy at night, he was wide awake and felt like joking and singing, while during the day he was sluggish and drowsy and often slept. His orientation and memory were intact. No trends were elicited. He had good insight into his condition, coooperated well and was anxious to be relieved.

Treatment.—He was given a simple tonic, and advised to sleep only at night on a sleeping porch and take moderate exercise during the day.

Case 6.—*History.*—H. V., a girl, aged 7 years, was brought to the mental hygiene clinic of Bellevue Hospital, July 8, 1920, for examination. The parents stated that the patient was the second child in a family of three. The other children were said to be healthy and apparently normal mentally. A maternal aunt was said to have had chorea; otherwise the family history was negative. The patient was a full term child; instrumental delivery was required, but there were no birth injuries, and the baby appeared to be normal. She was breast fed for nine months. She talked at 18 months and walked at 2 years. She had mumps at the age of 5 and whooping cough at 6 years. She began school at the age of 5½, and was in Grade 2 A when she left in January, 1920, because of the present illness. In the early part of January, 1920, it was noticed that the child was restless and talkative during the day and that she was sleepless and talkative at night. A few days later she became acutely ill and was in bed for ten days. During this time she slept the first five or six nights and was much less talkative and restless during the day. Following this she again became talkative and restless, and slept only every other night. Whe she talked she muttered a good deal, so that it was difficult to understand what she said. She became irritable and had crying spells at times. She seemed unable to concentrate on any one thing, and it took her a long time to accomplish a task which she formerly did readily. Her disposition was entirely different from what it was previously in that formerly she was quiet and obedient, but now was flippant and disobedient. She complained constantly of being tired, and was unable to fall asleep until morning. Her condition gradually became worse; she talked constantly, was very irritable, and paid absolutely no attention to either commands or requests from her parents.

Examination.—The patient said that she felt well. She could give no explanation for her talkativeness, but knew that she talked too much; she felt cranky at times, but did not know why. She said that she liked to wash things, and one day she washed out her sister's blankets (she had formerly been afraid to play with water). She said she was on the go all the time, but didn't know why. During the examination she talked indistinctly, in an undertone, so that it was often difficult to understand what she said. She was quite self-possessed and inclined to be flippant at times. She showed some tendency toward restlessness, walking about the room, taking articles from the desk, etc. Her nutrition was below par, but she was of normal development for her age. General physical and neurologic examination was negative. A roentgenogram of the head and a blood Wassermann test were negative.

Treatment and Course.—A week later the child was brought to the clinic with the report that there was no change in her conduct, and she was admitted to the psychopathic ward of Bellevue Hospital for observation. During her residence, she was restless at first during the day and was irritable. She showed a disposition to sit by herself, playing with her doll, and did not care to play with the other children in the ward. Later she was restless and mischievous. During the night she was very restless and overactive; with her body bent in a jackknife fashion and using her head and feet as pivots, she would move all over her bed for hours at a time, accompanied by a muttering under her breath and occasionally using a profane word. She slept only two or three hours when first admitted, and did not seem drowsy during the daytime. Later she was drowsy during the morning, and when aroused was quite irritable and often swore at the nurses.

Later she became much happier and contented during the day, but her sleeplessness remained at night. Under the influence of warm packs she slept well at night, averaging from six to eight hours. She improved mentally, in that she no longer muttered to herself and was much less restless, irritable and mischievous. She expressed herself when spoken to as liking the hospital, but said that she had to do things which she did not like to do. She said she had never sworn at home and could not tell why she did it here. Her memory and orientation were quite clear. She ate well after the first few days, and on her discharge, September 1, appeared to be much improved, both mentally and physically.

She was returned to the hospital, September 9, by her mother who reported that on return home, the patient was very irritable, slapped her sisters, and called her mother abusive names. She did not sleep at night. On admission she showed an irritable attitude, muttered to herself and was very restless, wandering about the ward and collecting papers, etc. She did this for a few days, and then became more contented and busied herself with her doll and playthings. Her sleep was irregular, some night being natural, but on other nights having to be induced by warm packs. She was discharged, September 20, much improved mentally and physically, but still having some difficulty in sleeping, and inclined to be restless and irritable at times.

A report from the social service department states that the patient still has difficulty in sleeping, and is still restless and mischievous during her waking periods.

COMMENT

We believe that the mental disorder in the cases reported can be best explained on a purely physical basis. While we have no pathologic material to substantiate our opinion, since none of these patients died and since none as yet established the exact period of time that is required for the inflammation in these brains to resolve, reasoning by analogy from cases which showed similar pathologic conditions, such as are seen in general paralysis, in true African sleeping sickness and in subacute infections of the brain tissue, we believe that these symptoms are the result of purely physical processes.

The replacement of the destroyed nerve tissue by neuroglia scar tissue acts as a stimulating and undoubtedly as an irritating agent to the rest of the nerve tissue.

Furthermore, we believe that the resolution of the mesodermic inflammatory reaction takes place over a relatively prolonged period and causes considerable irritation to the remaining relatively normal nerve cells. The irritation to the cell bodies results in the function of these cells with the production of the usual effects of the function of such cells. We therefore have various forms of both motor and sensory disturbances, and marked conduct disorder. Of course, we admit the possibility of these patients being really in a chronic period of the disease, but we do not think that this is the case, since these patients physically showed, as a rule, no evidence of any disease process, and all somatic manifestations of disease processes were absent.

TREATMENT

We found that these patients, just as other patients in whom the brain was the seat of a profound pathologic process, reacted badly to drugs, and especially to such drugs as had accumulative tendencies. We therefore virtually limited our treatment to such physical agents as would give the patient rest, and minimize irritating stimuli to reach the diseased brain.

We found that a warm pack in the milder cases and a wet pack in the more disturbed cases was conducive to sleep and allayed some of the irritability. Furthermore, keeping these patients awake during the day was not a small factor in making them sleep at night. Hydrotherapy and massage were also utilized freely.

Occupational therapy for about an hour and a half in the morning and a similar period in the afternoon was found to be the best method of keeping the patients quiet during the day, and an important agent in hastening their convalescence.

PRURITUS OF ANAPHYLACTIC ORIGIN

REPORT OF TWO CASES

MILTON B. COHEN, M.D.
HALBUR, IOWA

One of the most troublesome conditions of the skin that the physician has to treat is pruritus. The large number of remedial measures suggested for the relief of this symptom, which is usually associated with some chronic metabolic disturbance, demonstrates the frequent inadequacy of any, or all, of them.

Many investigators, among them, Schloss,[1] Strickler [2] and Walker,[3] have studied the relationship of protein sensitization to skin diseases, such as urticaria, angioneurotic edema and eczema, following the suggestion of Fordyce,[4] who in 1911 called attention to the possibility of an anaphylactic origin for eczema. Recently, Fox [5] has reviewed the literature on this subject and has reported the results of protein sensitization tests on sixty patients with eczema. His results and those quoted in the literature seem to indicate that these tests "will ultimately prove to be of therapeutic assistance in a small proportion of cases of eczema of adults."

The two cases reported herewith are of interest because of the lack of demonstrable cause except the food anaphylaxis, the inefficiency of local and general treatment and the complete cure following the elimination of the offending foods from the diet. Walker's method was followed in making the skin tests, using commercial proteins.

REPORT OF CASES

Case 1.—*History.*—C. E., farmer, white, aged 41, married, whose family and personal histories were of no importance, and who had never had asthma, nor was there any history of asthma in the family, on July 4, 1920, consulted me because of intense itching about the genitals and in the anal region, which had troubled him continuously since the preceding January. The itching was so intense that he found it necessary frequently to stop all work, and to obtain momentary relief by scratching. He had tried various local and internal remedies without relief.

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[1] Schloss, O. M.: Allergy to Common Foods; a Preliminary Report, Tr. Am. Pediat. Soc. **27**: 62, 1915.

[2] Strickler, A.: Anaphylactic Food Reactions in Skin Diseases, with Specific References to Eczema, New York M. J. **104**: 198 (July 29) 1916.

[3] Walker, I. C.: Causation of Eczema, Urticaria and Angioneurotic Edema by Proteins Other Than Those Derived from Food, J. A. M. A. **70**: 877 (March 30) 1918.

[4] Fordyce, J. A.: Infectious Eczematoid Dermatitis, J. Cutan. Dis. **29**: 129, 1911.

[5] Fox, Howard, and Fisher, J. E.: Protein Sensitization in Eczema of Adults, J. A. M. A. **75**: 907 (Oct. 2) 1920.

Physical Examination.—The head, thorax and abdomen were negative. The skin about the genital region was reddened, thickened and rough. There were no edema and eruption. The urine was negative for albumin and sugar.

Treatment and Result.—Since the usual methods of treatment gave only momentary relief, it was decided to discover and remove the etiologic factor if possible.

Skin tests were made with the proteins of all the foods eaten during a period of one month. There was a + + reaction to pork, with doubtful reactions to potato and milk.

Pork was eliminated from the diet. In seven days, the pruritus disappeared and has not returned during the last six months.

Case 2.—*History.*—H. B., farmer, white, aged 25, consulted me, Oct. 5, 1920, complaining of intense itching over the entire body, of five weeks' duration. He had consulted several physicians who had prescribed the usual local and systemic remedies without result. The family and personal histories were negative for asthma and allied conditions.

Physical Examination.—This was negative except for a slight roughening of the skin and a few excoriations caused by scratching.

Treatment and Results.—Skin tests were made, using the proteins of buckwheat, milk, egg, pork, coffee, corn, tomato and chicken. There was a + + + reaction to potato and a + reaction to buckwheat. The elimination of potato and buckwheat from the diet for nine days gave complete relief for five days, when potatoes were again eaten. The itching recurred in two days. Potato was again eliminated from the diet, with complete relief. There has been no recurrence of symptoms in three months.

Clinical Notes, Suggestions, and New Instruments

A CASE OF BORAX POISONING

Caryl Potter, M.D., St. Joseph, Mo.

On account of the discussion between pure food experts and manufacturing concerns regarding the toxicology of borax, the case herewith reported is important from a pharmacologic and economic standpoint.

REPORT OF CASE

Mr. K., aged 66, a painter, who had formerly been in excellent health, felt slightly constipated and at 8 a. m. took from a marked bottle about an ounce of what he thought was a proprietary saline cathartic. Within fifteen minutes, he was seized with violent epigastric cramps, accompanied by attacks of retching and vomiting, coming on at from five to ten minute intervals. A physician was called, who made a diagnosis of acute indigestion and ordered milk of magnesia. At 10:15 a. m. I was hurriedly called. When I arrived the patient's pulse was weak, the extremities were cold and clammy, there was cold sweat on the forehead and cyanosis. At five minute intervals he would cry out that he was strangling or choking, and he almost strangled when a little whisky was administered. The lips were slightly cyanotic. At intervals of a few minutes he cried out with pain in the epigastrium and then immediately after he would grasp his throat and complain of difficulty in swallowing, of choking and strangling. Notwithstanding active, hypodermic stimulation ($\frac{1}{20}$ grain of strychnin and 2 c.c. of camphor in oil), he died in one of these paroxysms one hour after my arrival. There was no lead line on the gums or other symptoms present or past to suggest lead colic.

Necropsy was advised and permitted by the family. The bottle, one-half filled with the powder taken by Mr. K., was saved. Necropsy, performed at 4 p. m. by my associate, Dr. L. H. Fuson, revealed nothing abnormal. Chemical analysis of the contents of the stomach demonstrated the presence of 1½ ounces of borax. The bottle contained pure borax.

COMMENT

At the coroner's inquest it was shown that the deceased's mother-in-law, about 80 years of age, had filled the empty saline bottle with borax without informing the family or changing the label, and that it had been placed on the medicine shelf by another member of the family who thought it was a bottle of saline laxative.

The coroner's jury returned a verdict of accidental borax poisoning.

CONCLUSIONS

This was a cleancut case of borax poisoning, conforming in every respect to the clinical picture.

The necropsy findings were otherwise practically negative, for the cause of sudden death and the etiology of the poisoning were demonstrated beyond peradventure.

This case demonstrated that borax is a potent poison when taken in large quantities. It should be labeled poison and should not be used carelessly without a definite understanding that it has fixed toxicologic properties.

120 South Seventh Street.

BRAIN ABSCESS OF OTITIC ORIGIN WITH EPILEPTIFORM ATTACKS

DECOMPRESSION FOLLOWED BY RECOVERY [*]

Carl Marion Sautter, M.D., New York

W. C., a boy, aged 13, rated as a first year high school student in a private school, became ill during the early part of January, 1920, with paratyphoid. While convalescing he was brought in contact with a case of measles. Shortly after this he also developed measles, and had apparently recovered from this when he complained of a severe pain in the left ear. His physician within a few hours called in consultation an aurist. An acute suppurative otitis media of the left side was diagnosed, and an incision of the drum performed. Irrigation with boric acid solution was made every three hours. On the fourth and fifth days the patient became nervous and restless, and suffered somewhat from insomnia. His temperature range was from 100 to 102.5 F.

February 18, I was asked by Dr. Alexander Schmitt to see the patient. His temperature at this time was 103 F. He was extremely nervous, apprehensive and rather septic in appearance. The right ear was perfectly normal. From the left ear came a profuse yellow discharge of pulsating character. It was difficult to keep the canal wiped. The incision made previously appeared to be extensive, and afforded all the drainage possible. At this time slight tenderness was elicited directly over the mastoid antrum. A smear was taken and later reported as showing a pneumococcus. A specimen of urine was negative for albumin and sugar.

The nurse was instructed to irrigate the ear every hour with boric acid solution, and even at intervals during the night. The patient was seen daily and the canal cleansed. In spite of the utmost care the discharge remained, pulsating and very profuse, although there was no sagging of the drum. The insomnia persisted. On the 21st and the next two days the temperature range was from 100 to 105 F. The tenderness had increased over the mastoid, extending well over the temporal and zygomatic regions, but none over the tip. Any increased tenderness over the meningeal area is significant of operative interference, especially with a ten day history of aural discharge. At this time a simple mastoid operation was advised. The same day a roentgenogram was taken at St. Luke's Hospital. This revealed an increased cloudiness of the left side and a most unusual extensive pneumatic mastoid bone. The cells were extremely high over the zygoma and temporal plate; the tenderness corresponded exactly to the location of these cells.

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[*] Read before the Otological Section of the Academy of Medicine, May 14, 1920.

The patient was removed to the Misericordia Hospital, and a simple mastoid operation was performed. The cells were numerous and extensive, especially in the middle fossa and overlying the temporal bone, where they were more superficial. Free pus was found in these with granulations, but very little in the mastoid tip. The cells were thoroughly curetted to the plate, but neither sinus nor dura was exposed.

Next day the temperature receded to normal and remained normal, and the patient was apparently making an uneventful recovery. The mastoid wound was looking fine, with a diminution of discharge and no discharge from the canal. However, March 4, that is, ten days from the date of the operation, I was informed that the patient was having a convulsion. When I arrived at the hospital an hour later, the boy was still in convulsions. He was in a deep coma, with respiration only at great intervals, and then a convulsion, which was more or less generalized. The patient had been in good condition until about an hour previous to the attack, when he tried to ask for the urinal bottle, which he seemed to recognize but could not name. There had not been chills or headache. The respiration and pulse rates were normal. There was some difference of opinion as to whether the convulsions in the beginning were more right sided than left sided. There was no history of any former attacks of epilepsy, and the family history was negative. Oxygen was given while the operating room was being put in readiness. With the history of the word aphasia symptom and the convulsions probably due to a local meningeal edema, I performed a decompression. There were no adhesions of the dura, but a slight discoloration; my light was poor at this time, but the case was urgent. The middle fossa was uncovered and the temporal plate removed, about an inch in diameter, extending directly over the ear. A vertical linear incision was made through the dura about an inch in length. This released what appeared to me as coffee-ground blood, with a small piece of organized clot or slough. A grooved director was passed forward, inward and backward in the brain substance in the various directions in the effort to locate an abscess, but with no success. A cigaret drain was inserted and the wound left open. In the afternoon of the same day the patient had apparently regained his normal self. His reflexes were normal and equal. His conversation was coherent and rational. There was no aphasia or ocular nystagmus. At this time Drs. Dench and Garretson were called in consultation. The fundi were negative. There was no nystagmus. All reflexes were normal. Those of both upper and lower extremities were slightly exaggerated, but normal. Abdominal and cremasteric reflexes were normal and equal. The muscle tonus was normal throughout. Sensation (tactile, pain, temperature and muscle sense) was normal. On examination, the right ear at this time proved to be normal. Urinalysis was negative. Examination of the spinal fluid and blood gave a normal cell count and negative Wassermann reaction. At the end of four days the patient continued normal with no elevation of temperature. The drain was completely removed at this time, having previously been shortened or successive dressings. There was no pus or exudate coming from the wound.

March 10, in the morning, there was a distinct hesitation in the patient's speech, rather stumbling in character, with irrelevent and monotonous phrases. He spoke of seeing his father, who had died shortly after the boy's birth. There was no nystagmus, over pointing or stiffness of the neck. The reflexes were normal. There was no deviation of the tongue or twitching of the mouth. The condition remained about the same during the day except for continued motor aphasia with an inclination to vomit. However, at 6 o'clock the same evening they informed me that he was again having convulsions. I reached his bedside, about forty-five minutes later, when the patient was having convulsions at intervals, but was not in the deep comatose state that he had been in at the previous attack. His contractions were evidently right sided, involving the face and the limbs. He was immediately removed to the operating room, where I extended the removal of the temporal bone on a line with the supra-orbital ridge and about 1 inch in front of the ear. A new vertical linear incision was made, and a grooved director passed forward and downward about an inch toward the frontal convolutions. At the second passing, a teaspoonful of rather blood-stained pus was exacuated. A cigaret drain was placed. The next day the temperature was about 101 to 102. The reflexes were normal and the patient was fully oriented. The second day the temperature was still at 102. In the morning, when the drain was removed, a considerable amount of thick exudate was found behind it. Instead of replacing the cigaret drain, I rolled and inserted a small piece of rubber at the base of the abscess. Following this the rubber drain was removed twice daily and the patient's temperature dropped to about 99. About this time he developed pain in the eye. Dr. Conrad Berens, Jr., reported vision 20/15 and normal fundi. Two days later the patient developed another slight rise in temperature, which was due to the development of an abscess beneath the temporal muscle. This was readily drained, and the tempature dropped to normal and remained so until his complete resolution, April 19. No hernia had developed in this case, and the hearing was 20/20. Up to about a week ago when I last heard from this patient he was in good health and apparently quite normal.

COMMENT

Acute brain abscess cases rarely complicate acute otitis media, and even less so the epileptiform attacks. If an abscess has been located and drainage established and maintained, resolution is the natural course, if located early enough. Of course, there is always the possibility of the abscess rupturing, inundating the ventricles or the subarachnoid space, and causing a suppurative meningitis. At the first decompression the symptoms pointed more to an abscess or pressure of the sensory speech center of the left temporosphenoidal lobe, while the distinct motor speech symptoms prior to the second attack made it evident that further involvement existed, farther forward in the frontal lobe.

It seemed to me that the simple rolled rubber drain proved most effective in maintaining the drainage. This, of course, was gradually shortened, allowing granulations to fill in from the bottom and to wall off the meninges.

11 East Forty-Eighth Street.

ARTIFICIAL PNEUMOTHORAX IN FRACTURED RIBS

Angelo L. Soresi, M.D., New York
Visiting Surgeon, Greenpoint Hospital

This is a preliminary note on the use of artificial pneumothorax in the treatment of fractured ribs, which seems a new and very useful application of artificial pneumothorax. In fractured ribs it is a common practice to strap the patient with adhesive plaster, so that the chest is put at rest and the patient saved from the often excruciating pain caused by the movement of the fractured ribs. However, it is evident that when there is a complete fracture of the rib, not only is such strapping ineffectual, but also it may be dangerous and later cause deformation of the chest.

If there is no injury of the lungs or of the pleura, the best manner to prevent expansion of the chest would be by resorting to artificial pneumothorax, which obviously puts the affected thorax at complete rest. I have used this means in one case in which the sixth, seventh and eighth ribs were broken, and strapping had not relieved pain. Immediately after the application of the artificial pneumothorax the patient felt absolutely comfortable and remained so. Injections of nitrogen were repeated three times. Artificial pneumothorax can be said to be so safe nowadays in the hands of competent surgeons that there cannot be objection to its use in the treatment of fractured ribs.

220 West Fifty-Ninth Street.

Hospital Ventilation.—There is really no question as to the value of good ventilation in the hospital. This is one of the places where such ventilation is absolutely necessary, and in remodeling or rebuilding the thought should be kept in mind of just how to go about it to secure the right kind of ventilation every hour of the day and night.—C. A. Eddy: *Hospital Management* **9**:44 (Jan.) 1920.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, FEBRUARY 5, 1921

THE HISTORY OF ANAPHYLAXIS

Students of the history of science are often surprised, in examining the literature of earlier days, to find some germ of a truth that was not fully appreciated until later days, or some unmistakable observation of phenomena that failed to receive appropriate attention in the era in which they were discovered. Unexploited discoveries are always likely to be forgotten or overlooked. Presently the finding is made anew and endowed with all the interest and enthusiasm that attaches to novelties—until perchance the historian acquaints us with a chapter of the past which robs them of their newness. Hence one often hears the expression, "There is nothing new under the sun."

An illustration of such an experience is afforded in the case of anaphylaxis. Most physicians have become familiar with its manifestation in connection with the so-called "protein sensitization" of the body. Anaphylactic phenomena are being discussed with enthusiasm in these days in connection with serum disease—the peculiar manifestation that occasionally is observed after the use of therapeutic immune serums. Hay-fever has been included in the clinic of human anaphylaxis. Asthmatic seizures have been related to protein hypersensitiveness. A variety of reactions induced by bacterial proteins are also usually included in the same general category. To most students of the varied aspects of anaphylaxis, its history dates back to the observations of Richet, the French physiologist who coined the word that has now found such widespread application. Richet and Hericourt [1] observed in 1898 that dogs treated with eel serum could be killed by a second injection of an amount too small to injure normal untreated animals. Subsequently, Richet and Portier [2] discovered that from sea anemones a substance could be prepared which causes intense vascular congestion in the viscera of dogs. They also found that if a dose insufficient to cause death is given, so that the animal recovers, a second extremely small dose may provoke violent symptoms. This effect is obtained only if a number of days have elapsed between the first and second injections. In other words, under certain definite conditions, poisonous proteins may produce a condition of hypersensibility rather than immunity to subsequent doses. The supersensitive state, in contrast to prophylaxis, was designated as anaphylaxis. Later, observations by Theobald Smith, communicated by him to Ehrlich in 1904, and known as the "phenomenon of Theobald Smith," the well-known studies of von Pirquet and Schick,[3] and notably those of Rosenau and Anderson [4] of the United States Public Health Service, marked the beginning of almost countless researches into the anaphylactic aspects of immunity.

In his illuminating presidential address on the progress of bacteriology in recent times, delivered before the American Association for the Advancement of Science at Chicago a few days ago, Simon Flexner [5] furnished a reminder that the phenomena of anaphylaxis had been known and recorded long before the work of Richet. The earliest observation appears to have been recorded by the French physiologist Magendie. In lectures published in 1839, he noted that an animal that had borne without apparent effect one injection of a harmless protein, such as egg white, reacted severely to a second injection of the same kind of material given after an interval of days. No further contemporary attention seems to have been given to this isolated incident. A clear statement was also given by Flexner [6] himself in 1894. He tells us that he was engaged on a study of the pathologic action of the toxalbumins, and his attention was attracted by recent experiments on the similar globulicidal (or red blood corpuscle destructive) action of certain alien blood serums, such, for example, as the serum of the dog for the red globules of the rabbit. Since animals could be rendered immune to the toxalbumins, the attempt was made to make rabbits immune to dog's serum, but without success. On the contrary, it was found that animals that had withstood one dose of dog's serum succumbed to a second dose given after the lapse of some days or weeks, even when this dose was sublethal for a control animal.

The experiments that Flexner conducted afforded a perfect illustration of what is now known as active sensitization. This distinguished pathologist has himself drawn a lesson from the failure of the earlier workers to recognize the great significance of what they so clearly observed. Their experiences came at a period when knowledge of and interest in the general subject of immunity had not progressed far enough to make the observations duly appreciated. To quote a favorite expression of Pasteur, the "prepared mind" was still lacking. Most things under the sun may not be new; but whether new or old, a scientific observation must fall on fertile soil if it is to develop and bear fruit.

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1. Richet and Hericourt: Compt. rend. Soc. de biol., 1898.
2. Portier and Richet: De l'action anaphylactique de certains vénins, Comp. rend. Soc. de biol. **54**: 170, 1902.
3. Von Pirquet and Schick: Die Serumkrankheit, Vienna, 1906.
4. Rosenau, M. J., and Anderson, J. F.: Bull. Hyg. Lab., U. S. P. H. S. **29**, 1906; **30**, 1906; **36**, 1907.
5. Flexner, Simon: Twenty-Five Years of Bacteriology: A Fragment of Medical Research, Science **52**: 615 (Dec. 31) 1920.
6. Flexner, Simon: Medical News **65**: 116, 1894.

TELEGONY—THE PRENATAL INFLUENCE OF A PREVIOUS PROGENITOR

About 1530, Jacques de Fouilloux, a famous French dog fancier, wrote in his treatise on hunting, "After a bitch has been for the first time lined there will always be found, among her subsequent litters by other dogs, certain puppies which will have the characteristics of the first male." Others have since recorded the same observation, so far as the life of certain of the lower animals is concerned. Lord Morton commented on it in 1821 in the *Philosophical Transactions;* Darwin and Claude Bernard also spoke of it from the standpoint of physiology. Among the most prominent modern authors to consider it were Zola, who used it in his novels "Madeleine Ferat" and "Fécondité," and Wallace Irwin, who based on it a short story of recent vintage. While the existence of the phenomenon has been denied, particularly by Nathusius and Sattegast in Germany, it is generally admitted that there is a probability of the existence of this strange prenatal influence, at least in some of the mammals. Marked instances of it are on record as regards the dog.[1] Miles, in his book on stock breeding, and also Kiener in the *Journal of Agriculture* in 1890, cite rather conclusive instances. The phenomenon occurs in horses, particularly when a mare has been first covered by a jack,[2] and instances are cited among cattle, sheep and pigs. Boissard, in an interesting report read at the St. Louis Hospital, Paris, in 1910, reports a series of experiments with mice, both white and gray, which are in support of the hypothesis.

Various theories have been advanced to account for this phenomenon. Some authors have held that the sensations of the first coitus were particularly vivid in the female, and in those succeeding, this sensation and the image of the first male were so closely associated as to bring about the condition referred to as telegony. This view merits little consideration, since, if it were logical, we should find the condition more markedly existent in the human species, with its highly developed mental processes. Cornevin and Bouchard were responsible for the theory of the exchange of some nutritive substance between male and female. The former thought that this might be accomplished through the agency of the fetus in utero, assuming that there was in it some paternal quality which definitely and permanently affected the mother.

To epitomize what Bouchard says in support of this theory: It may be possible that impregnation concerns not only the spermatozoon in its entirety, but also all the ultimate cells that go to compose it. These, in the development of the fetus, after the impregnation of the ovum, retain the characteristics of the male, and through the uteroplacental circulation all tissues of the mother, including unfertilized ova, are subject to a modifying influence tending to the retention of the characteristics, in whole or in part, of the first male progenitor. Boissard compares this nutritive theory of telegony to the phenomenon of eclamptic intoxication which has been considered as transmitted to the mother from the fetus through the uteroplacental blood exchange. It is this theory that at present receives most serious consideration. Tcherepoff[3] calls attention to the data of the Abderhalden reaction in support of it. Claude Bernard's theory concerned delayed or prolonged vitality of the spermatozoa, and Darwin advanced the supposition that there is a more permanent reaction between the male and female than that comprised in the impregnation of the ovum by the spermatozoon, but neither has seemed to have a sufficiently sound basis for serious consideration. Cousin, on the other hand, asserts that all phenomena of this sort are attributable to spontaneous variation, atavism or superfetation.

In the human race it is impossible to make any such precise deductions as with the lower mammals. In the first place, there is less variation in racial characteristics, and in the second, experimentation is hardly possible. There is often cited the supposed case of the white woman who, first married to a negro, had as issue from a second union with a white man a negro child; but for this case there is no authentication. Moreover, such an occurrence might be explainable as a case of superfetation. Lingard cites the fact that a woman married to a hypospadiac husband had by a subsequent marriage hypospadiac children, and there are also instances of the apparent transference of deaf-mutism and polydactylism; but, all in all, they are not convincing. In "Mathematical Contributions to the Theory of Evolution," Karl Peterson[4] discusses the theories of telegony in the human race, and is inclined to believe that in the triangle involved it is the traits of the dominant ancestor which will prevail. He is guarded in his acceptance of the possibility of telegony, and believes that the question of reversion to former type in the families of the immediate progenitors may explain some of the phenomena attributed to it.

This condition was quite recently the subject of an interesting discussion in the French Academy, where it was taken up as to its possible bearing on the future of the unfortunate women who were violated by the Germans in the invaded parts of France. The general conclusion was that there was little reason to suppose that these women would show any Germanic trace in their future issue attributable to the forced intercourse. Of the discussion, which was protracted and which considered the question in detail, Tcherepoff says: "This discussion is interesting and furthermore very comforting in view of the distressing period through which we have passed. Perhaps, unfortunately, it is more consolatory than scientifically precise."

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[1] Darwin: The Variations of Animals and Plants.

[2] In "The Penycuik Experiments" by Dr. J. C. Ewart of Edinburgh there is related the result obtained by first breeding a mare to a zebra and afterward to a stallion. The results in this series of experiments were not altogether conclusive. This series is reviewed in Nature, July 20, 1899.

[3] Tcherepoff, Alexis: De l'imprégnation maternelle ou télégonie, Jouve and Co., 15 rue Racine, Paris, 1916.

[4] A review of his work is given in the Proceedings of the Royal Society of London, Nov. 26, 1896.

If it is true for the human species, as seems highly probable with the animals, that the first male sets an indelible seal on the female with whom he has intercourse, telegony is a further argument for the continence of woman before her marriage; it is, as it were, a biologic plea for chastity. The moral reasons for this are already a part of man's innate belief, and it is ingrained conviction with him that the woman whom he weds is, in every way, solely his. If it is demonstrated that indiscretion on her part prior to her marriage may have a material and visible effect on her descendants, it must necessarily fortify, from a material side, the spiritual teachings of the Mosaic law. It is to be regretted that Tcherepoff does not in his thesis adduce anything more conclusive than what he sets forth—conjecture and the marshaling of the views of others on the subject. The board of the academy which reviewed his paper is elusively vague in affirmation or negation as to the bearing which telegony may have on the human species.

THE OUTLOOK IN THE STUDY OF DIABETES

Exclusion of carbohydrates from the diet no longer stands as the preeminent dietotherapeutic procedure in the management of diabetes. This plan has its limitations. Following the lead of Allen, in particular, students of the subject have acknowledged the possibility of checking the ravages of the disease, before it reaches its severest stages, by fasting and restriction of the total diet. Joslin has emphasized the responsibility of physicians who often find diabetic patients in a state which is endurable but which can be improved. Only too frequently treatment in the past, he writes, has done the patient more harm than good; though the fault lies not in the principles of treatment, but rather in their application. The physician who undertakes to treat the patient with diabetes whose condition is comfortable resembles the surgeon who, operating for an interval appendicitis, assumes a responsibility far greater than when acute symptoms make such an operation imperative.[1]

With a responsibility so forcefully emphasized, it becomes almost a duty to speculate as to the basis on which the most recent of the recommended therapeutic measures rest. What is the rationale of "sparing a weakened pancreatic function" by reducing the food intake? How can the pancreas be either "overtaxed" or "rested"? Are there obvious anatomic as well as functional indications of what the harm of the disease or the benefit of the treatment consists in? Allen has observed that an explanation of the effect of fasting is not found in any gross or microscopic alteration in the pancreas; in particular, he states, there is no evidence of an increase in the islands of Langerhans by fasting. Consequently, the known effects of fasting must be sought elsewhere in the organism.

Fasting or undernourishment inevitably lowers the weight and presumably the metabolism of the body. At first thought it might be supposed that in this way a reduction in the stored food supply of the tissues would occur, thereby in turn increasing their capacity to receive food. In a study made at the Hospital of the Rockefeller Institute for Medical Research, Allen[2] reminds us that in the normal organism, at any rate, utmost glycogen storage does not lower sugar tolerance. He insists that "some state of preparedness of the organism is more determining than the mere fulness or emptiness of the depots." The most probable factor, in the light of the latest evidence, involves the quantitative relations of the hypothetic pancreatic hormone. It may be assumed that the cells require a certain minimum of this substance in order to function so as to prevent the diabetic state. When this minimum is present, Allen[2] argues, the organism retains its power to metabolize almost the whole of any glucose dosage that can be absorbed from the alimentary tract or the subcutaneous tissue, no matter how large or how long continued the dosage may be. When this minimum is reduced by only a trifle, the phenomena of diabetes begin.

In order not to exceed the effectiveness of the supply of pancreatic hormone, then, a small deficit as it occurs in mild diabetes may be guarded against by restriction of carbohydrate. With more severe diabetes, the total diet and the body weight as well must be reduced. With still more severe diabetes, Allen argues further, the supply of hormone is inadequate for even the lowest metabolism, and glycosuria is therefore uncontrollable even by fasting. On the basis of such considerations the obvious conclusion is that the efforts of the future should be directed, perhaps more than they have been in the past, toward enhancing the supply of the essential hormone. The experiments with partially depancreatized dogs—experiments which most nearly approximate the diabetic states observed in man—indicate that a relatively small mass of normal pancreatic tissue can prevent diabetes even if sugar tolerance is somewhat reduced. In the dog the "margin of safety" amounts to at least seven-eighths of the gland, all parts of which seem to have approximately equal potency. Dietary factors are important in reducing the metabolic work to be done; fasting is helpful up to a certain point in diminishing the volume of body cells to be served. But in the outlook for the investigations of the future we must join Allen in the belief that "any positive means of augmenting the endocrine pancreatic function even by a little would give therapeutic results far surpassing those of the negative plan of sparing the function by diet."

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[1] Joslin, E. P.: The Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1917, p. 300.

[2] Allen, F. M.: Experimental Studies in Diabetes, Series II, The Internal Pancreatic Function in Relation to Body Mass and Metabolism, Am. J. M. Sc. **160**: 781 (Dec.) 1920.

FEDERAL CARE OF MATERNITY AND INFANCY: THE SHEPPARD-TOWNER BILL

As announced in a recent issue,[1] the Sheppard-Towner bill, providing for the "public protection of maternity and infancy," passed the Senate, December 16. In the House, it was referred to the Committee on Interstate and Foreign Commerce, which on January 25 reported it out with several amendments. The bill, as it now stands, appropriates $1,480,000 annually for "promoting the care of maternity and infancy in he several states; to provide instruction in the hygiene of maternity and infancy," and for "making such studies, investigations and reports as will further the efficient administration of the act." It authorizes the Children's Bureau to form an advisory committee consisting of the Secretary of Agriculture, the Surgeon-General of the Public Health Service and the Commissioner of Education. The bureau is authorized o expend 5 per cent. of the appropriation for administration purposes, to pay $10,000 annually to each state for administration expenses, and to apportion the emainder to the states in proportion to their population, provided each state appropriates an amount equal o the amount it receives. In any state having a child welfare or child hygiene division in its state health gency, the state health authorities shall administer the ct. The state health authorities shall submit to the Children's Bureau a detailed plan for administration nd "for instruction in the hygiene of maternity and nfancy through public health centers, consultation centers, and other suitable methods."

All will agree that the objects sought, namely, the are of maternity and infancy, and instruction in the ygiene of maternity and infancy, are in the highest egree commendable. There cannot be too much nowledge or too much instruction of the right sort on uch vital subjects. There are, however, serious objections to the methods proposed.

The bill provides funds through the apparently popuar method of federal state aid, i. e., the appropriation f a large sum of money from the federal treasury o be prorated to the various states, provided the state ppropriates an equal amount. Bills are now before ongress providing similar methods for the development of physical training, for improvements in education, for the treatment of venereal diseases and for ther projects, all good in themselves, but activities hich belong to the state and local authorities. It is ot strange that this method has become popular with hose who have pet measures to advance. It has the dvantage of simplicity. It is only necessary to induce ongress to appropriate a certain sum to be divided mong the various states. This prospective grant is hen used as an inducement to the states to appropriate qually large sums. The advocates of this plan apparently regard the federal treasury as an inexhaustible reservoir, entirely overlooking the fact that such increasing appropriations will necessitate heavier federal taxes to be matched with heavier state taxes, all of which must be paid eventually by the common citizen. That the so-called federal aid plan is economically unsound has already been pointed out by some of our leading financial authorities.

Another objection is centralized administration. How would the proposed plan work out? Some state, say Minnesota, would receive $10,000 for administration expenses, with its additional pro rata, probably $30,000 in all, provided the legislature appropriated $30,000. This would give the state department of health $60,000 for maternal and child welfare. Splendid! But it could not expend this sum, one half of which is its own money, until its plans had been approved by the Children's Bureau in Washington.

The care of mother and child is a state and local, not a federal function. All will agree that every mother and child should receive proper care. So should every mother and child receive suitable nourishment. But it is not the function of the federal government to provide either food or care. There are certain public health functions which are clearly national in character; others which should be performed by the state, and still others which belong to the local government. As pointed out by Dr. Billings in this issue,[2] the rational method of providing proper care for the individual is through voluntary self-taxation of voters in a political unit to pay for the necessary local facilities for the prevention of disease and the promotion of health. While this may seem slow as compared with the more popular plan of securing an appropriation from Congress, it is the method by which our public health machinery in this country has been developed, and is the method which will yield the most satisfactory results in the long run.

Current Comment

THE CLEVELAND HOSPITAL AND HEALTH SURVEY

Lucky Cleveland! It has had a diagnosis! Consider the city as sick—not bedridden, necessarily—but suffering with the various aches and pains with which, from the health point of view, most cities are afflicted. Here it suffers from bad housing; there its sewage disposal is obstructed; again, its water supply is deficient, or it lacks open air and breathing space; it has perhaps no reserve hospital supply. As with an individual invalid it has had the attention of various specialists from time to time but never a complete and thorough diagnosis revealing all its defects, their mutual relationships and causes. In November, 1919, a survey staff, headed by Drs. Haven Emerson and

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[1] Senate Passes Sheppard-Towner Bill, General News, J. A. M. A. 6: 321 (Jan. 29) 1921.

[2] Billings, Frank: The Future of Private Medical Practice, this issue, p. 349.

Gertrude Sturges, was organized under the auspices of the Cleveland Hospital Council. Specialists were called in to examine into various parts of the patient. The case history and findings published recently consist of eleven sections occupying 1,100 pages,[1] and include: general environment and sanitation; public health services and private health agencies; child health; tuberculosis; venereal disease; mental diseases and mental deficiency; industrial medical service, women and industry, children and industry; education and practice in medicine, dentistry and pharmacy; nursing and hospitals, and dispensaries; and one pamphlet is devoted to the method and bibliography of surveys, which describes how the work was done. The diagnosis shows that Cleveland is ailing in many ways but that there is a remedy for each of its ailments. An analysis of the diagnosis reveals information of value applicable not only to the ailments of Cleveland but also to similar ailments of other large cities. There are many phases of the report of great interest and worthy of extended comment. We wish here only to congratulate the patient on the excellent attention it has received. The whole examination, including the publication of the report, has been a highly economical proceeding. Not only has it been carried out economically; it must result in a great saving of life and in increased health and happiness for the people of the city. Lucky Cleveland!

FUTILITY OF ATTEMPTS TO CONVINCE AN ANTIVIVISECTIONIST

The classical allusion to a maximum disturbance is "a bull in a china shop." However, if we are to believe the report which recently appeared in the Washington, D. C., *Evening Star,* an even greater disturbance may occur when a lover of animals speaks to a meeting of antivivisectionists. Perturbed language marked the meeting of the National Society for Humane Regulation of Vivisection when its members were addressed by Ernest Thompson Seton. Mr. Seton, it is reported, had the audacity to say to these antivivisectionists that the rights of human beings when they clashed with the rights of animals should be paramount. Then he added insult to injury by remarking that he noticed furs being worn by many of those of his audience, and that animals had suffered from two to three days' agonies in traps in all probability to provide these furs. At the conclusion of the address, one of the woman antivivisectionists asked the speaker if he believed that animals should be put through the agonies of so-called scientific vivisection in order to allow experimentation of theories. Mr. Seton replied that if his child was threatened with blindness and could be saved only by the killing of an animal, he was in favor of the vivisection of one animal or 100 animals to make it possible. The woman declared that she would go blind or lame or ill rather than cause 100 animals the agonies or suffering of vivisection. Then Mr. Seton countered with the direct question, "Has the speaker a child?" and the lady admitted that she had not. With the usual cool and calm logic of an antivivisectionist, she remarked that she had a widowed sister who had a child, and that this child, at the age of 5 years, on hearing of vivisection had stated that it was "the devil's own work." Mr. Seton inferred that it was his belief that the words had been put into the child's mouth. It was obviously a precocious little prig. Mr. Seton wasted his time trying to convince an antivivisectionist. It can't be done. Logic has no appeal where unadulterated sentiment predominates.

"RENDER UNTO CAESAR"

The report of the Hospital and Health Survey of Cleveland, Ohio, referred to elsewhere on this page, comes in eleven sections or parts. The eighth of these sections, dealing with "Education and Practice in Medicine, Dentistry and Pharmacy," has one of its four chapters on "Quacks and Patent Medicines." It details the industry of quackery in Cleveland and lays special stress on the tremendous amount of medical swindling done among the foreign-born of Cleveland through the medium of the foreign-language press. The report is an excellent one, even though it deals in generalities and makes no attempt to expose specific frauds. To one statement, however, The Journal must take exception. In speaking of the various agencies in the United States that are combating quackery and the nostrum evil, this report refers to the activities of the American Medical Association thus:

> "The American Medical Association has prepared and published a series of pamphlets on nostrums and quackery for the use of the public. These have a limited circulation among those who least need their warning."

The facts are that The Journal, through its Propaganda department, has been the only agent working year in and year out for a period of nearly fifteen years, systematically and persistently exposing fraud in medicine and putting the results of its work in easily available form. Over a million pamphlets and books dealing with this subject have been put into the hands of the public, and the American Medical Association has spent hundreds of thousands of dollars in maintaining the organization necessary to carry out and continue this educational work. In addition, the Propaganda department of The Journal has answered thousands of letters of inquiry sent in to it by laymen who were seeking information on some specific fraud or frauds. It is common practice for municipal and state boards of health when they receive letters of inquiry from laymen relative to certain "patent medicines" to forward the inquiry to The Journal with the request that it furnish the information. Advertising men interested in clean and truthful advertising are in daily correspondence with The Journal seeking data on medical preparations or devices, the advertisements of which have been offered to some of their members. In many of the schools and colleges over the country the pamphlets and books on the nostrum evil and quackery, prepared and issued by the Propaganda department of The Journal, are in use in classes on home economics and hygiene. The educational posters issued from the same source, as well as the series of lantern slides, which are for rent or sale at a nominal figure to any responsible erson competent to use them, are also available for iving visual education in specific facts regarding medcal fraud on the public. And this is not all by any neans. It would seem, therefore, that the part played y the American Medical Association in educating the ublic on the nostrum evil and quackery might properly ave been acknowleged in the Cleveland report if only s a matter of record and to give a correct perspective f the problem.

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[1] Cleveland Hospital and Health Survey, published by the Cleveland Hospital Council, 308 Anisfield Building, Cleveland.

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BORAX POISONING

There are probably few homes in this country in hich commercial borax—sodium borate—is not used th for household purposes and as a medicine. It rather startling, therefore, to hear of a death used by this ordinarily innocuous substance. In the se reported by Dr. Potter[1] in this issue, death curred three hours after the patient had taken an nce of borax. Schwyzer, in 1895, recorded a fatality llowing the ingestion of one-half ounce. In several her instances, quantities of one-half ounce or more e said to have been taken as an abortifacient, follwed, however, by recovery. The symptoms observed Dr. Potter's case confirm those found in the few ses on record: gastro-intestinal irritation, manifested salivation, nausea, vomiting, colic and diarrhea; colpse, and death. Urinary phenomena are usually ominent (albuminuria, hematuria, casts, vesical asm). These are not described in the present case, rhaps because the course was too rapid. Delirium, sual changes, and skin eruptions are also of rather common occurrence. The absence of gross necropsy lesions agrees with the usual findings. It indicates that the toxicity depends on systemic action. The symptoms in this case suggest asphyxia by swelling of the bronchial or laryngeal mucosa, an action analogous to the borax urticaria of the skin that has been observed in other cases. This would account for the unusually rapid course. The absence of such edema in other cases may explain the recovery of the patients from equally large doses. Dr. Potter raises an interesting question, i. e., the better instruction of the laity in the possible dangers of substances—used freely in the household—which are on the borderline of poisons. Such substances as borax, boric acid, Epsom salt, lime, washing soda, or even soap, are quite harmless in their respective fields, but become sources of serious danger when they are misapplied. It is doubtful whether such substances should bear a "poison" label. It may be more practical to require a "caution" label, bearing a general statement that the substance, when swallowed in excessive amount, is liable to produce serious effects; or, in the case of caustics, that they injure the eyes.

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[1] Potter, Caryl: A Case of Borax Poisoning, this issue, p. 378.

THE CONCENTRATION OF BILE IN THE GALLBLADDER

Chemical analyses have repeatedly demonstrated that the bile found in the gallbladder has a greater concentration than so-called liver bile, representing the secretion poured out directly from the liver into the biliary passages. There are two ways in which the concentration might be assumed to occur: first, by the abstraction of water from the bile entering the bladder, or second, by the secretion of substances through the wall of the bladder into the material imprisoned therein. The problem is one of some moment in relation to the theory of gallstone formation in the bladder. The evidence for the once heralded theory that cholesterol, the chief constituent of most biliary calculi, is added to the bile in the gallbladder is by no means conclusive. Rous and his collaborators at the Rockefeller Institute for Medical Research have favored the view that continued secretion during intermittent or partial stasis may be the dominant factor leading to the formation of gallstones. In a recent research[1] they have demonstrated experimentally that sterile bile within the gallbladder under noninflammatory conditions which prevent its discharge becomes inspissated with surprising rapidity, a result that does not follow when the bladder is replaced by a physiologically inert rubber bag. The possible result of a simultaneously continuous secretion and concentration of the bile can easily be conjectured.

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[1] Rous, Peyton, and McMaster, P. D.: The Concentrating Activity of the Gallbladder, Proc. Soc. Exper. Biol. & Med. **17**: 215 (May 22) 1920.

The Mosquito Nuisance.—Every locality, in fact, every home, can regulate the mosquito nuisance. Mosquitoes breed only in stagnant water, preferably quiet pools or puddles. They will breed in any kind of stagnant water, whether it be swamps, rain barrels, cisterns, or even empty tin cans. Many sagging eaves-troughs, which do not permit the water to drain after a rain, are filled with mosquito larvae. This frequently accounts for mosquitoes in sections where apparently there are no visible breeding places.—*Buffalo San. Bull.*, June 30, 1920.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

Personal.—Dr. Zack Causey has been appointed superintendent of the Cochise County Hospital.

Free Clinic at Maricopa.—The Maricopa County Health Center, organized by a citizens' committee headed by Dr. George E. Goodrich, state superintendent of public health, in association with the Arizona Anti-Tuberculosis Association, has established the first free clinic in the state.

ARKANSAS

Physician Convicted.—It is reported that Dr. Henry F. Webb, North Little Rock, was recently found guilty in the United States District Court of violating the Harrison Anti-Narcotic Law.

Medical Legislation Recommended.—The governor has recommended to the legislature that provision be made for a state isolation hospital for venereal diseases, and that appropriation be made for the establishment of a bureau of public health nursing and child hygiene, for malarial control work, and for building an annex to the State Tuberculosis Hospital at Booneville.

CALIFORNIA

Personal.—Dr. Eugene S. Kilgore, San Francisco, was painfully injured, January 16, by the explosion of a German shell, a souvenir of the World War. It is feared that Dr. Kilgore's vision may be affected.

Tuberculosis Association Established.—The San Mateo Welfare and Public Health Service has been renamed the San Mateo County Tuberculosis Association and has formulated plans for the building of an addition to the San Mateo Preventorium.

New County Health Officers.—Dr. Joseph C. Christian, Galt, has been appointed health officer of Sacramento County to succeed Dr. James Loughridge, Folsom.——Dr. William F. Edmonds, Lemoore, has been appointed health officer of Kings County to succeed Dr. Charles L. Scott, Hanford.

Hospital News.—The new maternity home of the East Columbia Hospital, formerly the Garden City Sanitarium, San Jose, has been opened for the reception of patients. Dr. Charles W. DeLaney, formerly of Altoona, Pa., has been appointed surgeon in charge, and Dr. Newell H. Bullock has been made head of the obstetric and gynecologic department.——A bill presented in the state legislature by Senator Jones, with the approval of the state board of control, proposes to extend $600,000 of state funds to counties and cities for the establishment and maintenance of tuberculosis hospitals, under charge of local authorities.——A site has been purchased on Pico Boulevard, Santa Monica, for the erection of a new hospital to be known as St. Luke's, with a capacity of 150 beds.

COLORADO

New Society.—The Colorado Neurologic Society, organized, December 20, with thirteen charter members has elected the following officers: president, Dr. Howell T. Pershing, Denver; vice president, Dr. Philip Work, Pueblo, and secretary-treasurer, Dr. George A. Moleen, Denver. Meetings will be held bimonthly.

Endowment for Medical School.—The General Education Board has offered to the University of Colorado $700,000 for the construction of a new medical school building and $50,000 a year for maintenance for a period of three years after the plant is in operation if the state will provide an additional $800,000. The university is now conducting a campaign to raise the additional funds.

DISTRICT OF COLUMBIA

Extension of Hospital Facilities.—After the erection of a nurses' home the District Tuberculosis Hospital, near Fourteenth and Taylor Streets, will be open to the general public. Limited facilities have thus far necessitated restriction of the institution's facilities to indigent tuberculous.

Volunteer Nursing Aids.—Dr. William C. Fowler, district health officer, has begun the formation of a volunteer corps of women to serve as aids in time of epidemics and disasters. The corps will not consist of professional nurses, but of women who can spare the time and are willing to take a brief preparatory course under direction of the Red Cross.

ILLINOIS

Tuberculosis Sanatorium Completed.—The new tuberculosis sanatorium for men at the Lincoln State School and Colony has been completed. The old sanatorium will be occupied by

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and qualifications for registere nurses has been introduced in the state legislature, and i under consideration by the house committee on medicine an public health. The bill authorizes hospitals with twenty bed to establish training schools for nurses, stipulates that studen nurses be graduates of common schools instead of hig schools, as at present, and proposes the appointment of a stat board of examination and registration to be composed of thre physicians and two nurses selected from lists submitted b medical and nursing societies. The bill provides for a cours of two years instead of the present three year course o instruction.

IOWA

Meningitis at Tama.—The discovery of several cases o cerebrospinal meningitis at Tama has led to the promulgatio of rigid quarantine regulations and the interdiction of al public gatherings.

Hospital News.—The industrial building of the Iowa Stat Institution for Feebleminded, Glenwood, was destroyed b fire, January 20, with a loss estimated at $50,000.——The addi tion to the Lutheran Hospital, Sioux City, erected at a cos of $100,000 with a capacity of forty beds has been opened fo the reception of patients.

New State Health Law.—An addition to a bill of the legis lative commission of code revision drafted by Dr. John W Kime, Fort Dodge, proposes to abolish the state board health and to substitute a state department of health with health commissioner and a state council. The original bi recommended a lay commission composed of one physicia one sanitary engineer and one business man.

KENTUCKY

Hospital Addition.—An addition to the New Albany Hospital, comprising twelve rooms, has recently been completed.

Health Education Bureau.—In an effort to arouse more interest in public health matters the department of health education of the state board of health has established a bureau of publicity which will disseminate information on the activities of the board throughout the state.

Public Health Meeting.—An open meeting to which the public was invited was held, January 7, under the auspices of the Scott County Medical Society, for the purpose of hearing the annual report of the county health department and formulating health plans for the new year.

LOUISIANA

County Society Reorganized.—The Assumption Parish Medical Society was reorganized, January 17, at a meeting of physicians called by Dr. Frank T. Gouaux, Lockport, councilor for the Third District of the Louisiana State Medical Society.

Personal.—Dr. George S. Bel has been appointed a member of the board of administrators of the Charity Hospital, New Orleans.——Dr. F. P. Miranda, member of the Mexican National Board of Health and sanitary delegate to New Orleans, gave a demonstration of cultures of *Leptospira icteroides*, the causative agent of yellow fever, before the New Orleans Parish Medical Society, January 24.

MAINE

Scarcity of Physicians in Rural Districts.—Physicians of Houlton have notified their patients that from January 1 to May 1 they will be unable to attend obstetric patients residing more than 1 mile from Houghton owing to the scarcity of physicians and nurses and the bad condition of the roads which entails many hours of traveling in rural districts to the neglect of other patients in Houlton. They have advised that expectant mothers make arrangements to be attended at the Houlton hospitals.

MARYLAND

Unofficial Health Work.—The regular lecture at the School of Hygiene and Public Health of the Johns Hopkins University, January 31, was delivered by Dr. Livingston Farrand, chairman of the general committee of the American Red Cross, on "Volunteer and Unofficial Agencies in the Public Health Field."

Social Disease Campaign.—At a recent meeting held in Baltimore under the auspices of the Maryland Social Hygiene Society, Major-Gen. Merritte W. Ireland, Mr. Raymond B. Fosdick, former chairman of the Commission on Training Camp Activities, Dr. William F. Snow, director of the American Association for Social Hygiene, and Dr. George Walker, Baltimore, spoke on the various phases of the fight against venereal diseases.

MICHIGAN

Medicine and the Community.—At a meeting of the Highland Park Women's Club, January 20, Dr. Hugh Cabot, Ann Arbor, delivered a lecture on the development of modern medicine in relation to the community.

Combined Meeting of Societies.—Kent County Medical Society recently held a joint meeting with the medical staffs of Blodgett Memorial, Butterworth and St. Mary's hospitals, Grand Rapids, to demonstrate the advisability of discontinuing duplication of scientific work by medical meetings.

Botulism Deaths in Hospital.—One nurse and three attachés of the Blodgett Memorial Hospital, Grand Rapids, died, January 25, under circumstances which indicated that the fatal illness was caused by botulism following ingestion of canned spinach. Fifteen other attaches of the hospital became ill at the same time, several of them seriously.

MINNESOTA

Personal.—Dr. Walter E. List has tendered his resignation as superintendent of the Minneapolis General Hospital.

Medical Officers Organize.—At a meeting held at Fort Snelling, January 11, the Northwestern Medical Officers' Association of the World War was organized and the following officers were elected: president, Dr. Thomas J. Maloney, St. Paul; vice president, Dr. Arthur S. Hamilton, Minneapolis, and secretary, Dr. Francis J. Savage, St. Paul.

Success of Clinic Week.—Approximately 500 physicians participated in the activities of the St. Paul Clinic Week, held at St. Paul, January 10-14, under the auspices of the Ramsey County Medical Association. Drs. William J. Mayo, Rochester, and Bertram W. Sippy and Joseph Beck, Chicago, were among the out of town clinicians who spoke before the meetings.

MISSISSIPPI

New Hospital.—Oxford Hospital, which has been in course of construction for many months, has been opened for the reception of patients.

State Child Welfare Bureau.—The Mississippi State Board of Health has established a bureau of child welfare to which will be delegated all duties in connection with the medical inspection of schoolchildren. Dr. Felix J. Underwood, Aberdeen, field director of rural sanitation of Monroe County, has been named chief of the new bureau.

MONTANA

New Health Officer.—Dr. Arthur E. Myrich, Stanford, has been appointed health officer of Judith, Basin County.

Child Health Survey.—The state board of health is conducting a child welfare survey in Missoula. The questionnaire includes inquiries relating to the sanitation of homes and the health of children as related to their hours of work, sleep and play. The purpose of the survey is to obtain reliable statistics on which to base legislation designed to reduce infant mortality.

NEVADA

Laboratory Director Resigns.—Dr. Gustav B. Ruediger, Reno, has resigned his position as director of the state hygienic laboratory, affiliated with the University of Nevada.

NEW JERSEY

Personal.—Dr. Harry Garret Miller was appointed health officer of Millville at the recent organization meeting of the board of health.

Joint Legislative Committee.—At a meeting of the Mercer County Medical Society, held at Trenton, January 12, a resolution was adopted favoring cooperation with the dentists, druggists and nurses in the appointment of a single joint committee to study all proposed state legislation relating to public health and to the professions.

Industrial Physicians' Association.—A New Jersey chapter of the American Association of Industrial Physicians and Surgeons was organized, January 12, at a conference in the headquarters of the state department of labor at Newark. The following officers were elected: president, Dr. G. Dickerson, Jersey City; vice president, Dr. Charles B. Lufburrow, Plainfield, and secretary-treasurer, Dr. Frank Pinneo, Newark.

NEW MEXICO

Health Officials Appointed.—Dr. J. F. Docherty, formerly of Raleigh, N. C., has been appointed health officer of Bernalillo County and Albuquerque to succeed Dr. Frederick H. Busby; Dr. Jacob S. Easterday, has been appointed county physician, and Dr. Edmund M. Clayton, city physician.

NEW YORK

Tuberculosis and Public Health Conference.—A conference of the state committee on tuberculosis and public health of the State Charities Aid Association was held at the Hotel Biltmore, January 22. Sir Arthur Newsholme delivered an address on the "Retrospect and Outlook on the Tuberculosis Problem."

Mental Hygiene Legislation.—A constitutional amendment to eliminate the state lunacy commission and to establish in its place a commission on mental hygiene to inspect all institutions for the care of the insane, epileptics, idiots, feebleminded or mental defectives which was passed by the legislature last year, has been introduced in the state senate.

Hearing on Jersey Fumes.—A hearing on the subject of the pollution of the atmosphere by acid fumes from New Jersey plants opposite Riverside Drive, Manhattan, was held at the New York Academy of Medicine, January 29, under the presidency of Dr. Hermann H. Biggs, state health commissioner. Dr. Theodore Horton, engineer of the state health department, testified that investigation disclosed that the pollution of the atmosphere had decreased considerably since apparatus for the control of the objectionable fumes had been installed.

New York City

More Reportable Diseases.—The New York City Board of Health, at its meeting, January 28, passed resolutions placing sleeping sickness (lethargic encephalitis) and botulism on the list of reportable diseases.

Benefit for French Hospital.—A benefit for the French Hospital was given in the Metropolitan Opera House on the evening of January 22. The proceeds of the performance, Leoncavallo's version of "Zaza," netted the hospital $10,000.

Personal.—Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, has been elected an honorary member of the Société belge de médecine.——Dr. Pearce Bailey has been awarded a Distinguished Service Medal in recognition of his services as chief of the division of neuropsychiatry of the Surgeon-General's office.

Heart Diseases in Schoolchildren.—A cardiac committee of the board of education is conducting a campaign to raise a fund of $100,000 for the prevention and treatment of heart disease among the schoolchildren of the city. In a recent physical examination of 516 pupils in one district school of Brooklyn, 9 per cent. were found afflicted with cardiac diseases.

Children's Hospital Acquires New Site.—The Children's Hospital, 203 Second Avenue, has purchased a site at 232 East Fifteenth Street for the construction of a new institution, plans for the construction of which call for a building of twenty stories with accommodations for 500 patients. When the new building is completed the present hospital will be used as a dispensary.

Investigation of Drug Hospitals.—Chief Magistrate William McAdoo has requested a grand jury investigation of the conditions of municipal institutional buildings on Randall's Island and Riker's Island, where drug addicts are committed. It is declared that the buildings are insanitary, that conditions at the women's hospital are a disgrace to the city and that it is impossible to treat drug addicts properly at these institutions. Owing to the fact that facilities at Bellevue, Riverside and the Metropolitan hospitals are inadequate to give drug addicts prolonged treatment patients are being sent to Riker's Island, which is already overcrowded.

NORTH CAROLINA

Eugenic Marriage Law.—Representative Bellamy has introduced in the legislature a bill which stipulates that all applicants for marriage licenses shall furnish with their application a certificate from a reputable licensed physician resident in the county in which the marriage license is sought, or by the county health officer, testifying that the applicant has submitted to an examination and has been found in sound and healthy condition, physically and mentally.

Hospital Notes.—Reconstruction of the Clarence Barker Memorial Hospital at Biltmore will be begun immediately on a site on Brandon Hill. The new institution will cost approximately $250,000 most of which will be raised through the sale of the old property and the insurance money collected on account of the damage recently sustained.——A plan for a proposed addition to the City Memorial Hospital at Winston-Salem was presented to the board of aldermen by a committee representing the physicians of the city under the leadership of Drs. Frederick M. Hanes and Everett A. Lockett. The proposed addition will furnish accommodations for forty-two patients and will tend to relieve the acute shortage of hospital facilities. A fund of $47,250 from the Sterling Smith estate is available for the erection of an addition to be known as the Sterling Smith Memorial Building.——The Anson Sanatorium at Wadesboro has been enlarged by the construction of two annexes.

OHIO

County Health Officials.—Dr. Albert S. Stemler has been appointed health officer of Fayette County.——Dr. Frank E. Ayers has been reelected health commissioner of Mercer County.

Physicians Volunteer Services.—At a meeting of the Ross County Medical Society, January 13, the society agreed to make a physical examination of all employees of restaurants and hotel dining rooms as stipulated in new regulations promulgated by the health department of Chillicothe. Members of the society will be assigned in groups to conduct the examinations until all employees have been examined. A nominal fee will be charged for the service and the proceeds will be turned over to the health department.

OREGON

Branch of Health League.—At a meeting of the Pope-Yamhill-Marion Medical Society held, January 18, the Salem Branch of the Oregon League for the Conservation of Public Health was formally organized.

PENNSYLVANIA

Sentenced for Illegal Operation.—It is reported that Dr. David W. Crosthwaite, Altoona, who was confined to the Blair County jail for several months on a charge of performing a criminal operation, was given a suspended sentence, January 4.

Quarantine Patrol.—In order to demonstrate the efficacy of rigid quarantine, the health officials of Coatesville have detailed special officers to patrol the city and to enforce the quarantine laws by arresting any person found leaving a home where contagious disease exists.

Tuberculosis Dispensary.—A free tuberculosis dispensary has been opened at Providence Hospital, Beaver, for the treatment of indigent patients of Beaver Falls and northern districts through arrangements between the hospital management and the state board of health.

Health Lectures.—As part of the health day program during "Citizens' Week" in Johnstown, Dr. William Charles White, Pittsburgh, president of the National Tuberculosis League, delivered an address on "The Tuberculosis Menace in Pennsylvania," Dr. Edward A. Weiss, Pittsburgh, spoke on "The Truth About Cancer," and Dr. Joseph J. Meyer discussed the subject of "Social Diseases in Pennsylvania."

Philadelphia

Officers Elected.—The Medical Club of Philadelphia has elected the following officers: president, Dr. Barton Cooke Hirst; vice presidents, Drs. Hobart A. Hare and Alexander MacAlister; secretary, Dr. William S. Wray, and treasurer, Dr. Lewis H. Adler, Jr.

Mary Scott Newbold Lecture.—Major-Gen. Merritte W. Ireland delivered the fourth of the Mary Scott Newbold lectures at the College of Physicians, February 4, on "The Achievement of the Army Medical Department in the World War in the Light of General Medical Progress."

Hospital Staffs.—At the regular meeting of the staff of St. Joseph's Hospital, January 25, the following officers were elected: president, Dr. Charles F. Nassau; vice president, Dr. Melvin M. Franklin; secretary, Dr. Pierre N. Bergeron, and treasurer, Dr. John F. X. Jones.——Dr. Melvin M. Franklin has been appointed visiting orthopedic surgeon to St. Mary's Hospital.

TENNESSEE

New Tuberculosis Sanatorium.—A new tuberculosis sanatorium is being constructed at the Eastern Hospital for Insane, Lyon's View. The building will cost $35,000 and will have accommodations for seventy-five patients.

Society Adopts Physicians' Motor Insignia.—At a recent meeting of the Memphis and Shelby County Medical Society the members were notified that an agreement had been reached with the police department by which physicians are permitted to park their cars in restricted zones for a period of three hours, provided the cars carry some distinguishing device and the physicians pledge themselves not to violate other automobile ordinances. The society voted to adopt the insignia of the American Medical Association to mark the cars of its members.

TEXAS

Physicians to Build Office Building.—Dallas County Medical Society has appointed a committee of six physicians to conduct a campaign for securing funds for the erection of a physicians' office building. Dr. Charles M. Rosser is chairman of the committee.

Removal of Medical School Undecided.—The discussion of the question of moving the medical department of the University of Texas from Galveston to Austin or some other more central city of Texas has been postponed until the final location of the University of Texas has been decided by the legislature. The decision is related to the question whether the university is to be retained on its present small campus or whether it is to be moved to a larger tract of land in the outskirts of Austin. To provide for further expansion at its present site would require the expenditure of large sums of money for valuable land, whereas on the new site—which has already been provided—the appropriations can all be devoted to the construction of new buildings.

WASHINGTON

City Must Abandon School Clinics.—According to a recent decision of the state supreme court, Seattle must abandon its school clinic and must discharge from its employ all physicians, nurses and dentists now giving free medical examinations and treatment to schoolchildren.

Health League Completes Organization.—The Washington League for the Conservation of Public Health has opened headquarters at 716 White Building, Seattle, and has elected the following officers: president, Dr. Herman P. Marshall, Spokane; vice presidents, Drs. Donald A. Nicholson, Seattle, Hiram E. Cleveland, Burlington, John R. Brown, Tacoma, and George C. Bryan, Walla Walla; secretary, Dr. Paul B. Cooper, Yakima; treasurer, Dr. Philip V. VonPhul, Seattle, and executive secretary, Mr. J. W. Gilbert.

CANADA

Hospital News.—The Department of Indian Affairs, Ottawa, has contributed $5,000 for the erection of a new wing to the Lady Minto Hospital at Cochrane, to care for the increasing number of Indian patients. The construction of a new nurses' home containing 104 rooms and costing $300,000 is contemplated for the Hamilton General Hospital.

Personal.—Dr. Henry Fowler, secretary to the Mission for Lepers to Eastern Asia, and Dr. Thomas Cochrane, founder of the Pekin Medical College, delivered addresses on medical conditions in the Orient at the annual meeting of the Toronto Leper Mission, January 28. Dr. Fowler is on his way from England to the Far East for the purpose of inducing the governments of Siam, China, Japan and Korea to pass a law for the segregation of lepers.——Dr. T. G. Routley, Toronto, secretary of the Ontario Medical Association, will deliver a series of addresses throughout that province on the question of raising the embargo on importation of arsenical products of the arsphenamin type.

GENERAL

Surgeons Visit South America.—Drs. Franklin H. Martin and Thomas J. Watkins, Chicago, representing the American College of Surgeons, sailed from New York for South America last week, continuing the effort to induce Latin American organizations to affiliate with the college.

Cost of Medical Education.—According to the records of the Columbia University, New York, recently published by university authorities, the total cost of educating a physician at the College of Physicians and Surgeons is $4,600, of which the student contributes in tuition and other fees $1,280.

Health Association Meeting.—The annual meeting of the American Public Health Association will be held at New York, November 14-18. A special program, designed to present a review of the progress of the various branches of public health within the last fifty years, will be prepared for the celebration of the semicentennial of the association, which was organized in New York, April 18, 1872, under the presidency of Dr. Stephen Smith.

Chinese Physician Visits Association Headquarters.—Dr. Y. Tsching is making a tour of the principal medical centers of the United States for the purpose of studying the medical organizations, schools and institutions of the country, as a representative of the department of education of the Chinese government. In the course of his visit to Chicago, he spent several days at the Association headquarters to familiarize himself with the details of its organization and activities.

Western Tuberculosis Sanatoriums Crowded. — Reports indicate that facilities of hospitals and contract hospitals of the U. S. Public Health Service in the semiarid Southwest are severely taxed with tuberculous veterans, while the influx from the East continues at such a rate that it has been found necessary to transfer patients from Tucson, Ariz., and other Western hospitals to sanatoriums at Asheville, N. C., and other south Atlantic points. In Tucson every hospital bed is occupied and the hotels and boarding houses are overcrowded. Similar conditions prevail at California sanatoriums. It is estimated that in Tucson alone over 500 tuberculosis patients are unable to find sanatorium accommodations.

Rockefeller Foundation Hookworm Expedition.—The International Health Board of the Rockefeller Foundation, New York, has organized a scientific expedition to study hookworm larvae in Trinidad, West Indies. The expedition will leave for Trinidad about May 1 and will continue its investigations for four months, in connection with the intensive campaign now being waged in an effort to eradicate the disease. Dr. William Walter Cort, associate professor of helminthology in the School of Hygiene and Public Health of Johns Hopkins University, has been appointed director of the expedition and he will be assisted by Dr. J. E. Ackert, professor of parasitology of the Kansas State Agricultural College, and Dr. D. L. Augustine, assistant in medical zoology at Johns Hopkins University. Dr. C. E. Payne, a member of the International Health Board, is in charge of the campaign in Trinidad.

Honors to Dr. William Williams Keen. — On January 20, physicians, scientists and many notable citizens united in honoring the eighty-fourth birthday of Dr. William Williams Keen. Nearly 600 men attended the dinner at Bellevue-Stratford Hotel, Philadelphia. A life size bust of Dr. Keen was presented to him in behalf of the medical, scientific and civil organizations to which he has given so much effort. There were also presented to him three volumes containing letters and poems written in his honor especially for this occasion by many notable persons. The speech of presentation was made by Surgeon-General Ireland who characterized Dr. Keen as a "superman all through his career." Other speakers were the Rev. W. H. P. Faunce, president of Brown University, Dr. Keen's alma mater, Dr. W. H. Welch of Johns Hopkins University, Dr. J. C. DaCosta, Dr. Keen's successor as professor of surgery in Jefferson Medical College, and Dr. David J. Hill, former United States ambassador to Germany. Dr. George de Schweinitz, toastmaster, was introduced by Dr. William D. Robinson, chairman of the committee which arranged the celebration.

Bust of Dr. W. W. Keen, presented to him at eighty-fourth birthday celebration.

Bequests and Donations.—The following bequests and donations have recently been announced:

Burnham Hospital, Champaign, Ill., $100,000, by Mrs. Newton M. Harris, Champaign.

Hahnemann Hospital, Philadelphia, $1,000, by the will of Susan R. Taylor.

Visiting Nurses' Association and Children's Memorial Hospital, Chicago, and King's Daughters Hospital, Frankfort, Ky., $25,000, and United Charities, $20,000, by the will of Mrs. Lina A. Waller, Chicago.

Kitchener-Waterloo Hospital Victorian Order of Nurses and Kitchener Orphanage, after the death of his widow, the proceeds of an estate valued at $65,000, by the will of John G. Bricker, Kitchener, Ont.

American Oncologic Hospital, Philadelphia, $1,000, by the will of Ann Cressan.

Episcopal Hospital, Philadelphia, $5,500, by the will of Hannah Kochersperger.

Methodist Episcopal Hospital, Philadelphia, $5,000, for the endowment of a bed in memory of her stepson, by the will of Mrs. Anna Roberts, Pottstown.

Eye, Ear, Nose and Throat Hospital, New Orleans, a donation of $50,000 to the building and equipment fund of the institution, by Mrs. John Dibert.

For the construction of a hospital at Wayland, Mass., $200,000, by the will of Jonathan M. Parmenter.

New York Institute for the Blind, New York, $1,000, by the will of Mrs. Sarah Matilda Mygatt.

Hebrew Hospital, Baltimore, for the establishment of a dental clinic, $10,000, by Dr. Harry Adler.

FOREIGN

Institute for Medical Bibliography.—Naples has now an institute for medical bibliography with its own journal, the *Rivista della Stampa medica*, a monthly, published at Via Francesco del Giudice 18, Naples, Italy. It makes translations and summaries on demand and the *Policlinico* hails its foundation as filling a long felt want.

Journal of Laryngology and Otology.—The *Journal of Laryngology, Rhinology and Otology*, which was founded in 1887 by Morell Mackenzie and Norris Wolfenden, has been purchased from its former owners, a well known publishing house, and has become the property of the profession. It will be continued as the *Journal of Laryngology and Otology* under the editorial supervision of Drs. A. Logan Turner and J. S. Fraser. The place of publication is Edinburgh.

Tribute to Morselli.—The pupils and friends of Prof. E. Morselli recently celebrated the fortieth anniversary of his incumbency of the chair of psychiatry at the University of Genoa. He is called the Italian champion of psychology, neuropathology, psychiatry and anthropology. The celebration occurred during the Italian Congress of Neurologists and Alienists, held at Genoa in his honor, and a fine oil painting was presented to him by a public subscription, a copy of Raphael's Madonna of the Candelabra, in a genuine sixteenth century frame.

Dearth of Physicians in Central Europe.—Investigations made by the Rockefeller Foundation indicate that the countries of central Europe, with the possible exception of Austria, suffer from a shortage of physicians. Thus, in Poland less than 2,000 physicians are said to be available to care for the 25,000,000 inhabitants, and in Serbia it is stated there are less than 300 physicians outside of the army medical officers. In its efforts to rehabilitate the medical schools of central Europe, the Rockefeller Foundation has decided to aid in the establishment of a high grade medical school at Belgrade.

International Conference for Nomenclature of Diseases.—The government of France issued a summons to an international conference to revise the nomenclature of diseases and statistics, to conform to the progress of science since the present nomenclature was adopted. The session at Paris of the international commission for the purpose was attended by representatives of forty-two governments. It is said to be the first scientific gathering attended by representatives of all the belligerent countries, the Central Powers as well as the Allies. The new nomenclature adopted went into effect with the present year.

Graduate Courses.—The medical journals from the leading medical centers in all countries contain many notices of short courses of lectures and practical training in various fields of medicine offered to physicians by specialists. These courses aim to crowd a vast amount of instruction into a few weeks. Thus Rome offers a "corso di perfezionamento" in industrial medicine to last for three months and to include the hygiene, pathology, and the legislative and medicolegal aspects of industrial, railroad and agricultural work. Certificates are issued to physicians completing the course and paying the fee, the total expenses amounting to nearly 340 lire.

Italian Congress of Radiology.—The Third Italian Congress of Medical Radiology, recently held at Rome, was attended by a large number of radiologists. Prof. Ghilarducci presided, and reviewed the extensive work in this field by the Italians. Bertolotti discussed radio-activity from the standpoint of biology and chemistry, and Ponzio—both of the latter are members of the Turin medical faculty—related his personal experiences with the radiotherapy of cancer and presented an exhaustive review of the present status and the outlook of this field of medicine. The discussion of the papers was lively and illuminating; fully a hundred communications were presented, including Perussia's chemical and radiologic research on the heart and large vessels.

Deaths in Other Countries

Robert Jared Bliss Howard, London, a graduate and at one time demonstrator of anatomy and surgery at McGill University, and assistant surgeon and pathologist to Montreal General Hospital, January 10.——Dr. **J. María Rodríguez** of Buenos Aires.——Dr. **J. Cécikas** of Athens, one of the leading physicians of Greece and a contributor to French, English and German medical journals, editor for five years of the *Grèce médicale*.——Dr. **Kermorgant**, inspector-general of the medical department of the army for the colonies of France, in charge of public hospitals, vaccine and antirabies services and laboratories. He founded and edited the *Annales d'hygiène et de médecine coloniales* and was long on the editorial staff of the *Archives de médecine navale*. He had published numerous works on the prophylaxis of disease in the tropics, especially for expeditions and explorers, on snake poisons, welfare work for native children, etc.——Dr. **A. Fortunati,** professor of ophthalmology at the University of Rome, author of numerous works on trachoma, detachment of the retina, etc., aged 67.——Dr. **C. Rusca,** assistant at the pediatric clinic at Milan, aged 32.——Dr. **W. Benninghoven,** a dermatologist of Berlin, noted for his teaching models.——Dr. **S. Manghinas,** formerly professor of surgery at the University of Athens.

Government Services

British Tribute to American Physicians and Nurses

Surgeon-General Ireland has received from Lieut.-Gen. Sir John Goodwin, director-general of the army medical services of the British army, an account of a testimonial dinner given to the Royal Army Medical Corps in London, at which the Earl of Midleton presided. Addresses were delivered by Sir Edward Ward, Hon. Winston Churchill, secretary of state for war, Field Marshal Haig, Lieut.-Gen. Sir Alfred Keogh, formerly director of medical services, and Sir John Goodwin. In his speech the latter paid the following tribute to American physicians: "I should like to say one word on the subject with which I was rather closely connected, and that is the amount which America did for the medical service, and also for the army in this war. I was sent out to America on a mission just after that nation came into the war. We were then in serious straits as regards shortage of medical and nursing personnel. I at once placed the whole situation frankly before the War Secretary, Mr. Baker, and before the head of the American medical service, General Gorgas. I cannot express to you the cordial way in which I was received, the sympathetic hearing which was accorded to me, and the generous response with which I met. General Gorgas, Mr. Baker, the American Army Medical Service, and not only they, but the whole medical profession of America, placed everything at my disposal, with the result that within a very few months over 1,000 American doctors and more than 700 nurses, equipped and uniformed by the American Army, were placed unreservedly, and without question, entirely at the disposal of the British armies. Had it not been for the wholehearted help afforded to us by America I hardly like to think of what might have happened in 1918."

Organization of Medical Regiments

As a substitute for the old sanitary train, new medical regiments have been established in the U. S. Army by order of the Adjutant-General. The regulations provide that the aggregate strength of the medical regiment for war shall be sixty-eight commissioned officers and 860 enlisted men, and for peace twenty-five commissioned officers and 277 enlisted men. At peace strength, the medical regiment, under command of a colonel, consists of a regimental headquarters, a sanitary company, a mule-drawn ambulance company, a motorized ambulance company, a motorized hospital company, a medical supply section, a medical laboratory section and a veterinary company. Enlarged to war strength the regiment includes a regimental headquarters, a service company, a sanitary battalion, an ambulance battalion, a hospital battalion, a medical supply section, a medical laboratory section and a veterinary company.

Medical Officers' Reserve Training School

A final effort will shortly be made by the Army Medical Department to induce all Class A medical schools of the country to inaugurate an officers' reserve training school. Up to this time five universities are operating reserve schools, to which medical officers have been assigned as instructors. Two additional schools have been added to the list during January, namely, at the University of Minnesota Medical School, where Lieut.-Col. Henry H. Rutherford has been named professor of military science and tactics, and the Johns Hopkins Medical School, with Major Howard H. Baily as instructor. The University of Oregon Medical School, Portland, has signified its intention of installing a reserve officers' unit.

Measles Statistics of the Army

The records of admissions for measles show that the incidence of the disease is declining at five of the eight camps at which it has been epidemic. At Camp Grant, however, the trend of the measles outbreak is upward, and the same situation prevails at Camp Travis, although at the latter post there was a decline for one week in January; at Camp Sherman the measles rate has been increasing steadily during the last month. In spite of the measles outbreak the admission and death rates of pneumonia have not risen.

Review of Public Health Laws

The annual compilations of "State Laws and Regulations Pertaining to Public Health" for 1917 and 1918 have just been issued by the U. S. Public Health Service. They contain the text of all statutes on health subjects passed by the various state legislatures during the respective years. In 1918, thirty-two states enacted laws dealing with the prevention of venereal diseases, and more laws were passed on this phase than on any other subject pertaining to public health.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 10, 1920.

John Beattie Crozier

John Beattie Crozier, physician and distinguished philosopher, historian and political economist, has died in London at the age of 71 years. His reputation was made outside his profession, and his name is unknown to the great majority of its members, for few of them take interest in the highly intellectual work to which he devoted his life and for which he sacrificed himself. Born of a border family among the little Scottish colony of Galt, Canada, he was educated at Toronto University, where he took the degree of M.B. in 1872. From his earliest days he was interested in philosophy, and as he felt that he could not both pursue it and earn his livelihood as a physician in Canada, he came to London. Here he practiced for some years but not with much financial success. This was only to be expected, for he declined work which might have led to a good position because it interfered with his studies. At first he embraced the doctrine of evolution expounded by Herbert Spencer in his "First Principles," which seemed to show that religion and science are alike manifestations of a persistent, inscrutable force. But the later "Principles of Psychology" of that writer seemed to him an unmitigated and desolating materialism. He then studied the metaphysicians from Descartes to Hegel, but they seemed to him never to have established a true relation between mind and brain. His own difficulty was that while he accepted Spencer's account of mind as arising from molecular vibrations in the nervous system, he could not admit that virtue differed from vice, or right from wrong only in the number and complexity of these vibrations. On the contrary, he held that they differed in kind and represented an ideal in the mind which came from without and sat in judgment on all its thoughts and feeling. He embodied this view in an article entitled "God or Force," but no editor would take it. He then issued it as a pamphlet with articles on Carlyle, Emerson and Spencer, which made up a small book on "The Religion of the Future," published in 1880. It fell almost dead from the press. Undaunted, he undertook the more ambitious task of tracing the ideal through history and determining how far civilization was advanced by the factors of religion, government, science and material and social conditions. A study of previous writers convinced him that much help could not be obtained from Hegel, who attended only to the religious factor; from Comte, in spite of his three stages; from Buckle, whose doctrines had become obsolete, or even from Spencer, who made progress depend on abstract and impersonal laws rather than on concrete, human facts. He arrived at the conclusion that progress rested chiefly on material and social conditions, that government took its character from them, that things made their own morality, that improved dwellings and better education had effects which no mere teaching could achieve, that science was the impelling factor which amended the conditions and, by overthrowing the religious philosophies opposed to it, made way for religion itself as the factor that completed the ideal. This survey appeared in 1885 as a volume entitled "Civilization and Progress," but it received no immediate attention. Three years later a demand for it arose, and eventually it reached a fourth edition and was translated into Japanese. His next important work was a "History of Intellectual Development," of which the first volume occupied him from 1892 to 1897. He endeavored to show that the course of thought from the Greeks onward largely followed laws. Reviewing the transitory forms of supernaturalism, he kept his belief in a coordinating power not ourselves making for righteousness. This book had an excellent reception. The government then came to his aid and awarded him a pension for his services to philosophy, and his old university, Toronto, conferred on him the degree of LL.D. He had planned a second volume on the connection between ancient and modern thought, but impaired eyesight prevented the necessary research and he turned to the completion of his autobiography, a most interesting work. On the advice of Lord Morley, he confined a further volume to the practical problems of reconstruction as affecting Great Britain, France and the United States in the nineteenth and twentieth centuries. In this book his main contention was that present ideals, if not to mislead or end in fanaticism, must be tested by the fate of the past ones, and that to avoid pitfalls statesmen ought to study the previous course of civilization. The *Times* described the book as the work of a man not only enlightened, but singularly open minded and impartial, who rarely wrote a page without a striking phrase or sentence. In a later work entitled "The Wheel of Wealth" he maintained against economists that production and consumption are continuously passing into one another in a circular movement. In 1911 appeared "Sociology Applied to Practical Politics," in which he maintained the great value of science in solving such problems as socialism, free trade and imperial preference. Then his sight no longer allowed any close research. In 1917 he published "Last Words on Great Issues," a remarkable survey of the democratic, economic, intellectual and religious movements brought about by the war, with a summary of his own creed. April 23, 1919, he received a letter of congratulation signed by Lord Morley, Lord Bryce, Sir William Osler, Frederic Harrison and other distinguished men, expressing appreciation of "his eminent services to British scholarship and speculation, and of his unselfish endeavors for human welfare."

An Unusual Source of Tetanus

An inquest has been held on a baby who died at the age of 5 days from tetanus. The source of an infection was unusual: An ointment had been applied to the child. The pot of ointment was submitted with six similar unopened pots to the ministry of health for analysis. The report showed that there were disks of coarse paper in the unopened pots which separated the stopper from the contents. These disks contained tetanus germs. A representative of the firm which supplied the ointment said that this was the first complaint received and that steps were being taken to insure that paper disks would not be used in future.

Vital Statistics

The recently issued registrar-general's report for 1919 contains some interesting facts. Some of the most important are: 1. Great increase in the number of young widows remarrying. 2. General increase in marriages of middle aged persons, especially among bachelors. The number of widows remarrying under the age of 25 was 10.7 times and between 25 and 36 times as great as in 1911. These are explained by the great number of young widows created by the war. But there is also an increase in the marriages of widows over 45 which cannot be explained in this way. It is partly due to the general increase of marriages at this time of life in men and women both single and widowed. It is manifested in its most extreme form by bachelors, whose marriages at ages over 45 both in 1915 and in 1918 were twice as numerous as in 1911. 3. Estimated loss of births due to the war, half a million, very similar to that of deaths on active service. 4. General decline of infant mortality, especially in London. Cancer forms the one great exception to the general tendency for the mortality at most ages to decline. The death rate from measles and whooping cough is by far the lowest on record.

PARIS

(From Our Regular Correspondent)

Dec. 31, 1920.

The Taxation of Medical Journals

Dr. Pierra, secretary of the Association de la presse médicale française, recently communicated to the medical group in parliament the resolution passed by the association demanding that the tax on the volume of business, as applied to medical journals, be either removed entirely or at least determined not by the number of subscribers or the number of copies sold but by the amount received for advertising.

This resolution seems justified by the precarious position in which the medical press in general has been placed by the advances in the cost of labor and material, which have increased the cost of publication by at least 500 per cent. The situation has been such that a large number of journals have discontinued publication since the war. Those that continue to appear have been obliged to reduce the number, and sometimes even the size, of their pages. Pierra likewise emphasized the importance of medical journals from the standpoint of their value as promulgators of French ideas in foreign countries, and pointed out in this connection that our economic expansion is closely connected with our intellectual influence in the world. He also brought out the point that our competition is almost solely German, and stated further that, before the war, French medical journals were widely read in Spanish speaking countries, some French journals having even gone so far as to publish separate Spanish editions for circulation in South America and Spain. It was evident that such journals carried French ideas and influence to these various countries. Today a number of German journals are published in Spain in the Spanish and even in the French language, all of which spread German thought and influence among our neighbors. Pierra concluded by saying that he regarded it as a matter of vital national interest to relieve the French medical press from the burdens of taxation, thus permitting it to continue to play a part in the dissemination of French ideas throughout the world.

The medical group in parliament has decided to support the resolution in question and to take such steps as may seem necessary in order to bring the matter before the minister of finance.

The Milk Question Again

At the last meeting of the medical group in parliament, which was presided over by Dr. Chauveau (senator), one main topic discussed was the commotion caused in the ranks of the medical profession by the recent order of the prefect of the department of the Seine requiring that sick persons, old people and children, for whom milk is an imperative necessity, procure a certificate, entitling them to prior consideration, from some physician of the public charities board (The Journal, Jan. 29, 1921, p. 324). After a discussion, in which several of those present took part—Prof. Pinard, Dr. Chauveau and others—it was decided: (1) to approve the restriction of the sale of milk in cafés, tea rooms, restaurants, hotels, etc.; (2) to recommend to the prefect of the department of the Seine that, in the case of young children and old people, only a birth certificate be required in order to establish the right to prior consideration in securing milk, with the added provision that children must be under 3 years of age and aged persons over 65; (3) patients should not be required to furnish any further proof of their need than the certificate of the physician in charge of the case, unless there is evidence of frequent abuse of the privilege.

Physical Culture

Under the name of Cercle d'études medico-sportives, a society has been formed which will take up the study of all questions of a purely scientific nature pertaining to physical education, physical culture and general sports, both from the physiologic and the pathologic point of view. It will endeavor at the outset to unite the efforts of all colleagues who are interested in these questions, as up to the present time these have not been grouped together in any society. The society proposes, furthermore, to standardize instruction in these subjects and all official documents relating thereto. Such topics as the physiologic aspects of physical training, and the amount and type of physical culture required by various age groups illustrate the type of questions that will be studied.

The Tax on Physicians' Incomes During the War

M. Saget, member of the chamber of deputies, having addressed an inquiry to the minister of finance as to whether a tax inspector can, without violating the right of privileged communication, demand of a physician that he produce the book containing the names of his clients, the nature of their disease and the amount of the fees received, is in receipt of the following reply:

Physicians, like all others who are subject to taxation, must exhibit to the tax commissioners all documents that may be necessary to establish the basis for taxation. In case they are thus led to divulge the name of a client they do not render themselves liable in any way, since it is evident that they are only complying with a legal requirement, and, furthermore, the financial agents to whom the information would be furnished are themselves bound by the right of privileged communication.

The New Officers of the Academy of Medicine

At a meeting held December 28, the Academy of Medicine elected the following officers for the year 1921: president, Dr. Richelot; vice president (president for 1922), Professor Bourquelot, and annual secretary, Professor Achard.

The Bestowal of an American Medal on a French Scientist

The American Genetic Association has bestowed the Frank N. Meyer medal on Dr. Trabut, a botanist of repute who is a member of the faculty of the University of Algiers. Trabut is attached to the botanic service of Algeria.

Budget of the Board of Public Charities

The general report on the budget and the receipts and expenditures of the Assistance publique shows, by numerous interesting statistics, the great influence that the war had on the administration of public charities in Paris. Before the war the municipality of Paris contributed 26 million francs annually toward the work of the society. In order to provide the society with the funds needed to support all their services during the war, this fund was increased to 145 million francs, an augmentation of 457 per cent., which signified an increase of 72 per cent. in the total budget. In 1919 the expenditures for the assistance of the needy by the various bureaus of charities amounted to 147 million francs. The budget for 1921 amounts to 228 million francs, 194 million of which are for hospitals and municipal shelters.

BELGIUM

(From Our Regular Correspondent)

Dec. 31, 1920.

The Development of Cuban Children

At a meeting of the Société d'anthropologie of Brussels, M. Rouma communicated the result of 85,000 observations on 4,000 children in Cuba. Several interesting facts were brought out that are worthy of note. During school age the waist measure of the negro and the mulatto increases more rapidly than that of the white child. At the age of 6 the waist measure of all three is about the same, but at the age of 12 the waist measure of the black child exceeds that of the white child by 5 cm. The weight per centimeter of waist measure increases regularly from ages 6 to 14. The specific gravity of the body gradually diminishes during this period. The specific gravity for the three races is lower than the specific gravity of children of the temperate and frigid zones. The body measurements of white children presented different proportions from those of the negro. The latter had longer legs and arms, but a shorter trunk and a smaller thorax. The mulatto occupied an intermediate position. The dimensions of the thorax were proportionate to the waist measure, being greater in the white child than in the negro and the mulatto. The chest expansion of the white child was at all ages superior to that of the black child. The vitality index was higher in white children of all ages from 6 to 14 than it was in black children, but the muscular system is more developed in negro children. An examination into the physical development in relation to the season of birth brought out the fact that the excessive heat of the Cuban summer exerts an unfavorable influence on the physical development of white children born during the summer season. This unfavorable influence was not apparent in the negro child. Following this communication by Rouma, the Société d'anthropologie expressed the wish that similar investigations might be carried out in Belgium.

Child Welfare

In a previous letter were described the activities of the various committees that were organized during the war, having for their purpose the amelioration of the conditions of existence as affecting children, and the combating of the increase in infant mortality. The establishment of canteens for schoolchildren, the consultation hours for infants, and the organization of colonies for weak children were referred to. To crown all these enterprises and to perfect the welfare work, the results of which have been so encouraging, Belgium feels it a duty to carry forward this preeminently humanitarian task. In order to secure more exact information in regard to the factors that influence the betterment and the decadence of the human race, to discover to what extent the facts and signs justify legislative action, and to inquire into the best means of bringing about a cooperation of the existing societies and the isolated workers, the Belgian government is organizing an international child welfare congress. The principal questions placed on the order of the day are: (1) neglected children and juvenile courts; (2) abnormal children; (3) social hygiene as applied to children, and (4) war orphans. The question of establishing an international bureau for the protection of children will also be considered. The first agitation in favor of such a bureau was begun in 1913, but the course of events since that date has prevented the carrying out of the idea. An international bureau would serve as a clearing house for those who, in the different countries, are interested in the child welfare movement. It would facilitate the study of questions bearing on child welfare, and would favor the progress of legislation and the adoption of international agreements. The efforts made by the Belgian people to protect its children and to better the human race have placed this country in the front rank of progressive nations. This fact makes it especially fitting that Belgium should be the country to organize an international bureau and to take the initiative in summoning a congress analogous to that of 1913, of which Brussels would be the headquarters, and at which the many important questions bearing on the hygiene of childhood and the moral training of youth could be discussed. A royal decree has been issued providing for the meeting of a second international child welfare congress under the protection of their majesties the king and queen of the Belgians. The Belgian government has requested foreign governments to send official delegates. The congress will convene at Brussels, July 18, 1921, for a four day session.

A Prize Subject

A prize has been offered by the Académie royale de médecine de Belgique for the best article on "New Researches on the Influence of Endocrine Glands on the Phenomena of Immunity." The amount of the prize is 2,000 francs, and the date set for closing the competition is July 15, 1922.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 17, 1920.

International Sanitary Congress at Montevideo

The sixth international sanitary conference of the American republics is being held at Montevideo. The delegates from each country are expected to present a report on the laws adopted since the fifth conference was held, and on the extent to which they have put into force the measures previously recommended. They must also report on the prevalence of communicable diseases. Special attention will be devoted to the campaign against tropical diseases. At the last moment, Profs. Joaquin Llambias and Gregorio Martinez were appointed delegates from Argentina. It seems strange that no sanitarian should have been designated to represent this country, and that these appointments should have been made at the very last hour.

Typhus Fever

The campaign conducted in the province of Salta to eradicate the limited foci of typhus fever, which existed there, seems to have been successful. As the disease is generally imported from Bolivia, the government has ordered the establishment of a quarantine station at Humahuaca.

University Problems

The peculiar arrangement, which allows students to have a voice in the determination of the directing boards of universities, has created a state of absolute lack of discipline in all Argentine universities. The one so far comparatively exempt from this evil is the University of Buenos Aires, although even here intrigue and political pull assert their unhappy influence now and then. As an example of the students' demands, there may be mentioned the case of the school of medicine of El Rosario, where the students held a meeting and voted to have four examinations before beginning or completing courses. They informed the acting president that they would like to see him resign. They also decided not to pay their fees for the last two terms still pending, declaring their payments complete with the amount they had already paid. These resolutions were transmitted to the professors, the president of the school and the secretary of education. The best part of it is that the president called the students to his office and informed them that, aside from his resignation, all their demands were granted.

Public Assistance

Patients from all over the country gravitate to Buenos Aires, imposing an enormous burden on this city. It is estimated that 40 per cent. of hospital patients do not belong to the capital. The resources of the public assistance authorities are entirely insufficient, and it has been suggested over and again that they should receive an appropriation from the national government. However, of late the idea has been gaining ground that the final solution of the problem would be the adoption of health insurance for workers. In order to appreciate the amount of emergency service rendered by the city authorities, the fact may be cited that one of the various district sections has every month at least 2,000 first aid calls. In order to perform this work more efficiently, an appropriation of 50,000 pesos (about $53,000) has been devoted to replacing and increasing the ambulance facilities. Public assistance authorities have increased their efforts in the antirat campaign. In three months, 11,000 dwellings have been inspected and more than 35,000 rats and mice have been killed.

PRAGUE

(From Our Regular Correspondent)

Jan. 3, 1921.

Contagious Disease Situation

The contagious disease situation in Czechoslovakia is not entirely satisfactory, though not alarming. Typhus fever and smallpox are the two dangers. The incidence of typhus fever had its peak last year in June when 122 cases in Slovakia and seventy-eight in Ruthenia were reported. The last printed report for the month of October gives twenty-two cases in Slovakia and twenty-one cases in Ruthenia. Smallpox was prevalent, especially in Bohemia, in May and June, 1919, among the German population, few of whom were vaccinated, many being opponents of compulsory vaccination in Germany who had emigrated to Bohemia chiefly for this reason. July 15, 1919, a compulsory vaccination law was passed by the parliament, and a marked decline in smallpox followed. For the month of October, 1920, no cases were reported from Bohemia and Moravia; there were eleven cases from Slovakia, and four from Ruthenia. Many of the typhus and smallpox cases were imported from Poland and Roumania. Because of the permanent danger that contagious diseases might be imported into the republic, the ministry of public health is endeavoring to take all necessary steps to enable the ministry to cope with the foci before the disease spreads.

Transportable Hospital

In cooperation with the Czechoslovak Red Cross, a transportable hospital was constructed by the International Health Board. It consists of three barracks; one contains forty beds in three rooms, another is used for administration and living quarters for the personnel, and the third is used as a storehouse. The whole hospital can be shipped in boxes weighing not more than 100 kg. (220 pounds). In addition, a unit of four automobile cars was supplied which will be sent to places where the first case of the disease is reported. One car serves as a complete laboratory, the next as an ambulance, the third as a delousing station, and the fourth as a steam disinfector. One physician, four nurses and four chauffeurs, who have the necessary training for disinfecting, form the staff.

Nationalization of Health Service

In April, 1920, a law was passed by parliament by which all the local health officers will be nationalized. Because this law goes into effect after the political reorganization of the country takes place, and as this seems to be far distant because of financial difficulties, a new law is being prepared by which the health service will be nationalized. It is an absolute necessity for Slovakia, where the people are ignorant and where it would take a long time before the health officers could be supported from local funds. Of course, all the investments for sanitary improvements must be paid locally.

Sickness Insurance

An innovation of the sickness insurance law was accepted by parliament by which all workmen whose yearly income amounts to 20,000 crowns or less will be included. The patient will be free to choose his physician from a certain group. In addition to the medical benefit, the insured person will get a support amounting to one third of his salary. This will be paid for a maximum period of one year. The insurance includes maternity benefit in the same amount for six weeks before and six weeks after childbirth. Special bonuses will be given to mothers who nurse their babies. The insurance is compulsory not only for the workmen with the income stated above, but also for the members of their family.

BERLIN

(From Our Regular Correspondent)

Dec. 24, 1920.

The Relation of the Total Number of Males and Females Born Since the War

The view is widespread that during a war and especially during the years following a war a great many more boys than girls are born. That the total number of boys born exceeds the total number of girls even under normal conditions is shown by the fact that in a series of 61 million births in Europe the relation of the sexes was 106.3 boys to 100 girls. A similar result has been reached in other states in which like statistics are recorded. In this connection it is peculiarly interesting to note that also in animals constant sexual differences in the birth rate have been noted. In cattle, to 100 females there are 107.3 males; in pigs, 111.8 males; in pigeons, 115; in butterflies, 105 males. As to the relative birth rate during the war, statisticians have been endeavoring to determine just what actually did happen. Geheimrat Bela, formerly division superintendent in the Prussian bureau of statistics, on the basis of information furnished by the various statistical bureaus of Germany has reached the conclusion that there is no ground for the prevailing belief that in the births during the period from 1914 to 1917 there was an unusual preponderance of males over females. The relative proportion of the two sexes has not changed. In Prussia, during the years 1914-1917, the relation of males to females born was between 106 and 107 to 100.

Teneriffe Chimpanzees

At the suggestion of the Berlin neurologist, Professor Rothmann, who, as already stated in a previous letter, committed suicide during the war, the Prussian Academy of Science, using the funds of a foundation, several years ago established a station for the study of anthropoid apes on the island of Teneriffe, the purpose being to gain, by means of experimental investigations, a closer insight into the psyche of these animals. The observations were made on chimpanzees brought from Kamerun, West Africa, and allowed to have their full freedom. After the close of the war, on account of lack of funds, the station could no longer be kept up. The apes were therefore transported to Berlin and placed in the Zoological Garden. The shipment comprised five large, full-grown females. On the occasion of the presentation of the animals before a group of scientists, Professor Heck, the director of the Zoological Garden, emphasized the point that such apes could not be expected to give evidence of any great mental accomplishments, and especially could not be expected to perform any complicated mathematical stunts (the professor doubtless having in mind the "calculating horses," which created such a sensation in Germany before the war). He stated further that, when we recall that the brain of an old gorilla whose body weight is almost equal to that of an athlete is no larger than that of a new-born child and that the fully developed brain of an ape fills a space of only 500 c.c. as compared with the 1,500 c.c. occupied by the brain of man, we can draw our conclusions as to mental accomplishments. Histologic investigations have also shown that the cells of the cerebral ganglions in the chimpanzee are only one sixth as numerous as in the human brain. Nevertheless, during the course of the observations made on the island of Teneriffe these animals gave remarkable signs of intelligence. One morning one of the females, finding that it was cold outside, went to the cabin and secured a wrap, which she threw over her shoulders with a certain coquetry and then resumed her promenade. Another ape turned the tap water on when he was thirsty. It was interesting to note that the chimpanzees were often able to solve their problems unaided, finding themselves the ways and means of accomplishing their purposes. At first, quite animal-like, there was always a planless groping about in hopes that chance would throw something in their way; but then, if that plan failed, a period of quiet meditation followed, and finally they would suddenly get a happy idea that would solve the problem. Professor Heck also stated that apes in their native woods build a special type of lair or den, and that in the freedom of their wilds, where there are good-sized colonies, they have small huts with sufficient capacity for three or four inmates. In these huts doubtless live males and females, together with their children. The anthropoid apes are the only mammals, aside from man, in which this monogamous trait has been noted. When, after the long sea voyage, the apes were released at the Zoological Garden from their cages they uttered a joyful cry and gave evidence of their great joy by embracing each other.

Marriages

William Donald Rolph, Richmond, Calif., to Miss Harriet Chapman of Chicago, at San Diego, Calif., December 29.

William Peter Mull, Lieutenant, M. C., U. S. Navy, to Miss Marion Ellis of Chicago, December 29.

Budd H. Higdon, Sunflower, Miss., to Miss Mabel Irby Redditt of McCarley, Miss., December 30.

Charles Sumner Robbins, Washington, D. C., to Miss Louise Pieffer of Baltimore, January 8.

Walter Lee Jackson, Ranger, Texas, to Miss Exa M. Lewis of Teague, Texas, October 20.

Louis Elsworth Langley to Mrs. Abbie J. Buhse, both of Williamsport, Pa., January 2.

Louis Lehrfeld, Philadelphia, to Miss Adele Coblentz of San Francisco, December 17.

Maxwell B. Kremens, Philadelphia, to Miss Ethel Samuels of New York, December 29.

Herbert Leonard Langer, Brooklyn, to Miss Helen Stein of New York, December 29.

Murray Burnes Gordon, Brooklyn, to Miss Harriet Engel of New York, December 5.

Rawley Harrison Fuller to Miss Corrie Mae Allen, both of Clover, Va., February 1.

Daniel Harold Levinthal to Miss Gertrude M. Coski, both of Chicago, December 19.

Percy Lennard Querens, New Orleans, to Miss Gillie Rizes of St. Louis, January 11.

Elmer Ellsworth Stone to Mrs. B. Elise Joy, both of San Francisco, December 20.

Joseph Harrison Wyatt to Miss Eugenie Laubach, both of Philadelphia, recently.

Philip B. Bregman, Brooklyn, to Miss Anna Daniels of New York, January 9.

Henry Arthur Griffin to Mrs. Ryle Strange, both of New York, November 11.

John F. Hogan to Miss Mary L. Kelly, both of Baltimore, January 19.

Deaths

Charles F. Dutton, Cleveland; Bellevue Hospital Medical College, New York, 1864; aged 89; assistant surgeon of Ohio Volunteers during the Civil War; at one time president of the Cuyahoga County Medical Society; formerly professor of medicine and clinical medicine at the Cleveland Medical College; died, January 9.

Anslem C. Robinson, St. Louis; Missouri Medical College, St. Louis, 1874; aged 69; a member of the Missouri State Medical Association; for many years police surgeon and city physician, and for four years a member of the board of health of St. Louis; died, January 12, from heart disease.

Samuel Spahr Laws, Asheville, N. C.; Bellevue Hospital Medical College, New York, 1875; aged 96; at one time professor of physiologic science and president of Westminster College, Fulton, Mo., and president of the University of Missouri; also a clergyman; died, January 9.

Henry Horace Grant ⊕ Louisville, Ky.; Jefferson Medical College, Philadelphia, 1878; aged 67; professor of surgery in the University of Louisville; at one time president of the Mississippi Valley Medical Association; died, January 24, from cerebral hemorrhage.

Amasa S. Condon, Ogden, Utah; Marion-Sims College of Medicine, St. Louis, 1892; aged 71; a veteran of the Civil and Spanish-American wars; surgeon of the Union Pacific Railway; for two terms a member of the state legislature; died, January 17.

William Buchanan Arbery, Jacksonville, Ala.; Vanderbilt University, Nashville, Tenn., 1882; aged 64; a member of the Medical Association of the State of Alabama; at one time president of the Calhoun County Medical Society; died, January 1.

John Paul Ashworth, Chicago; Jenner Medical College, Chicago, 1906; University of Illinois, Chicago, 1914; aged 41; major, M. C., U. S. Army, and discharged, Aug. 1, 1919; died, January 24, from pneumonia.

Samuel M. Royer, Martinsburg, Pa.; Cincinnati College of Medicine and Surgery, 1869; aged 82; a veteran of the Civil War; for fifty years a practitioner of Martinsburg; died, January 24, from septic cystitis.

Joseph W. Bettingen ⊕ St. Paul; College of Physicians and Surgeons in the City of New York, 1888; aged 55; a member of the Minnesota Academy of Ophthalmology and Oto-Laryngology; died, January 14.

Jacob T. Ambrose, Ligonier, Pa.; Long Island College Hospital, Brooklyn, 1870; aged 83; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; died, January 15.

Henry Beemokes Hess ⊕ Paterson, N. J.; University and Bellevue Hospital Medical College, 1916; aged 36; lieutenant, M. C., U. S. Army, and discharged, Dec. 20, 1918; died, January 12, from pneumonia.

John B. Hollingsworth, Pine Ridge, N. C.; Jefferson Medical College, Philadelphia, 1880; aged 62; died, January 3, from the effects of a gunshot wound of the head, self-inflicted, it is believed.

Charles F. Thomas, Caribou, Maine; Long Island College Hospital, Brooklyn, 1873; a member of the Maine Medical Association; died at the South Side Hospital, Miami, Fla., December 28.

D. J. Ballard, St. Paul, Ind.; Cincinnati College of Medicine and Surgery, 1876; aged 79; a veteran of the Civil War; also a druggist; died, January 9, from organic heart disease.

Edward Wilberforce Kellogg, Avon, Conn.; Homeopathic Medical College of the State of New York, New York, 1867; aged 80; a veteran of the Civil War; died, January 15.

John Franklin Adams, Bagdad, Ky.; Louisville (Ky.) Medical College, 1884; aged 62; a member of the Kentucky State Medical Association; died, January 1, from anemia.

Walter Scott Patterson, Butler, Pa.; Jefferson Medical College, Philadelphia, 1901; aged 42; at one time coroner of Butler County; died, January 18, from pneumonia.

Thomas Helme, McKownville, N. Y.; Albany (N. Y.) Medical College, 1890; aged 53; a member of the Medical Society of the State of New York; died, January 4.

James J. O'Dea, Stapleton, Staten Island, N. Y.; McGill University, Montreal, Que., 1859; aged 84; died, January 12.

⊕ Indicates "Fellow" of the American Medical Association.

Henry Wilson Niswonger, Fort Wayne, Ind.; Fort Wayne (Ind.) College of Medicine, 1889; aged 73; a veteran of the Civil War; also a druggist; died, January 7.

William L. Hedges, Warrensburg, Mo.; Homeopathic Medical College of Missouri, St. Louis, 1869; aged 86; a veteran of the Civil War; died in December.

George P. Ramsey, Crawfordsville, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1900; aged 44; died, January 8, from tuberculosis.

Eva Helen Knight ⊕ New York; Woman's Medical College of the New York Infirmary for Women and Children, 1891; aged 65; died, January 17.

Charles Everett Graham, Hull, Que.; McGill University, Montreal, 1865; aged 76; at one time coroner and mayor of Ottawa; died, January 13.

Emil T. Cherry, Altoona, Pa.; Medical College of Indiana, Indianapolis, 1884; aged 57; died, January 9, following an operation for gallstones.

George Memory Chapman, Morven, N. C.; Chattanooga (Tenn.) Medical College, 1897; aged 48; died at the Charlotte Sanatorium, January 9.

John Wilson Sparks, Arkansas City, Kan.; Rush Medical College, 1871; aged 79; for two terms mayor of Arkansas City; died, January 3.

John DeLoss Rouse, St. Louisville, Ohio; Medical College of Ohio, Cincinnati, 1875; aged 68; died, January 12, from cerebral hemorrhage.

Frederick Leix ⊕ Los Angeles; California Eclectic Medical College, Los Angeles, 1906; aged 56; died, January 14, from disease of the liver.

Lloyd Ackley, Canaseraga, N. Y.; University of Buffalo, N. Y., 1899; was fatally burned, January 14, in a fire which destroyed his home.

William Willis Griffith, Bainbridge, Ga.; Atlanta (Ga.) Medical College, 1915; aged 32; died, January 11, from cerebral meningitis.

William L. DeLap, Gloucester City, N. J.; Hahnemann Medical College and Hospital, Philadelphia, 1886; aged 65; died, January 5.

George Luther Parmele, Glastonbury, Conn.; Long Island College Hospital, Brooklyn, 1869; aged 72; also a dentist; died, January 2.

John C. Stout, Oakland, Calif.; American Medical College, St. Louis, 1878; aged 74; died, January 7, from cerebral hemorrhage.

Mark Blumenthal, New York; College of Physicians and Surgeons in the City of New York, 1852; aged 89; died, January 12.

Orange Anderson Johnston, Picayune, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; aged 45; died, January 20.

George S. Dobbins, Mission, Texas; Homeopathic Medical College, Chicago, 1901; aged 66; died, January 16, from heart disease.

Edward William Brickley, York, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1883; aged 59; died, January 13.

George Howell Cox, Joplin, Mo.; University of Pennsylvania, 1864; a veteran of the Civil War; died, December 20.

William Elliott ⊕ Escanaba, Mich.; University of Toronto, Ont., 1897; aged 53; died, January 18, from heart disease.

Ignatius S. Few, Texarkana, Texas (license, Texas, years of practice); aged 81; died at Monroe, La., January 11.

Daniel Joseph Nolan, Burlington, Vt.; University of Vermont, Burlington, 1904; aged 42; died, December 13.

Julius Manson Greer, Chattanooga, Tenn.; Atlanta (Ga.) Medical College, 1880; aged 69; died, January 16.

Edward Floyd Brown, Natchez, Miss.; Tulane University, New Orleans, 1896; aged 52; died, November 22.

Frank E. Thomas, Lansing, Mich.; Detroit College of Medicine and Surgery, 1894; aged 53; died recently.

Ira Leslie Edmunds, Clearwater, Minn.; Rush Medical College, 1882; aged 61; died, January 10.

William J. O'Sullivan, New York; Yale University, New Haven, 1889; aged 62; died, January 20.

Thomas Albert Cootey, Rutland, Vt.; University of Vermont, Burlington, 1880; died, January 6 .

Leo Schnepp, New York; University of Budapest, Hungary, 1874; aged 71; died, January 11.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

GLOVER'S CANCER SERUM

The Toronto Academy of Medicine Reports Unfavorably on the Alleged Cure

The method of exploitation of the alleged cancer serum being put out by Dr. T. J. Glover of Toronto, Canada, was briefly discussed in this department of The Journal for January 1. At that time it was pointed out that the medical profession of the United States was being widely circularized by Dr. Glover and that, while the letters purported to come from Toronto, they were, in fact, mailed from New York City. Since this article appeared the circularization seems to have continued undiminished and physicians in various parts of the United States have sent in the Glover advertising material. Oddly enough, the matter now sent out, while identical in every respect with that dealt with in the previous article, bears a different return address on the back of the envelope. The envelopes are the same but the legend "T. J. Glover Research Laboratory, 538 Jarvis St., Toronto, Canada," has been crudely crossed out and there has been substituted by means of a rubber stamp the legend "MRS. STEWART, 309 W. 54th St., New York." Still later letters have been modified to the extent that the letters "RS" of "MRS." have been cut out of the stamp and it now reads "M . STEWART."

There has now come to hand a report just published by a special committee appointed by the council of the Academy of Medicine, Toronto, to investigate the Glover Serum. The report of this committee may be summed up by one of its closing paragraphs, which reads:

> "The data which your committee has been able to obtain have not convinced it that the results of treatment obtained by the use of Dr. Glover's serum are better than those obtained by similar methods introduced by others, and which have ultimately disappointed the hopes entertained of them."

The committee's report deals with the claims that Dr. Glover has made for his serum both experimental and clinical. It seems that Dr. Glover has claimed that, experimentally, he had (1) cultured cancer cells and from these cells had isolated and cultured an organism which he declared was confined to, and present in, every type of cancer; (2) produced cancer in a number of animals by inoculation with these cells and organisms; (3) obtained a serum—from a horse that had been injected with cultures of these cells and organisms—which, when injected into experimental animals rendered them immune to inoculation, and (4) produced improvement or cure in cases of human cancer by the injection of his serum. The committee reported that it was unable to obtain any evidence to substantiate Dr. Glover's claims on the experimental aspect of the question as Dr. Glover had refused to permit representatives of the committee to visit his laboratory; had refused the request of the committee to be allowed to examine his cultures and experimental material; had not acceded to the request of the committee that he demonstrate his ability to culture cancer cells and organisms and to produce cancer by inoculation or to immunize animals against it.

The committee attempted also to collect information which would enable it to pass on the clinical claims made by Dr. Glover, first, as to whether he has succeeded in producing cures, either regularly or occasionally, in cases definitely established as cancer and, second, to enable the committee to decide whether his serum in cases definitely established as cancer produces improvement beyond that which occasionally occurs spontaneously or under palliative measures. On both these points the committee reported that it found no evidence to warrant the hope that a specific cure for cancer has been discovered by Dr. Glover or that the serum had produced a cure in any case definitely established as cancer.

It should be understood that the committee's investigations and findings were completed before the present advertising campaign of the Glover serum was initiated.

SALICON

"Salicon" is marketed by the K. A. Hughes Company, Boston, as "an improved aspirin." In a circular sent out to the public a little over a year ago the following claims were made for it:

> "We rendered aspirin absolutely harmless and yet retained all its virtues as a medicine."
>
> "It positively will not depress the heart nor upset the stomach no matter how large amounts of it are taken."
>
> ". . . the Massachusetts state medical authorities . . . adopted its use at all the state camps for fighting the Spanish influenza. . . ."

The first two statements quoted above are obviously false. The third statement might have been true although it seemed unlikely. A letter was, therefore, written to the Department of Public Health of the Commonwealth of Massachusetts and the claim of the K. A. Hughes Company relative to the adoption of Salicon in all the state camps by the "state medical authorities" was brought to their attention. The reply of the department on this point was emphatic:

> "The State Department of Health of Massachusetts did not endorse the use of Salicon for any purpose."

Some Salicon was purchased on the open market and submitted to the A. M. A. Chemical Laboratory for analysis. Here is the chemists' report.

> "One original bottle of 'Salicon' (K. A. Hughes Company, Boston) was submitted by the Propaganda department of The Journal to the Association's Chemical Laboratory for examination. The bottle contained 100 white tablets having an average weight of 0.407 gram (6.3 grains) each. The amount of ash was 20.9 per cent. Qualitative tests indicated the presence of magnesium, carbonate, starch, acetylsalicylic acid and a trace of calcium; a very small amount of a petrolatum-ike substance was present. Alkaloids and drugs used for a axative effect were not found. The amount of acetylsalicylic acid extracted by chloroform was 50.7 per cent. The amount of magnesium present as magnesium oxid was 14.3 per cent. The amount of magnesium oxid derived from magnesium arbonate U. S. P. is variable but calculating on the lowest imit, 14.3 per cent. of magnesium oxid is equivalent to at east 35.5 per cent. of magnesium carbonate. This figure greed closely with that obtained from the U. S. P. method f assay. The acetylsalicylic acid was not combined with the magnesium. From the above, it may be stated that each tablet onsisted essentially of a mixture of 3.2 grains of acetylalicylic acid (aspirin), 2.2 grains of magnesium carbonate nd some starch. Although labeled 5 grains, each tablet did ot contain 5 grains of the most active ingredient, acetylalicylic acid."

The same old story. An ordinary mixture of well-known rugs put on the market as a new discovery and foisted on he public under false and misleading claims.

Buffer Action of the Blood.—A solution containing buffer ubstance has the property of taking up relatively large quanities of acid without producing much change in the reaction f the solution. Blood has this power to a marked degree. If 1 c.c. hydrochloric acid be added to 100 c.c. of distilled water and to 100 c.c. of blood, respectively, the acidity of the water will change much more than that of the blood. Buffer ubstances usually belong to the class of weak acids, of which the phosphates, bicarbonates and organic acids are good representatives. In the blood we have bicarbonates, phoshates, and amphoteric protein, all of which may possibly serve as buffer substances. There has been some controversy as to which substances actually are acting as buffers, but it is now generally accepted that, within the limits of reaction sually found in the body, the bicarbonates and the protein together are practically entirely responsible for the buffering ction. The buffer action of the blood takes place both in the plasma and in the corpuscles.—*Med. Science* **3**:334 (January) 1921.

Correspondence

"PROPHYLAXIS OF SYPHILIS WITH ARSPHENAMIN"

To the Editor:—In The Journal, Dec. 25, 1920, p. 1768, is an article by Drs. Leo L. Michel and Herman Goodman entitled "Prophylaxis of Syphilis with Arsphenamin," with which I am not entirely in accord. Were Drs. Michel and Goodman applying in their cases a prophylactic or a curative treatment? They state that their patients had in all probability contracted the disease through sexual intercourse as, according to the experiments made in the Rockefeller Institute, syphilis exists in the rabbit twenty-four hours after inoculation even when the primary lesion is surgically removed.

According to this, Drs. Michel and Goodman were only preventing the appearance of symptoms by curing the disease in its first incubation stage (in which no clinical symptoms can be detected) by injecting enough arsphenamin to kill the spirochetes that had already reached the blood. When we apply prophylactic treatment by Metchnikoff's method we try to destroy the spirochetes in situ, before they enter the body. When we use typhoid or smallpox vaccine we are making the ground unsuitable for Eberth's bacillus or the germ of variola to live in. In all these cases we are employing prophylaxis, but I hardly think we could call prophylactic a procedure by which we stop the progress of a disease already affecting the system.

Syphilis begins at the moment the spirochetes enter the lymphatic and the blood vessels, long before the appearance of the primary lesion. The cases reported in this article were therefore syphilis, and Drs. Michel and Goodman, were with their treatment accomplishing the *therapia sterilisans magna* of Ehrlich in a stage of the disease when complete success was to be expected.

I had two cases in my private practice similar to those reported. One was that of a man with a syphilitic chancre who, ignorant of the danger, had intercourse with his wife. She presented no symptoms of syphilis at the time, but I treated her intensively, and so far after two years, the Wassermann test remains negative and she has had no signs of the disease. The other case was that of a young man with mucous patches in his mouth and lips who confessed to having kissed his fiancée repeatedly. She showed no clinical symptoms of syphilis and the Wassermann test was negative, but treatment was instituted, and six months afterward no signs of the disease have appeared and the Wassermann test is still negative.

I never considered these cases very important as my idea was that I was using the abortive treatment of syphilis in that period of the disease during which the patients can be easily sterilized. Maybe others think in the same manner, and that probably explains why up to this time so little can be found on this subject in the medical literature.

V. Pardo-Castelló, M.D., Havana, Cuba.

[The foregoing letter was referred to Drs. Leo L. Michel and Herman Goodman, New York, who reply:

The prophylaxis of syphilis is not comparable with the prophylaxis of either typhoid fever or variola, in that as yet we have neither a vaccine nor a serum. But if local mercurial applications, as suggested by Metchnikoff, are to be considered and labeled "prophylactic treatment," and Dr. Pardo-Castelló uses the phrase, then it is proper to consider the intravenous injection of arsphenamin during the primary incubation phase of syphilis as prophylactic and not curative. Ultimately, the matter boils itself down to a matter of degree.

When the spirochetes of syphilis have entered the lymphatics and blood vessels of the new host only to the degree that external mercurial application may still affect all of them lethally, we have successful prophylactic treatment according to Metchnikoff. When the entry is deemed beyond that degree, we have the prophylactic treatment by arsphenamin. If either of the procedures is to be considered *therapia sterilisans magna,* then both must be so considered, provided the clinical course of the disease has not made itself evident.

Certainly time and usage have accepted the term "prophylaxis" in the sense of either local mercurial or systemic arsphenamin application as the phrase was used in our article. To confuse Ehrlich's conception of the power and value of his synthetic preparations in the treatment of clinical syphilis would be a great injustice, and one very likely to lead to much confusion and ill advised quasitherapeutic procedures. Since our contribution went to press, we have added to the bibliography the short chapter entitled "Use of Arsphenamin in Prophylaxis," in a paper by Dr. John H. Stokes on "The Applications and Limitations of Arsphenamin in Therapeutics," *Archives of Dermatology and Syphilology* **2**:303 (Sept.) 1920.]

PECULIAR PRACTITIONERS AND MEDICAL FREEDOM

To the Editor:—Recently I examined a boy, aged 17, lying in bed, very weak, extremely emaciated, totally blind, barely able to swallow. The ophthalmoscope revealed double optic atrophy.

The history of the case is, briefly: failing vision over nine months, terminating in blindness last August; for several months in the spring and summer of 1920, very severe headaches and frequent attacks of vomiting, often when there was no food in the stomach, and repeated convulsive seizures limited to the right leg without loss of consciousness. It was easy to make a diagnosis of brain tumor; but the condition of the patient was such that surgical interference was out of the question.

This diagnosis, which seemed perfectly clear, might easily have been made months ago. The condition of the patient for many months was certainly grave and alarming, and might have suggested to any one that it needed thorough investigation. During all these months, while the vision was fading and blindness coming on, what did this boy receive? Treatment by an osteopath and then a chiropractor, and then treatment by another peculiar practitioner and still another chiropractor, and so on, but never an ophthalmoscopic examination. Yet with cases like this before us there are those who will still make sophisticated arguments for "medical freedom."

Theodore Diller, M.D., Pittsburgh.

"ON SELECTION OF MEDICAL READING"

To the Editor:—The editorial comment "On Selection of Medical Reading" (The Journal, Jan. 22, 1921, p. 250) discusses a subject which, it seems to me, merits considerable thought, and perhaps more especially as it applies to the undergraduate medical student and the medical journal. The student generally has carefully selected for him a sufficient number of standard textbooks, but this does not apply to journals. Senior, and even junior students, are likely to read journals. It is hardly to be expected that they should be able to read them critically and with proper discrimination. So much unfinished matter finds space in even our better journals that it is too common to see what today, especially to the uncritical mind of a young student, may seem ultimate truth be wholly contradicted in a few weeks or months by evidence that appears to be just as authentic and just as worthy of credence. It seems fair to ask: Is it so necessary that young men or women just graduating from a medical school should be informed of all the latest controversies in medicine, and that they should be exposed, in the process of acquiring this information, not only to the bewilderment of controversial matter, but also to the infection with a not inconsiderable amount of falsehood? When new matter appears in journals which to the medical faculty or to the head of a department seems so true and final as to make it desirable that the undergraduate be made aware of it, might not the school supply the students with reprints of such selected articles? And would not such articles, if carefully selected, be so few as not to be too burdensome to the student? Why wouldn't it be wise, in general, to let medical fruit mellow before offering it to the undergraduate palate?

Maximilian Schulman, M.D., New York.

"THE FLY IN COURT"

To the Editor:—Apropos of the pronouncement of the Supreme Court of Maine against the house fly, described in The Journal, Dec. 11, 1920, readers may be interested in an abstract from the November, 1920, number of a little French journal, "La Chronique médicale" which shows that the fly does not enjoy the unique distinction among the animals of having been haled before before a court of law:

> Formerly the rats, always considered as a public danger, were treated in a manner less sanguinary: they were attached only with blows of court processes, and when they were called before the tribunals they found advocates to plead their cause and justify their misdeeds. It was by serving in defense of the rats of the diocese of Autun that the famous jurisconsul de Chassanée established his reputation. In order to gain time and wait until the animosity against the accused beasts should subside, he claimed that, the rats being scattered in a great number of villages, a simple notice had not been sufficient to warn all of them, and asked that a new notice be given them, with a separate publication in each parish. At the expiration of this long delay, the rats, to be sure, understood nothing. Chassanée excused this "défaut" by alleging the length of the road, the difficulties of travel, the dangers run by the rats, for the cats, their mortal enemies lay in wait for them on all the roads. After many delays, he finally had to plead the case. He then appealed to considerations of sentiment, of pity, of policy, of heroism even. Was it not the rats who, eaten in the besieged cities, conserved to the garrisons their courage and vigor?

We do not know what sentence was rendered by the official of Autun. What one knows, however, is that the rats were saved from excommunication. Autre temps, autre mœurs!

M. Y. Marshall, M.D., Henderson, Ky.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address but these will be omitted on request.

HYPERTHYROIDISM AND BASAL METABOLISM

To the Editor:—I shall appreciate whatever information you can giv me concerning the following questions:

1. Do thyroxin and thyroid extract invariably raise the basal metabolism in normal individuals?

2. Do all definite cases of hyperthyroidism show an abnormal bloo sugar curve after the administration of 100 gm. of glucose?

3. In hyperthyroidism may one expect the hypersensitiveness t epinephrin and the abnormal glucose tolerance (blood sugar curve) t return to normal as the clinical condition improves?

If published, please omit name. E. M. E., North Carolina.

Answer.—1. Thyroid extract administered in the usual way by mouth, does not invariably increase the basal metaboli rate. Failures to produce this or other expected results fro the administration of thyroid extract by the alimentary rout in man and animals are observed not infrequently and hav sometimes been attributed to the use of inactive preparations Thus, by way of illustration, P. T. Herring (*Endocrinolog* **4**:577, 1920) in a recent criticism of certain experiments conducted by Kuriyama, avers that "Kuriyama's. experiment were unsatisfactory in that he employed desiccated thyroid of unknown activity in doses which would be toxic if fully active." E. C. Kendall has stated that thyroxin itself may also fail to produce its characteristic effects when administered by the mouth, and from this it would appear that inactivity of the preparation need not be held responsible for all such failures. Thyroxin itself, when administered by vein, is reported to produce the characteristic increase of the basal rate with high consistency.

2. It is accepted as a fact that glycosuria may be produced by the administration of thyroid. Glycosuria is also occasionally observed in cases of hyperthyroidism. Such cases are also found in many instances to show an abnormal elevation of the blood sugar percentage or even pronounced glycosuria after the administration of glucose by mouth; but such phenomena are not peculiar to cases of hyperthyroidism, nor can it be said at the present time from any existing data that all cases of definite hyperthyroidism show these changes. The consensus among those who have worked in this field is that the blood sugar curves in cases of hyperthyroidism are interesting but of no definite diagnostic or prognostic importance. Compare in this connection the papers by Means and Aub (*Arch. Int. Med.* **24**:645 [Dec.] 1919) and Janney and Henderson (*ibid.* **26**:297 [Sept.] 1920).

3. The entire question as to the relationships which may be expected between hypersensitiveness to epinephrin and the symptoms of hyperthyroidism is involved in the question of what we mean by the term hyperthyroidism. It is a term that has been and still is used differently by different writers. Some would classify cases as cases of hyperthyroidism on the basis of certain signs and symptoms such as the character of the thyroid, tachycardia, tremor or sweating, with or without any observed increase of the basal metabolism; others would not sanction the employment of *hyperthyroidism* to designate cases which, after sufficient study by exact methods in the hands of well-trained observers, show no elevation of the basal metabolic rate. If we speak of hyperthyroidism only in cases that show evidences of an increased thyroid function, and accept the view that no evidence of increased thyroid function is complete without an increased basal rate, as held by Plummer, Kendall, et al. of the Mayo Clinic, then it is necessary to exclude from the field of hyperthyroidism all cases which fail to show this phenomenon. The tendency in the leading clinics of the country is to adopt the latter usage as the only one based on a concrete experimental foundation. Hypersensitiveness to the effects of subcutaneous or intramuscular injection of epinephrin as evinced by an unusual elevation of the pulse rate and blood pressure, together with other symptoms as described by Goetsch, may be present in cases that show no elevation of the basal metabolic rate prior to the injection of the drug. This appears to have been shown by Goetsch himself, who includes in his series of hypersensitive cases some in which the basal rate was not elevated, and by Peabody (*M. Clinics N. America* **2**:507 [Sept.] 1918) and his associates, Wearn, Tompkins and Sturgis (*Arch. Int. Med.* **24**:269 [Sept.] 1919), who found increased sensitiveness to epinephrin in a considerable percentage of cases of "irritable heart of soldiers" (effort syndrome, neurocirculatory asthenia), although determinations of the metabolic rates in the same cases lent no support to the theory that hyperthyroidism was an underlying feature. Some writers have failed to observe hypersensitiveness to epinephrin even in cases which hey considered to be cases of hyperthyroidism. The work of Peabody and his associates shows, further, that the injection of epinephrin caused a definite increase of the basal metabolism both in individuals who were and those who were not hypersensitive to epinephrin; but no parallelism was observed between the increases in basal rate and the degree of hypersensitiveness in the Goetsch sense. Accordingly, it cannot be said at present that hypersensitiveness to epinephrin ises and falls with the rate of metabolism. It depends rather on changes in the sympathetic autonomic nervous system which may accompany hyperthyroidism but which may also occur in other conditions.

"INSANITARY" OR "UNSANITARY"?

To the Edior:—I have been using for years the word "unsanitary" o designate unclean conditions, especially in reference to health. I have been told that "insanitary" is the word to use. To the question why, no reason is given. What does The Journal think about it? Please omit my name.

J. M., Connecticut.

Answer.—"Sanitary" is derived from the Latin; hence the proper prefix is "in." Webster's Dictionary and Dorland's, Stedman's, Lippincott's and Gould's medical dictionaries each ives "insanitary" only; the Standard and Century dictionaries give both forms.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Connecticut: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Kansas: Topeka, Feb. 8. Sec., Dr. Henry A. Dykes, Lebanon.

Maine: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

Massachusetts: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

Vermont: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

Wyoming: Cheyenne, Feb. 7-9. Sec., Dr. J. D. Shingle, Cheyenne.

California October Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written and oral examination held at Sacramento, Oct. 18-21, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 35 candidates who took the physician's and surgeon's examination, 29, including 3 osteopaths, passed, and 6, including 2 osteopaths, failed. Five candidates received drugless practitioners' certificates. Two hundred and sixteen candidates, including 14 osteopaths, were licensed by reciprocity. Three candidates were licensed by endorsement of credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1920)	78.8
College of Physicians and Surgeons, San Francisco	(1918)	78.5
Leland Stanford Junior University	(1920) 87.5, (1920)*	87.8
Yale University	(1917)	86
Northwestern University	(1920)	88.9
Rush Medical College	(1920) 88.6,	89.3
University of Illinois	(1920)	90.5
Indiana University School of Medicine	(1917)	81
University of Kansas School of Medicine	(1917)	89.5
Kentucky School of Medicine	(1906)	86.5
Harvard University	(1920) 90.5,	93.5
University of Oregon	(1918)	88.1
Marquette University	(1920)**	85.1
Aichi Prefecture Special Medical School, Nagoya	(1907)***	
Sai Sei Medical College	(1899)* 77.2, (1903)*	80
Tokyo Charity Hospital Special Medical School	(1916)***	
University of Leyden	(1908)*	85.2
University of Toronto	(1909) 84, 1911)	86.2
McGill University Faculty of Medicine	(1902)	86.4
(1907) 92.8, (1919) 92.3		

FAILED

College of Physicians and Surgeons, San Francisco	(1918) 58.2,	70
Prefecture Medical College, Japan	(1908)****	56
University of Glasgow, Scotland	(1884)	69.1

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1918)	Arkansas
California Medical College	(1905)	Nevada
College of Physicians and Surgeons, Los Angeles	(1912)	Hawaii
Columbian University	(1893)	New York
Georgetown University School of Medicine	(1893)	Nebraska
University of Georgia	(1913), (1919)	Georgia
Bennett Medical College	(1909)	Illinois
Chicago College of Medicine and Surgery	(1913), (1914), (1915), (1917)	Illinois
Chicago Homeopathic Medical College	(1897)	Illinois
College of Phys. and Surgs., Chicago	(1899)	Indiana
(1902) Illinois, (1903) Minnesota, (1904) Washington, (1905) (1906) (1912, 2) Illinois		
Hahnemann Medical College and Hosp. of Chicago	(1894)	N. Dakota
(1903) Iowa, (1904), (1912) Illinois		
Illinois Medical College	(1903) Ohio, (1904)	Illinois
Loyola University School of Medicine	(1918)	Illinois
Northwestern University	(1902), (1903)	Illinois
(1903) Wisconsin, (1905), (1906, 2), (1907) Illinois, (1908) Colorado, (1910) Utah, (1912) Iowa, (1912) Utah, (1915), (1917), (1918) Illinois		
Rush Medical College	(1882) Wisconsin, (1892)	Illinois
(1896) Ohio, (1900) (1903) Illinois, (1903) Montana, (1903) Iowa, (1904), (1911), (1913) Illinois, (1913) Missouri, (1916) Illinois		
University of Illinois	(1911, 2) (1915)	Illinois
Central Coll. of Phys. and Surgs., Indianapolis	(1898)	Indiana
Eclectic Medical College of Indiana	(1906)	Indiana
Indiana Medical College	(1906)	Indiana
Indiana University	(1910)	Indiana
College of Physicians and Surgeons, Keokuk	(1890)	Oregon
Drake University	(1888), (1894) Iowa, (1900)	Washington

State University of Iowa, Coll. of Homeo. Medicine	(1885)	Iowa
State Univ. of Iowa, Coll. of Med.	(1887), (1906), (1914)	Iowa
University of Kansas School of Medicine	(1909)	Montana
Hospital College of Medicine, Louisville	(1904)	Minnesota
University of Louisville	(1892) Montana, (1907) (1919) Kentucky	Florida
Tulane University	(1902), (1919)	Louisiana
Medical School of Maine	(1893)	Maine
Baltimore Medical College	(1898) Vermont, (1906)	Connecticut
College of Physicians and Surgeons, Baltimore	(1882) (1912) Connecticut	Missouri
Johns Hopkins University	(1909) Alabama, (1912) (1913) Maryland, (1915) New York, (1917, 2) Maryland	Michigan
University of Maryland	(1892) Texas, (1910)	Indiana
Boston University	(1896)	Mass.
College of Physicians and Surgeons, Boston	(1910)	Georgia
Harvard University	(1882), (1890), (1905) (1910) New York, (1916) Connecticult, (1917), (1918), (1919) Massachusetts	Mass.
Tufts College Medical School	(1901) (1908), (1915), (1917) Massachusetts	S. Dakota
Detroit Homeopathic College	(1911)	Michigan
Michigan College of Medicine and Surgery, Detroit	(1901)	Ohio
University of Michigan Homeo. Medical School	(1905)	Michigan
University of Michigan Medical School	(1885) (1896) Utah, (1904) Michigan, (1905) Washington, (1910), (1914), (1915), (1917), (1918) Michigan	Wisconsin
Hamline University	(1897) Illinois, (1908)	Minnesota
University of Minnesota	(1897) Montana, (1897) (1902), (1920, 2) Minnesota	New York
Barnes Medical College	(1903, 2) Illinois, (1905)	Kansas
Ensworth Medical College	(1908)	Missouri
Kansas City Medical College	(1905)	Kansas
Marion-Sims-Beaumont Medical College	(1903)	Illinois
Marion Sims College of Medicine	(1896)	Missouri
National University of Arts and Sciences	(1914)	Missouri
St. Louis College of Phys. and Surgs., St. Louis	(1905)	Illinois
St. Louis Medical College	(1874)	Missouri
St. Louis University School of Medicine	(1916)	Arizona
University Medical College of Kansas City	(1894)	Missouri
Washington University Medical School	(1917) (1918) Iowa, (1918), (1919) Missouri	Missouri
John A. Creighton Medical College	(1895) (1901) Nebraska, (1905) South Dakota, (1913) Nebraska	Illinois
Columbia University	(1896) (1899), (1900), (1906), (1918) New York	Hawaii
Fordham University	(1916)	New York
New York Medical College and Hospital for Women	(1904)	New York
University and Bellevue Hospital Medical College	(1904) (1905) New Hampshire, (1914, 2) New York	Iowa
University of Buffalo Department of Medicine	(1906) (1910) Idaho	New York
Cleveland College of Physicians and Surgeons	(1910)	Ohio
Medical College of Ohio	(1891)	Ohio
Ohio Medical University	(1906)	Ohio
Ohio State University College of Medicine	(1915), (1917)	Ohio
University of Cincinnati College of Medicine	(1918)	Ohio
Western Reserve University	(1908), (1916), (1918)	Ohio
University of Oregon	(1890), (1914), (1919)	Oregon
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1889)	Penna.
Jefferson Medical College of Philadelphia	(1897) (1901) Philippine Islands, (1904) North Dakota, (1905) Montana, (1912) Oregon, (1914) Ohio	Washington
Medico-Chirurgical College of Philadelphia	(1895) (1899) New Jersey, (1915) Illinois	Penna.
University of Pennsylvania Department of Medicine	(1899) (1903) New York, (1906) Pennsylvania	Colorado
University of Pittsburgh School of Medicine	(1917)	Penna.
Western Pennsylvania Medical College	(1899)	Penna.
Woman's Medical College of Pennsylvania	(1901)	Penna.
Lincoln Memorial University	(1912)	Tennessee
Meharry Medical College	(1907) (1907) Louisiana, (1917) Tennessee	Georgia
Memphis Hospital Medical College	(1911)	Oklahoma
University of Texas Department of Medicine	(1908)	Texas
University of Vermont College of Medicine	(1900)	Mass.
Medical College of Virginia, Richmond	(1915)	Virginia
University of Virginia Department of Medicine	(1895)	Arizona
Marquette University	(1909)	Wisconsin
University of Vienna	(1885) Illinois, (1897)	Oregon
University of Palermo	(1893) Pennsylvania, (1906)	Missouri
Okayama Special Medical School	(1907)*	Washington
Manitoba Medical College, Winnipeg	(1895)	S. Dakota
Trinity University Medical Faculty	(1903)	Washington
McGill University	(1884)	N. Dakota

* Graduation not verified.

** Diploma withheld until 1921 pending completion of hospital internship.

*** Grade not given.

****License not verified.

Minnesota October Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Oct. 5-7, 1920. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. Eighteen candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University	(1920) 85.5, (1920)*	87.1
College of Phys. and Surgs., Chicago	(1909) 75.1, (1920)	89.1
Harvard University	(1906) 85.2, (1920)	92.2
University of Minnesota Medical School	(1916) 85.1, (1918)	85.5
Long Island College Hospital, Brooklyn	(1915)	86
Jefferson Medical College of Philadelphia	(1919)	85.5

FAILED

College	Year Grad.	Per Cent.
George Washington University	(1909)	72.6

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Hahnemann Medical College, Chicago	(1919)	Illinois
Northwestern University	(1920)	Illinois
Rush Med. Coll.	(1919, 2) Illinois, (1919) Ohio, (1920)	Illinois
State University of Iowa College of Medicine	(1896)	Iowa
Sioux City College of Medicine	(1907)	Iowa
Tulane University of Louisiana	(1919)	Mississippi
Baltimore Medical College	(1907)	Louisiana
Tufts College Medical School	(1901)	S. Dakota
University of Michigan Medical School	(1907), (1917)	Michigan
St. Louis University	(1920)	Missouri
Long Island College Hospital	(1902)	California
University of Vermont College of Medicine	(1888)	Wisconsin
Trinity Medical College	(1901)	N. Dakota

* Diploma withheld until 1921, pending completion of hospital internship.

Idaho October Examination

Hon. Robert O. Jones, commissioner, Department of Law Enforcement, reports the written examination held at Boise, Oct. 5, 1920. The examination covered 16 subjects and included 130 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. Five candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
American Medical Missionary College	(1902)	78.1
Chicago College of Medicine and Surgery	(1910)	82.9
Northwestern University Medical School	(1904) 83.4, (1915)	84.3
Rush Medical College	(1919) 87.6, (1920)	85.1
University of Illinois	(1911)	83.1
University of Kansas School of Medicine	(1916)	84.3
University of Louisville	(1907)	78.4
University of Minnesota College of Med. and Surg.	(1907)	84.1
University of Minnesota Medical School	(1914)	86.4
John A. Creighton Medical College	(1896)	76.9
Jefferson Medical College of Philadelphia	(1917)	79.8
University of Tennessee College of Medicine	(1920)	79.6, 83.9
University of Leyden	(1908)	81.5

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1911)	Utah
University of Michigan Medical School	(1872)	Montana
St. Louis University School of Medicine	(1909)	Utah
John A. Creighton Medical College	(1917)	Montana
University of Oregon Medical School	(1916)	Oregon

Porto Rico October Examination

Dr. M. Quevedo Baez, secretary, Porto Rico Board of Medical Examiners, reports the written and practical examination held at San Juan, Oct. 5-9, 1920. The examination covered 9 subjects and included 78 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1920)	75
University of Maryland	(1918) 88.5, (1920)	75, 90
Tufts College	(1920)	79, 80.5
Detroit College of Medicine and Surgery	(1920)	77
Jefferson Medical Coll. of Philadelphia	(1919)	84, 85
University of Central Spain, Madrid	(1903)*	82

FAILED

College	Year Grad.	Per Cent.
Loyola University School of Medicine	(1917)	68.6

* Graduation not verified.

Rhode Island October Examination

Dr. Byron U. Richards, secretary, Rhode Island State Board of Health, reports the written and practical examination held at Providence, Oct. 7-8, 1920. The examinatio covered 7 subjects and included 70 questions. An average o 80 per cent. was required to pass. Of the 9 candidates examined, 7 passed and 1 failed. The following colleges wer represented:

PASSED

College	Year Grad.	Per Cent
Boston University	(1917)	87.7
Harvard University	(1894) 91.7, (1919)	86.7, 87.3
Columbia University	(1919)	86.9
Jefferson Medical College	(1914)	90
University of Virginia	(1899)	96.5

FAILED

College	Year Grad.	Per Cent
Eastern University School of Medicine	(1913)	78.5
Laval University Faculty of Medicine	(1919)	78.1

Book Notices

A Manual of Neurasthenia (Nervous Exhaustion). By Ivo Geikie Cobb, M.D., M.R.C.S., Neurologist, Ministry of Pensions. Cloth. Price, $3.75. Pp. 366. New York: William Wood and Company, 1920.

While nearly all textbooks on medicine, especially those dealing with nervous and mental diseases, contain some description of this disease, there has not appeared since the days of Beard, 1868, the originator of the name and the first man to recognize and describe the disease as a separate clinical entity, a book in English as complete as this of Dr. Cobb. The wide divergence of views held by medical authorities, the fact that the disease is on the increase, and the small amount of space allotted to the description of the disease in the average textbook are given as reasons for its publication.

Following a historical review of the literature is a broad outline of the disease from the standpoint of the followers of the physical and psychogenic theories of the disease. While Beard recognized two subdivisions of exhaustion in his descriptions of cerebrosthenia (where the mind was concerned) and myelesthenia (body involvement), his views did not help us in the understanding of the causes of the disease. The possibility that mental symptoms may result from mental causes received no recognition. Janet (and in reference to hysteria, Charcot before him) was the first to claim the opposite; that neurasthenia was caused by abnormal mental processes, while in hysteria the symptoms were attributed to a splitting *en masse* of the personality of the patient with the resulting dissociation, and in psychasthenia (obsessions, phobias, impulsive acts, etc.) the dissociation was in the nature of molecular dissociation of the elements entering the phenomenal consciousness, as a result of which the patient is unable to enter into touch adequately with the real. He regarded neurasthenia as due to a physiologic nervous exhaustion. Dr. Cobb does not look on the theories of Janet as convincing. According to some adherents of the psychanalytic school, neurasthenia belongs to the neuroses and not to the psychoneuroses, the difference lying in the fact that the neuroses owe their conception to the present or recent mental life of the patient, while the psychoneuroses are due to "partially or completely forgotten incidents or fantasies of early childhood that persist in symbolic form in adult life or the reactions against them" (Stoddard), or "it is better to consider neurasthenia as the expression of a very marked auto-erotic fixation, as a return to that infantile period of development in which the child takes a preponderating interest n its own body" (Jelliffe and White: Diseases of the Nervous System).

Dr. Cobb is giving credit to the work of Freud, not because ie believes in the sexual theory of Freud, but because Freud's heory of mechanisms—the elements of repression, complexes, conflicts, etc.—so well explain the facts of neurasthenia. In a word, it is the author's belief that while in a certain number of cases the sexual factor may be present, there are many cases in which the cause is an entirely different one. He inds it difficult to believe that every neurasthenic is suffering rom a perverted instinct or a repressed anxiety. He believes hat other mental factors (anger, jealousy, envy) may possess the power to disturb mental harmony, and that a conflict nay arise in matters other than sexual. In admitting other conflicts, the author believes that he "shall not be more rash han the advocates of the sexual theory where they limit so arbitrarily the mental causes to the sexual."

"A tentative thesis," as offered by Dr. Cobb, is that "all pathological mental processes originate in a repression of he powers of Self." As a definition of Self, the one given by William James is accepted. "Preoccupation with this limited elf brings with it the perils which are attendant on all compression of force. Human nature is too big a thing that it an be contained safely behind the prison walls of any material self."

The summing up of this thesis is that the psychic and physical interact, and any disturbance of psychic disposition may develop along lines which lead to physical or psychic ill ealth or both. The general law for the formulation of psychic ills is that they arise as the result of mental conflict. When this takes place we get a lowered vitality, the bitterness of which tends to be increased by the consciousness that it ought not to be. Joy in living should be regarded as the norm of human life and its justification. When this joy is diminished, when conflict claims the mental energy instead of externalia which might stimulate joy into being, egoism results. This mental state may lead to the establishment of neurasthenia. Neurasthenia, then, is a psychophysical disorder and as such often presents mental characteristics.

The chapters on symptomatology, differential diagnosis and treatment, including general hygiene of neurasthenics and drug treatment and psychotherapy (suggestion, persuasion, psychologic analysis, reeducation, etc.) are exhaustive and well written. The reproach of the author regarding the curriculums of medical schools, that so little attention has been paid to the study of functional disturbances, is a timely one.

Food Inspection and Analysis. For the Use of Public Analysts, Health Officers, Sanitary Chemists and Food Economists. By Albert E. Leach, S.B. Revised and Enlarged by Andrew L. Winton, Ph.D. Fourth edition. Cloth. Price, $8.50. Pp. 1090. New York: John Wiley & Sons, 1920.

The fourth edition of this standard book, initiated by Albert E. Leach, late chief analyst of the Massachusetts State Board of Health, is the result of a rather thorough revision by Dr. A. L. Winton. The general arrangement and treatment of the subjects do not differ greatly from previous editions, but newer methods of investigations of foods have been incorporated. As is so often the case when standard works are revised, authors are slow in bringing the illustrations up to date; so here the "cuts" of various forms of apparatus are not in keeping with what should be expected of a progressive book; for instance, the "Gladding apparatus for determination of boric acid" (p. 884) calls for the boiling of methyl alcohol by means of a free flame! Also it is rather surprising to read (p. 1014) that cocain is still an ingredient of certain proprietary syrups and beverages; this was the case a number of years ago but does not hold true today, thanks to our various food and drug laws. A valuable addition to the book is the chapter by Dr. G. L. Wendt on the "Determination of Acidity by Means of the Hydrogen Electrode." This chapter should be of considerable aid to the medical laboratory workers who more and more are abandoning the "indicators" in favor of the more satisfactory p_H. Dr. Wendt has not detailed the great mass of theory on which such determinations are based; he has given, however, sufficient discussion of the physical deductions to enable a worker to follow the method knowingly, while the apparatus described is accurate for ordinary needs and still retains the element of relative simplicity. Laboratory workers and those in the administrative positions of health enforcement should find this book most valuable.

Principles of Biochemistry. For Students of Medicine, Agriculture and Related Sciences. By T. Brailsford Robertson, Ph.D., D.Sc., Professor of Physiology and Biochemistry in the University of Adelaide, South Australia. Cloth. Price, $8. Pp. 633, with 49 illustrations. Philadelphia: Lea & Febiger, 1920.

As indicated by the title, this work discusses the principles of biochemistry and does not pretend to catalogue the accumulated data of the subject. The discussion is from the standpoint of physiology rather than that of chemistry, which makes it far more readable and intelligible to the medical student and practitioner than are most treatises on biologic chemistry. Therein lies its chief value, for it is not an exhaustive presentation of the present state of our knowledge, which would demand a condensation of data impossible of ready assimilation; rather, it discourses agreeably and lucidly of the matters of general interest, and considers their bearing on the wide fields of biology, medicine and agriculture. The scope and manner of presentation are indicated by the fact that it is divided into six parts, dealing with foods; properties of protoplasm; chemical correlation of the tissues; chemical processes that underlie and accompany life phenomena; products of tissue activity, and the energy balance of the organism. These subjects indicate plainly that the point of view is essentially biologic rather than chemical, and in places this attitude is carried to such extremes as to include topics that seem to be far from a chemical interpretation, such as memory, sleep, and "the fading of memory traces"; nevertheless, the last process is shown to present a "curve of forgetting," which resembles the curve that expresses the rate of issuance of a colloid from a colloidal into a fluid menstrum. The conclusion that "the fading of a memory trace . . . may not improbably be due to the washing out of a colloidal substance, which forms the memory trace, by the circulating fluids," is a somewhat wider departure from the beaten tracks of biochemical thought than most of the author's presentations. Hypercritical readers may note that the very latest points of view and contributions are not always recognized, and that some of the statements made are therefore subject to qualification; but these defects can be remedied in subsequent editions. Within the limitations of scope defined for the book by its author, it is a valuable addition to biologic literature, for it may be used by a wide circle of readers, and presents the subject matter of biochemistry from a standpoint that makes it of vital interest, and therefore less subject to the processes of the "fading of memory traces." Physicians who wish to familiarize themselves with biochemical science by a course of reading will be able to secure here what they are seeking without finding themselves too seriously handicapped by the prominence of chemical features usual in works in this field, although the essential chemical facts are all presented in an adequate manner. An unusual chapter, on the outlook of biochemistry, closes the book, with fascinating predictions of a millenial return of the fields and forests from their uses for agriculture to a universal playground, when artificial photosynthesis permits of the production of our food and clothing in the chemical factory, to say nothing of the production of "cold light" when we understand the oxidative processes that underlie luminescence in animal organisms, together with many other suggestions of advances that promise more early achievement. Even senescence "must ultimately fall under the sway of human intellect Dr. Robertson believes, but he is less optimistic concerning the artificial creation of living matter, which problem probably troubles most of us less than that of senescence.

DIABETES: A HANDBOOK FOR PHYSICIANS AND THEIR PATIENTS. By Philip Horowitz, M.D. Cloth. Price, $2. Pp. 196, with 29 illustrations. New York: Paul B. Hoeber, 1920.

This is a small book that may be read in an hour. It is intended to be placed in the hands of physicians and patients. Half of it consists of a compilation of menus, recipes, tables and instructions for testing the urine. Little of this material is new. In the other half the writer states his views concerning the etiology of diabetes and, by case reports, illustrates the manner in which he manages diabetic patients. He believes that diabetes is the result of "autointoxication causing an interference with the ductless glands," basing his conclusions on points discussed in an earlier paper by himself, and on the results of animal experimentation "which will be reported later." Perusal of the case reports shows that he regulates the diet much in accordance with familiar teachings, and supplements the dietary regulation by calisthenics and by measures calculated to reduce intestinal intoxication, namely, the administration of lactic acid bacilli, irrigation of the bowel, etc.

DIAGNOSE DER SIMULATION NERVÖSER SYMPTOME AUF GRUND EINER DIFFERENTIALDIAGNOSTISCHEN BEARBEITUNG DER EINZELNEN PHÄNOMENE. Ein Lehrbuch für den Praktiker. Von Prof. Dr. Siegmund Erben. Second edition. Paper. Price, 56 marks. Pp. 254, with 28 illustrations. Berlin: Urban & Schwarzenberg, 1920.

This work is based on a course of lectures on the diagnosis of nervous diseases for medical men connected with the extensive industrial insurance of Austria. The first edition appeared in 1912. In this edition the author has added experiences contributed by the war. The ordinary symptoms indicating involvement of the nervous system are considered in some detail, especially such as occur in industrial accidents and the disorders of working men. Special attention is paid to the symptoms of neurasthenia, pain, especially backache and back pain, sciatica, paralyses, tremor and dizziness. Physicians active in industrial medicine will find this monograph interesting and instructive, and those active in medicolegal practice will find many useful hints.

Medicolegal

Board May Employ Physician to Examine for Smallpox

(Bartlett v. Dahlsten et al. (Neb.), 178 N. W. R. 636)

The Supreme Court of Nebraska says that this action was brought by a physician to recover from Wheeler County, on an alleged contract, $214 for services rendered in the examination of a number of persons, residents of the county, dura smallpox epidemic. There was evidence tending to show that the physician on the board of health was unable to diagnose the disease, and called it "Cuban itch." No quarantine had been established, and many persons afflicted with the disease walked about the streets and in public, so that the epidemic got well under way before it was discovered what the ailment was. The plaintiff undertook the work, in this emergency, at the instance of the county board of health. Each of the specific examinations was made at the request of the board. When his services were completed, he filed a claim, which was disallowed by the board of county commissioners; and he appealed to the district court, where he got a judgment for the full amount of his claim. The fees charged were shown to be reasonable; but the defendant contended that the individuals receiving the services should be required to pay for them, and not the county, since, with one exception, they were not paupers and not a county charge. But the judgment in favor of the plaintiff is affirmed, the plaintiff to recover costs, on condition of his remitting $57 charged for services to individuals who were residents of incorporated towns.

By Sections 2737 and 2738 of the Revised Statutes of Nebraska of 1913, the county board of the county is directed to make and enforce regulations to prevent the introduction and spread of contagious diseases within the county, and, to that end, to establish a county board of health, which is given jurisdiction over the matter throughout the county, except in incorporated cities and villages. Where the local board fails to act with sufficient promptitude and efficiency in any emergency, it is expressly provided that the state board of health shall step in and enforce its own regulations in that county, and that the necessary expenses so incurred shall be borne by the county. It would seem to follow that when the county itself acts in an emergency it was not intended that it be limited in its powers more than the state board, and that the necessary expenses incurred should, in that event, also be chargeable to the county. Though it is not expressly provided that when the county acts in providing regulations to prevent the spread of disease the necessary expenses so incurred shall be a charge against the county, that liability must necessarily be inferred. If this were not true, then the county would, by law, be required to perform a duty and at the same time be prevented from using the means necessary to its performance. The county board could not quarantine without learning, through the services of a physician, whom to quarantine, and such services of a physician could not be procured without pay. The right of the duly constituted county authorities to employ a physician in an emergency of this kind seems to the court to come clearly within the express authority given to the county to provide and enforce regulations in order to prevent the introduction and spread of contagious diseases, and it must be that the examination and diagnosis necessary for purposes of quarantine of contagious diseases is one of the regulations contemplated and intended to be covered by the statute. When a physician performs services of such kind for the county he, of course, ought to be allowed to recover from the county, though the individuals examined and quarantined were not paupers or a county charge. The obligation of the county rests on contract, and, though it might be that the individual would be liable, the county is at least primarily liable to the physician. However, the jurisdiction of the county board in this case was limited by statute to that territory within the county, outside the limits of incorporated cities and towns.

It was urged that the county commissioners had no jurisdiction to pass on the claim because, as filed under Section 965, it alleged that the "account is just and correct" and that the "amount claimed, after allowing all just credits, is wholly unpaid," but contained no affirmative allegation that the amount was due, while the statute requires a showing that the items are "just and true" and that the amount claimed is "due and unpaid." But the claim had attached to it a statement, purporting to be an account in favor of the plaintiff and against the county, and showing a balance of $214 in the plaintiff's favor; and the court holds that the board was vested with jurisdiction to pass on the claim.

As to an Alleged Conspiracy to Enforce Medical Law

(Nesmith v. State (Ohio), 128 N. E. R. 57)

The Supreme Court of Ohio, in affirming a judgment of conviction of defendant Nesmith of practicing medicine without a license, says that one of his claims of error was at least a novel one. It was that his counsel in his opening statement to the jury was unreasonably limited by the trial judge when he undertook to state to the jury that there was a conspiracy among certain persons in the county to prosecute the defendant and deprive him of the right of practicing medicine as a chiropractic, and that the trial court likewise unreasonably limited the defendant in refusing to permit him to introduce testimony in evidence tending to show such conspiracy. But there was no error in either respect. Conspiracies are often charged as being formed for the purpose of avoiding or defeating the law, of nullifying the law, but it is rather unusual to find a charge of conspiracy to enforce the law. If there could be more leagues, or covenants, to bring about the enforcement and administration of the law as it is written, we should probably have a less lawless people; law and order being at the foundation of all stable and successful governments. It is somewhat difficult to understand how obedience and respect for law on the part of certain groups of citizens, as against others disposed to defy or defeat the law, could be utilized to enable the latter to violate the law with immunity or impunity. Obviously, if any witness called by the state to establish any essential elements of a crime charged were exercising any special zeal or interest in the transaction concerning which he was examined, such fact might be shown as affecting his credibility; but such a status nowhere appeared in this case.

It has long been well settled in the jurisprudence of Ohio as well as of other states that the general assembly has the right reasonably to regulate business and occupations and those desiring to follow them, especially physicians and surgeons. In addition, legislation of the character in question in this case is clearly within the police power on the further and higher ground, the regulation of public health. All persons engaged in the practice of the healing art need have special qualifications touching the knowledge of the human body in all its parts, their normal and abnormal relations—not only knowledge that would enable such persons carefully and correctly to diagnose physical and mental ailments, but also an ability to prescribe the proper treatment therefor. The public needs relating to the conservation of the public health are so manifest that it would seem unnecessary to consider further the general scope of this character of legislation, as to whether or not it is within proper constitutional limitations.

Validity and Evidence of Contract for Services

(Collins v. Joyce et al. (Minn.), 178 N. W. R. 503)

The Supreme Court of Minnesota, in affirming an order in favor of the plaintiff, a physician and surgeon, says that he brought this action to recover the value of hospital services and medicines for an injured employee of the defendants, and that the plaintiff obtained a verdict for $325. The defendants and the employee were within the scope of the workmen's compensation act, which made it the duty of the defendants to provide the employee with medical and surgical treatment and medicines and medical and surgical supplies up to $100, though the court administering the compensation act might, under certain conditions, allow $200. The defendants contended that, inasmuch as the statute made it the duty of the defendants to provide this service for the employee up to a certain amount only, a contract to pay more than that amount would not be implied from a request to perform this service, nor could a verdict be sustained for more than the amount fixed by the compensation law, on the theory of an express contract. The supreme court, however, was not called on to consider the principles of implied contract applicable to such cases, as this action was plainly based on an express contract, and was so submitted to the jury. The court sees no good reason why the defendants might not agree to furnish medical and hospital attention and supplies to their employee in excess of their statutory obligation, if they saw fit to do so, and no reason why they might not obligate themselves to pay the plaintiff the full value of such services, furnished to their employee at their request. The question was: Did they so obligate themselves? The plaintiff testified that one of the defendants, who did business as a firm, called him, and that, while they were on their way to attend the employee, the plaintiff asked, "What about my pay?" The defendant replied: "We carry insurance; we get our money from the insurance company, and then we pay you; you don't need to worry about that." The fact probably was that neither party thought or knew of the limitation of the compensation act. The supreme court thinks the jury might construe the language used as a contract to pay the value of the services the plaintiff should render to the employee. In other words, the court holds that an employer, though operating under the workmen's compensation act, may agree, with a physician called by him to treat an injured employee, to pay the full value of the physician's services; and that the evidence in this case sustained a finding that the defendants made such an agreement.

The court also holds that proof of a verbal assurance of payment given after services have been rendered, though not admissible, under the statute of frauds of Minnesota, to prove a contract, may be properly received as an admission of a contract previously made. For example, in this case, the plaintiff was permitted to offer proof of a statement alleged to have been made to him by the other defendant, after the services were rendered, that: "You needn't worry about your pay. We will see to it that you are paid. We took him down there, and we are responsible for your payment." This evidence was properly received as an admission of the contract which the plaintiff testified had previously been made.

Then, the question to whom credit was given by the physician being in controversy, it was proper to permit him to testify that he rendered his services on the credit of the employers. That is to say, after the defendants had offered proof tending to show that the plaintiff gave credit to the employee, it was proper to permit the plaintiff to say that he performed his services on the credit of the defendants and not of the employee. That was a material point in the case. It was proper that the plaintiff should testify, directly, to whom credit was given. That was within the general rule that, whenever the motive, belief or intention of any person is a material fact to be proved, it is competent to prove it by the direct testimony of such party.

Basing Unsoundness of Mind on Bodily Condition

(In re Hook's Will (Iowa), 178 N. W. R. 357)

The Supreme Court of Iowa, in reversing a judgment sustaining a will because the judgment was rendered on a directed verdict instead of the case having been left to the jury, says that the contestants of the will introduced the evidence of the attending physician and of two other physicians who had attended the testator on one or two occasions during his illness. These physicians all testified to their opinion that he was mentally unsound. This opinion, however, was based in part at least on the convenient theory that as the testator was bodily sick he could not have been mentally sound; that the mind is dependent on the brain and the brain is dependent on the other organs of the body; and that a necropsy disclosed a mortal condition of all such organs, though no examination was made of the brain. Such theory is mere subtlety and not medical expert opinion. It is of no aid to a judicial investigation of the sufficient mental capacity of a testator to make a will. So far, therefore, as this feature of the medical testimony was concerned, this court disregarded it in reaching its conclusion.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

January, 1921, 21, No. 1

*Food Requirements of Children. L. E. Holt and H. L. Fales, New York.—p. 1.
*Calcium in Blood of Children. W. Denis and F. B. Talbot, Boston.—p. 29.
*Ulcerated Meatus in Circumcised Child. J. Brennemann, Chicago.—p. 38.
*Tuberculosis in Infants and Young Children. M. Wollstein and R. C. Spence, New York.—p. 48.
*Chronic Tuberculous Hilus Pneumonia in Children. Report of Cases. D. Greenberg, New York.—p. 65.
*Complement Fixation for Tuberculosis in Children. J. V. Cooke, St. Louis.—p. 78.
Precipitins to Egg White in Urine of New-Born Infants. C. G. Grulee and B. E. Bonar, Chicago.—p. 87.
Blood Volume in Infants Estimated by Vital Dye Method. W. P. Lucas and B. F. Dearing, San Francisco.—p. 96.

Food Requirements of Children.—The average caloric requirement of children, according to the observations of Holt and Fales in about 100 calories per kilogram at an age of 1 year (about 9.5 kilograms). For boys it falls to about 80 calories at 6 years (about 20 kilograms) and remains practically constant at this value up to the age of 15 years, the increasing requirements for activity being met by the reduction in basal requirements per kilogram. After a weight of 50 kilograms (about 15 years), is reached the calories per kilogram can rapidly be reduced to adult standards, about 48 calories per kilogram. The requirement for girls falls to 76 calories per kilogram at 6 years (about 20 kilograms), continues at this value until the tenth year. During the tenth year it rises because the basal requirement is nearly constant while there is an increase in needs for growth and activity. The requirement remains at 80 calories per kilogram unitl growth is complete, then falls rapidly to adult standards, about 44 calories per kilogram. The total daily caloric requirement of children of both sexes during adolescence exceeds by nearly 1,000 calories the requirements of the adult man or woman of moderate activity. It seems the right procedure to allow for children during the period of adolescense more calories than the adult ration and, as growth needs end, to diminish the caloric allowance to the adult standard.

Calcium in Blood of Children.—As the result of a series of observations of the calcium and magnesium content of the blood of 119 children, Denis and Talbot have found that a low calcium content of the serum frequently occurs in infantile tetany, acute rickets and pneumonia. In one case of tetany there was a considerable increase in the blood calcium after the administration of calcium chlorid by mouth. Several cases of epilepsy had a low blood calcium. The significance of these findings is as yet uncertain.

Ulcerated Meatus in Circumcised Child.—A peculiar lesion of the meatus urinarius occurring only in circumscised male children is described by Brennemann. It is caused by the "ammoniacal diaper." The etiology of the "ammoniacal diaper" is still obscure but seems due to one or both of two factors: a dietetic error that increases the ammonium or urea content of the urine, and the presence of an alkali or of certain bacteria in the diaper. The treatment consists in correcting, if possible, the dietetic error and in thorough rinsing and boiling of the diapers, night clothes and bedding.

Tuberculosis in Infants and Children.—The study made by Wollstein and Spencer emphasize the great frequency of tuberculosis in infancy and early childhood, the suggestive decline of tuberculosis among the young children admitted to the Babies' Hospital during the last six years; the greater incidence of tuberculosis of infants and young children acquired by inspiring tubercle bacilli compared with that acquired by swallowing the bacilli with milk or food; the rapid generalization of tuberculosis in young subjects, the rapidity and degree of generalization being, as a rule, in inverse proportion to the age; the great frequency with which termination by tuberculous meningitis occurs, and the absence of any case of healed tuberculosis from this series of 184 necropsies on tuberculous children.

Chronic Tuberculous Hilus Pneumonia.—The type of tuberculosis to which Greenberg calls attention is a diffuse or parenchymatous process involving that portion of the lung immediately adjacent to the hilus. It is characterized by a gradual onset, comparatively mild constitutional symptoms, fairly definite physical signs (except early) and, as a rule, ends in recovery.

Complement Fixation for Tuberculosis in Children.—Cooke gives the results of the examination of a large number of serums from infants and children by the complement fixation test using an antigen made from human tubercle bacilli. In every case a clinical diagnosis was made without reference to the result of the fixation test. In all 1,855 fixation tests were done on 1,556 children. The test proved of considerable value not only in calling attention to cases of tuberculosis without well defined clinical signs, but in making a decision regarding the presence of active tuberculous foci in children exposed to the disease and also in following the foci in children exposed to the disease and also in following the course of a healing lesion. The complement fixation reaction, however, is of most value when used as an aid to a careful and complete physical examination of the patient. The results show that a positive fixation reaction is associated in a large majority of cases with a tuberculous lesion that is pathologically if not clinically active; hence, a patient reacting positively should not be considered free from active tuberculosis.

American Journal of Roentgenology, New York

December, 1920, 7, No. 12

Roentgenology in Mayo Clinic. R. D. Carman, Rochester, Minn.—p. 577.
Graduate Education in Roentgenology. L. B. Wilson, Rochester, Minn.—p. 580.
Topical Applications of Radium. H. H. Bowing, Rochester, Minn.—p. 582.
Roentgen-Ray Examination of Urinary Tract Made Opaque. W. F. Braasch, Rochester, Minn.—p. 584.
Roentgenology in Diseases of Teeth. B. S. Gardner, Rochester, Minn.—p. 587.
Osteocartilaginous Joint Bodies. M. S. Henderson, Rochester, Minn.—p. 588.
Chronic Gastric Ulcer and Gastric Carcinoma. W. C. MacCarty, Rochester, Minn.—p. 591.
Pre-Operative and Postoperative Roentgen-Ray Therapy in Carcinoma of Breast. D. Quick, New York.—p. 597.
Case of Pedunculated Adenocarcinoma of Stomach and Possible Errors in Diagnosis. E. P. Pendergrass and H. K. Pancoast, Philadelphia.—p. 602.
*Roentgen-Ray Treatment of Leukemia. W. O. Upson, Battle Creek, Mich.—p. 608.
Radium Element Versus Emanation. A. Soiland, Los Angeles, Calif.—p. 612.
Spring-Clip for Holding Films on Illumination Box. G. E. Pfahler, Philadelphia.—p. 614.

Roentgen-Ray Treatment of Leukemia.—Upson reports a case in which treatment has been persisted in for a period of four years with considerable benefit to the patient. In 1916 he had three series of treatment, the leukocyte count being reduced from 142,500 to 9,000. The patient returned for further treatment ten months later with a leukocyte count of 225,000. In one month this was reduced to 65,000. In 1918 another series of treatments was given with equally good results. The patient returned again for examination in April, 1919. Since his treatment in the previous year he had remained subjectively very well. His strength had been very good and he had been busily at work most of the time. However, a few weeks before returning here he noticed that his spleen had begun to enlarge and he thought it best to appear for a new examination. Treatments yielded the usual good results. The patient came back again in February, 1920, for further treatment. One series of treatments was given, paying special attention to the proximal ends of the long bones, after which the spleen was treated by the usual cross-fire method. When the treatment was started the white blood count was 206,200. A few days after the series was completed the last blood count was taken, which showed a white count of 67,000. The spleen had materially decreased in size, but not to normal. The patient's general condition had decidedly improved and he had gained several pounds in weight.

Boston Medical and Surgical Journal

Jan. 13, 1921, **184**, No. 2

League of Red Cross Societies. R. P. Strong, Boston.—p. 27.
Scoliosis. H. W. Marshall, Boston.—p. 31.
Necessity of Maintaining Proper Standards of Nursing Care. E. H. Cohoon, Medfield, Mass.—p. 40.
Conditions in Palestine During the War and Medical Relief Among the Civil Population and the Refugees. I. Alcazar, Boston.—p. 45.

California State Journal of Medicine, San Francisco

Jan. 1921, **19**, No. 1

Problems of Enforcement of the Medical Act. C. B. Pinkham, San Francisco.—p. 6.
Present Nursing Situation. W. W. Roblee, Riverside.—p. 8.
Plea for Better Fracture Results. G. J. McChesney, San Francisco. —p. 11.
Practical Points in Using Thomas Splints. S. Bunnell, San Francisco. —p. 13.
*Clinical and Laboratory Findings in Pyelitis and Pyelonephritis. L. J. Roth, Los Angeles.—p. 16.
*Improved Incision for Fredet Rammstedt Operation. E. B. Butler, San Francisco.—p. 17.
Involvement of Genito-Urinary Tract Associated with Active Pulmonary Tuberculosis. A. Peterson, Los Angeles.—p. 18.
Vesico-Intestinal Fistula. L. C. Jacobs, San Francisco.—p. 19.
Ureteral Transplants for Obstruction of Lower Ureter. R. V. Day, Los Angeles.—p. 21.
Significance of Spinal Defects and Pain Occurring in Relation to Ocular Disease. L. Mills, Los Angeles.—p. 23.
*Group Study of Three Hundred Cases of Arthritis. M. C. Harding, San Diego.—p. 26.
Etiology of One Hundred Fifty Cases of Bronchial Asthma. G. Piness, Los Angeles.—p. 29.
Study of Nasal Conditions Occurring in Bronchial Asthma. S. Jesberg, Los Angeles.—p. 33.

Pyelitis and Pyelonephritis.—Roth says the presence of blood in pyelitis and pyelonephritis is not as frequent or abundant as one would imagine considering the early stage pathology, and yet one of his cases had copious recurrent hematuria with pain and marked febrile course for a period of seven years, and the nephrectomized specimen was benign, nearly functionless fibrosed gland with obliterated calyces. The urine was loaded with pus but contained no casts. The white counts in these cases has such varying results that all attempts to associate the high leukocytosis with circumscribed suppurative processes failed. In fact a leukocytosis of varying intensity occurred in practically all cases, and the highest count (28,620) was found in a chronic pyelonephritis without abscess formation and the next lowest count (8,116) was in a case of cold pelvic abscess of foul content which involved the right kidney by obstructing its ureter. An intermediary count of 17,000 was found in a fulminant case of multiple abscesses with thick purulent discharge from the right kidney. The infection was so severe that the patient succumbed twenty-four hours after a too long delayed nephrectomy. Worse in pathology, but with a white count of only 13,368 was another case of multiple abscesses in which urinalysis showed no casts, very few pus cells and very few bacteria. This patient made a perfect recovery following nephrectomy. The lowest count of 7,321 was associated with a tender, large kidney with no evidence of other focal infection, that ran a septic course with drenching sweats for several weeks and finally recovered spontaneously. The urine showed no casts, many pus cells and but few bacilli. It seems apparent to Roth that the blood count has no distinctive diagnostic value from a numerical point of view, that is, a leukocytosis of 10,000 is as efficient in information as a count of 20,000. Thus in no instance has it been possible to differentiate draining, mild urinary infections from closed collections of pus.

New Incision for Fredet-Rammstedt Operation. — The improved incision described by Butler, called "the flood gate incision," is made over the quadrate lobe of the liver above its free margin. This incision may be completed while the child is straining without any hollow viscera or omentum escaping; the liver moves with respiration and bulges slightly into the wound if the abdominal muscles tighten. This incision is particularly useful when operating under local anesthesia. The dorsal surface of the operator's left index finger slipped into the wound easily displaces the "flood gate," the quadrate lobe of the liver, superiorly. The pylorus lies directly posterior to the quadrate lobe and is easily grasped between the index finger and thumb of the operator's left hand and elevated through the wound.

Arthritis.—The work reported by Harding was done at the U. S. Army Base Hospital, Camp Lewis, Washington, D. C. In 89 per cent. of the cases some infectious process other than that in the joints themselves was found and treated. The blood cultures were all negative. As to types of infection, Harding is not at all convinced that the particular gem present in a tooth or tonsil is necessarily the sole causative factor in the joint condition. Ninety per cent. of these men had had a precious attack. This is of importance in that they were all young men, which points to the similarity to tuberculosis in the childhood invasion of lymphatic and synovial tissues. Arthritis in the child calls for a painstaking cleaning up of all courses of infection, for he will otherwise most certainly have other attacks later in life. Heart complications were rare. Not more than half a dozen were found. None proved fatal, or even crippling. The absence of gastro-intestinal diseases proved surprising. Not a chronic gallbladder nor appendiceal infection was found in the entire series. The typical monarticular gonorrheal arthritic or peri-arthritic was very rare. It made up not more than 2 or 3 per cent. The bulk of the cases having a demonstrable gonorrheal focus presented the same varied types of arthritis as the nongonorrheal. Syphilitic arthritis proved, as expected to be, a small factor. Confinement to bed, free catharsis and spliting of the painful joints was the routine treatment. Sodium salicylate and sodium bicarbonate were given nearly all acute cases in the following manner: A stock mixture containing 2 grains of bicarbonate to 1 grain of salicylate was prepared. The daily dose was from 200 to 400 grains divided into six doses, and each taken in a pint of water. Intravenous triple typhoid vaccine was given for the nonspecific protein reaction in seventeen cases. The results were ufavorable. The chronic cases, in addition to surgery, were given much local treatment, consisting of high temperature baking, massage, and graduated exercise. A patient will rarely damage his joint by activity which is not distinctly painful. On the other hand, to force a painful joint by passive motion is only to invite more trouble. As to the Alpine sun lamps, Harding is convinced that in joint diseases their value is solely as a counter irritant. As such they should be used to produce a blister of desired size and location. The skin should be prepared surgically, the burning done—which is painless—and a sterile dressing applied. Harding cannot see in them a substitute for California sunlight.

Iowa State Medical Society Journal, Des Moines

January, 1921, **11**, No. 1

Infections of Kidney. H. Cabot, Boston.—p. 1.
Relationship of Eye to Focal Infection. S. D. Maiden, Council Bluffs. —p. 8.
Roentgenology in Pulmonary Diseases. H. M. Decker, Davenport.—p. 11.
Before and After Operation. N. Schilling, New Hampton.—p. 14.
Education and Recreation in Army. G. W. G. Haan, U. S. Army.—p. 19.

Journal of Infectious Diseases, Chicago

January, 1921, **28**, No. 1

*Experimental Streptococcus Empyema. II. Attempts at Dye Therapy. F. P. Gay and L. F. Morrison, Berkeley.—p. 1.
*Action of Certain Salts on Phagocytosis and Virulence of Streptococci. T. Otsubo, Chicago.—p. 18.
Spontaneous Epidemic Among Laboratory Rabbits Caused by a Paratyphoid B. Bacillus Related to Rodent Group. V. M. Litch and K. F. Meyer, San Francisco.—p. 27.
Paratyphoid Bacilli from Chicks. R. S. Spray and L. P. Doyle, Lafayette, Ind.—p. 43.
*Ocular Reactions in Anaphylaxis. R. Kodama, Chicago.—p. 48.
*Viability and Growth of B. Typhosus in Bile. T. D. Beckwith and R. H. Lyon, Berkeley, Calif.—p. 62.
Fate of Micro-organisms Introduced into Isolated Loops of Intestine. E. H. Eiskamp and L. K. Park, Palo Alto, Calif.—p. 67.
*Heat Resistance of Spores with Special Reference to Spores of B. Botulinus. H. Weiss, Boston.—p. 70.

Experimental Streptococcus Empyema. — The results obtained by Gay and Morrison do not justify anticipation of practical therapeutic results from the use of dyestuffs in empyema due to the streptococcus.

Action of Salts on Phagocytosis.—Otsubo used M/8 solutions of various salts, diluting when necessary with physiologic sodium chlorid solution, and a typically hemolytic streptococcus isolated from the frontal sinus and cultivated artificially for about two years. The preparations were stained with Wright's method. He found phagocytosis of streptococci in the peritoneal cavity of the mouse is diminished by M/8 solutions of certain salts (magnesium sulphate, magnesium chlorid, strontium chlorid, sodium carbonate, calcium chlorid and sodium citrate). Potassium iodid and fat assium bromid inhibit in lesser degree. Alkalinity of the blood and also the phagocytic power of the peritoneal exudate.

Ocular Reactions in Anaphylaxis.—Generally speaking, Kodama says, the immediate effect of the application of horse serum applied to the eye of normal and of sensitized guineapigs is dilatation of the lid and pupil succeeded by contraction. In the sensitized animal, however, the response is more prompt and vigorous. In addition to these phenomena, anaphylactic intoxication with horse serum may be associated with more or less well marked circulatory disturbances with edema and congestion of lid, conjunctiva, iris and ocular fundus, hemorrhages of epibulbar and retinal vessels. The direct application to the eye of horse serum, heated or unheated, may cause vascular dilatation in the normal, but hemorrhage is observed, especially in the sensitized guineapigs, and this effect may be obtained independently of asphyxia; hence it is due to direct action on the vessels. In addition to the characteristic postmortem appearance of anaphylactic shock, seen especially in the dilatation of the lungs, congestion and hemorrhagic extravasation, Kodama says we have also to make special note of a rapid and strong contraction of the pupil after anaphylactic death.

Viability of Typhoid Bacillus in Bile.—The strain of *B. typhosus* used by Beckwith and Lyon in their experiments was isolated originally from a carrier. It proved to be extremenly long lived in human, ox and rabbit bile.

Heat Resistance of B. Botulinus.—Weiss states that the free spores of *B. botulinus* are destroyed within five hours at 100 C., within forty minutes at 105 C., and within six minutes at 120 C. Bath temperatures are indicated. These thermal death points were determined under optimum conditions for survival.

Kansas Medical Society Journal, Topeka

January, 1921, **21**, No. 1

Psychotherapy. J. H. Cooper, Topeka.—p. 1.
Episiotomy as Means of Preventing Severe Lacerations of Perineum. L. Leverick, Kansas City, Kan.—p. 5.
Syphilis in Innocent. H. G. Collins, Topeka.—p. 7.
Faith Cures and How They Act Contrasted with Principles of Scientific Mental Healing. T. A. Williams, Washington, D. C.—p. 11.

Medical Record, New York

Jan. 15, 1921, **99**, No. 3

Delicate, Nervous and Backward Child as Medical Problem. E. B. McCready, Pittsburgh.—p. 85.
*Myomectomy vs. Radium and Roentgen-Ray in Treatment of Fibroid Tumors in Women under Forty Years of Age. H. N. Vineberg, New York.—p. 91.
*Tumor of Spinal Cord and Its Membranes. N. Sharpe, New York.—p. 93.
Concept of Roentgen-Ray Pathology. Pleuropathy. A. J. Pacini, Washington, D. C.—p. 98.
Caloric Valuation of Food. M. Malkin, Chicago.—p. 101.
Spontaneous Rupture of Uterine Artery During Confinement. J. C. Major, Joliet, Ill.—p. 102.

Myomectomy, Radium and Roentgen Ray in Treatment of Fibroids.—The roentgen rays and radium, in Vineberg's opinion, have their uses in the treatment of fibroids, even in young women. There are certain women to whom the dread of an operation is so great that they will go on suffering pain and loss of blood rather than submit to it. Such patients Vineberg refers to the roentgenologist or radiologist; also those who have a constitutional dyscrasia which would render an operation unusually dangerous. Every patient who consults him regarding a fibroid tumor causing symptoms, is told she may have her choice of treatment, either by operation, or by roentgen ray or radium. Vineberg says he tells her, regardless of her age, that the *one* (operation) perhaps carries more risk with it than do the others, but that in his opinion it is more certain of permanent cure. If she is under 40 he tries to impress her with the advantages, of which he is strongly convinced, of submitting to an operation, the endeavor of which would be to remove her tumor or tumors and preserve her menstrual function.

Tumors of Spinal Cord and Its Membranes.—Two cases of tumor of the spinal cord are cited by Sharpe as illustrating how tumor at times may simulate organic disease, and the amount of compression the cord can successfully withstand if gradually applied.

Jan. 22, 1921, **99**, No. 4

*Amnesia, the Subconscious Warehouse. J. A. Gilbert, Portland, Ore.—p. 127.
Hyperthyroidism. M. F. Morris, Atlanta, Ga.—p. 133.
Concept of Roentgen-Ray Pathology; Cardiopathy. A. J. Pacini, Washington, D. C.—p. 136.
Diet as Postoperative Factor in Gastro-intestinal Disorders. L. H. Levy, New Haven, Conn.—p. 142.
*Acriflavine Irrigation Treatment of Gonorrhea. L. T. Mann, New York.—p. 144.
Behavior of Blood Cells Under Varying Conditions. B. Lemchen, Chicago.—p. 145.
*Infestation of Herd of Swine by Hydatids. A. A. Radcliffe, Waukegan, Ill.—p. 146.

Amnesia.—Gilbert relates the case of a woman, aged about 46 who found herself in another town than her own with her conscious memory a blank. After about one month she consulted the author. The patient refused to be hypnotized for fear that she might be awakened to something unpleasant, a feeling which was almost an obsession. Finally, however, by means of psycho-analysis, Gilbert succeeded in getting a return of memory for many facts that proved to be real experiences in the patient's former life. The author states that this proves to him, at least, that we only forget the things that we want to forget, and that amnesia is the result of autosuggestation, consciously or subconsciously induced, by which conscious data are crowded out of the conscious into the subconscious. It is to be classed as a self-induced negative hallucination. These inhibited data lie dormant until some appropriate association or experience calls them back into proper connection with the conscious life where they belong. In the case cited, the subconscious would usually yield the information reflexly and automatically and the conscious would then verify the information through the original information had been given by some other separate individual.

Acriflavine Treatment of Gonorrhea.—The technic employed by Mann is that of Watson who uses a 1:4,000 solution of acriflavine in physiologic sodium chlorid solution, at body temperature, once daily. He regards this as being the best remedy for the irrigation treatment of gonorrhea and analyzes thirty-six cases, carefully controlled, in which he made use of the treatment.

Hydatid Infection of Swine from Human Being.—In the cases cited by Radcliffe, a man who was infested with mediocanellata was the source of the infestation of the pigs. He had them in his care and frequently defecated around the feeding pens.

Michigan State Medical Society Journal, Grand Rapids

January, 1921, **20**, No. 1

Carcinoma of Rectum and Sigmoid. R. R. Smith, Grand Rapids.—p. 1.
Surgical and Nonsurgical Aspects of Chronic Gastric and Duodenal Ulcers. G. B. Eusterman, Rochester, Minn.—p. 3.
Pathology of Peptic Ulcer. W. C. MacCarthy, Rochester, Minn.—p. 5.
Roentgen Ray Evidence of Ulcer. P. M. Hickey, Detroit.—p. 8.
Etiology and Diagnosis of Peptic Ulcer. M. M. Portis, Chicago.—p. 11.
Acute Fibrinous Bronchitis. Report of Case. N. R. Lawhead, Detroit.—p. 14.

Minnesota Medicine, St. Paul

January, 1921, **4**, No. 1

*Cholecystectomy with Modified Drainage. C. H. Mayo, Rochester, Minn.—p. 1.
*Peritonitis and Intestinal Intubation. A. N. Collins, Duluth.—p. 9.
Repair of Hare Lip and Cleft Palate Deformity. H. P. Ritchie, St. Paul.—p. 15.
Hemorrhagic Disease of New-Born. F. C. Rodda, Minneapolis.—p. 24.
*Preoperative and Postoperative Study of Diabetic Patients with Surgical Complications. D. M. Berkman, Rochester.—p. 28.

Cholecystectomy with Modified Drainage.—Of the 1,254 patients seen at the Mayo Clinic with gallstones and cholecytitis during the last year, 339 showed changes in the pancreas so marked as to be recognized clinically. From 1907 to 1920 Mayo says they operated on 158 patients with cancer of the gallbladder. Previous to 1910 the ordinary operation was a cholecystostomy for cholecystitis with and without stones. During this time 350 cholecystectomies were performed, 3 per cent. of which (0.82 per cent. of the total number of operations on the gallbladder and duct) were for cancer, cholecystectomy being performed only in cases of advanced disease. Increased ability to diagnose cholecystitis and gallstones has led to a greatly increased number of early operations. From January, 1907, to August, 1920, 11,429 operations on the gallbladder were performed; of these 7,688 were cholecystectomies, but since the percentage of early operations before gross disease develops has increased greatly since 1910 the percentage of cancer found has been greatly reduced. Cholecystostomy is now reserved for the special case in which advanced age or complications make it desirable; 3,346 cholecystostomies have been performed at the clinic from January, 1907, to August, 1920. Cholecystectomy with local peritoneal drainage has been the rule, but it is now used for gross infections, without biliary drainage, although biliary drainage is still provided for in most cases of common duct disease, closure being made in suitable cases without biliary drainage but with peritoneal drainage.

Peritonitis and Intestinal Intubation.—A method of intestinal intubation through the appendix stump is described by Collins. By this method it is possible to intubate that part of the intestine, the ileum, which is first involved in the paralytic process. The method is best adapted to the early cases. By perforating the sides of the intubation tube a number of vents are provided for both small and large intestine. By inserting the tube through the ileocecal valve, spasm of that valve is overcome. If reflux of cecal contents into the ileum is a factor, the tube provides an outlet. Gaseous distention and fecal statis have also, by means of the perforated tube, an outlet. By means of the catheter within the tube it is possible to irrigate the small intestine or to administer medicaments or nourishment. Through the intubation tube it may also be possible, by lavage of the intestine, to make such experimental studies on peritonitis cases, during treatment, as may be necessary to establish more definitely the specific nature of intestinal toxins.

Operations on Diabetics.—One hundred and fifty-nine operations of all kinds have been performed in the Mayo Clinic on diabetic patients with a mortality of 5.03 per cent. Ether was administered 104 times, with a mortality of 5.76 per cent. Berkman states that the mortality in operations on infected tissues was twice as great as on uninfected tissue, and, judging from the literature, this is the usual ratio. Sixty-eight per cent. of the seventy-six patients operated on, who have been heard from have obtained relief from various crippling, health-destroying and life-menacing conditions from which they were suffering aside from their diabetes.

Missouri State Medical Association Journal, St. Louis

January, 1921, **18**, No. 1

Plea for Establishment of State General Hospital Articulated with County General and Other Hospitals, and Completion of Medical Education in University of Missouri. F. G. Nifong, Columbia.—p. 1.
*Lucilia Caesar Epizootic. E. W. Saunders, T. W. White, St. Louis, and S. Wisdom, Bismark, Okla.—p. 4.
*A Sign of Value in Early Phthisis. S. Simon, St. Louis.—p. 11.
Bronchial Asthma. C. H. Evermann, St. Louis.—p. 12.
Child Hygiene in Missouri. C. P. Knight, Jefferson City.—p. 16.
Aneurysm of Innominate Artery; Report of Case. E. A. Dulin, Nevada.—p. 19.

Lucilia Caesar and Poliomyelitis.—Saunders states emphatically that Wickman's theory of human transmission of poliomyelitis—that the disease follows the lines of human travel—is entirely misleading, unless the further fact be stated, "during the insect season only." The utter failure to stem the tide of the epidemic in New York by acting on the theory of human transmission, while the streets were swarming with infected *L. Caesar* issuing from its breeding place in the subway then under construction, should have convinced any unprejudiced mind that Wickman's theory was wrong. Seeing that simian poliomyelitis is a strictly inoculable disease, and that human poliomyelitis in its epidemiology contradicts every known law of ochletic transmission, it seems to Saunders imperative to accept the *L. Caesar* epizootic as the logical etiology. It is useless to bury carcasses in the hope of protecting against *L. Caesar*. If already blown the maggots will work their way to the surface through six feet of earth. If not blown, the fly will deposit its eggs on the surface, and the maggots will reach the carcass. Likewise, wire screens are no protection to food against the ova deposited on the outside. Of all known insects *L. Caesar* is most readily trapped. Its predilection for boiled or bruised cabbage is so great that it is called the "cabbage fly" in some localities. After all carrion and garbage is disposed of, every fly within a mile to leeward can be brought to the trap by boiled cabbage. All carcasses and garbage should be burned or treated with larvicide. In the absence of *L. Caesar*, poliomiolocally no more to be dreaded than is malaria without anopheles, or yellow fever without stegomyia. Theoretically inoculation might take place through the bite of blood sucking insects, but the virus has never been found in human blood, this mode of transmission is in the highest degree improbable. In monkey's blood the virus has been found, and the disease actually transmitted through the bite of stomoxys.

Diagnostic Sign in Early Phthisis.—Simon says that when he examines a chest for possible phthisis, he pays particular attention to the heart, and especially to the pulmonary second sound which, in the absence of any organic right centricular hypertrophy, is of inestimable value in that it is usually accentuated in early phthisis.

Nebraska State Medical Journal, Norfolk

January, 1921, **6**, No. 1

Revision of Ununited or Malunited Fractures. H. W. Orr, Lincoln.—p. 1.
Epidemic Encephalitis. W. Heagey, Omaha.—p. 3.
Urinary Infections in Early Life. N. Jones, Omaha.—p. 9.
Roentgen-Ray Diagnosis of Diseases of Alimentary Canal. A. M. Pfeffer.—p. 11.
Treatment of Trachoma. J. M. Walsh, Rapid City, S. D.—p. 19.
Some Commonly Overlooked Foci of Infection. J. G. Parsons, Sioux Falls.—p. 20.
Postoperative Complications of Acute Mastoiditis. R. A. Peterson, Sioux Falls.—p. 23.

New York Medical Journal

Jan. 22, 1921, **113**, No. 4

Modern Commentaries on Hippocrates. J. Wright, Pleasantville, N. Y. —p. 133.
*Modern Treatment of Acne. W. J. Highman, New York.—p. 137.
Backache Due to Neurologic Conditions. C. Rosenheck, New York.—p. 138.
Gynecologic Backache. E. A. Bullard, New York.—p. 142.
Scarlatina. H. I. Goldstein, Camden, N. J.—p. 148.
Seborrhea of Scalp. C. G. Cumston, Geneva, Switzerland.
*Latent Pulmonary Tuberculosis in Its Various Disguises. M. S. Cohen, Philadelphia.—p. 144.
*Tabes Mesenterica Following Influenza. R. J. Melman, Philadelphia.—p. 147.
Transient Heterophoria and Strabismus in Neurasthenics. G. E. Barnes, Herkimer, N. Y.—p. 148.

Treatment of Acne.—The indications for treatment Highman says are (1) the prevention of comedone formation, and (2) the control of the underlying factors where this is possible. Incidental indications are the treatment of the scalp and the expression of the pustules and the comedones. The general treatment consists of regulating the diet by cutting down the starch and sugar intake and by promoting intestinal function. To prevent comedone formation, the use of the roentgen ray is recommended. No local treatment is necessary at home. Vaccines, in Highman's experience, promise nothing. The major indication is the treatment of the skin. One Holzknecht unit applied to the face weekly for from ten to sixteen exposures will cure the average case of acne, and in case of recurrences, two or three exposures will prove effective.

Latent Pulmonary Tuberculosis.—Cohen analyzes seventy-cases in which there was pulmonary consolidation without cough. He records the various symptoms and phenomena observed without endeavoring to explain them. They are grouped under seven heads: Nervous symptoms; autonomic phenomena; gastro-intestinal disturbances; pains; menstrual and other pelvic disorders; skin eruptions, and general or systemic symptoms. He suggests the possibility that they are due to excess of internal secretions the result of stimulation of the endocrine glands by the tuberculous poison and are evidences of a defense reaction. This excessive excretion may continue even after the disease has been checked, hence the symptoms may likewise be manifested.

Tabes Mesenterica Following Influenza.—Melman reports a typical case of influenza occurring in a boy, aged 7 years. On the eighth day the boy had a severe pleuritic pain in the left side, accompanied by a rise in temperature. There was also enlargement of the liver and the spleen. Careful physical and laboratory examination led to the suspicion that tuberculosis was present somewhere. Increasing abdominal distension, palpable inguinal and mesenteric glands led to the diagnosis of tabes mesenterica. The child's condition finally became so alarming that a laparotomy was performed. The mesentery was covered with enlarged glands tuberculous in character and a small amount of fluid was found in the peritoneal cavity. The child made an uneventful recovery.

Ohio State Medical Journal, Columbus

Jan. 1, 1921, **17**, No. 1

Surgical Aspect of Chronic Lesions of Pylorus and Adjacent Viscera. F. G. Leonard, Cleveland.—p. 5.
Terminal Complications of Chronic Indurated Ulcer of Stomach and Duodenum. J. A. Sherbondy, Youngstown, Ohio.—p. 8.
*Scabies, a Possible Menace: Its Recognition and Treatment. J. W. Miller, Cincinnati.—p. 1.
*Treatment of Cancers of Skin. H. N. Cole, Cleveland.—p. 14.
Acute Mastoiditis Following Influenza: Report of Cases. W. E. Murphy, Cincinnati.—p. 18.
Treatment of Tuberculosis of Knee Joint. J. J. Kurlander, Cleveland.—p. 20.
Plea for Better Obstetrics. L. R. Fast, Paulding, Ohio.—p. 23.
Care of Pregnant Woman. W. D. Fullerton, Cleveland.—p. 25.
Use of Local Anesthesia in Major Surgery. D. Foldes, Cleveland.—p. 29.

Treatment of Scabies.—Miller endorses the rubbing cure. Without a preliminary bath the patient is given an ointment containing 5 per cent. balsam of Peru and 10 per cent. of sulphur. A minimum of fifteen minutes is taken for the rubbing of each patient. The ointment is rubbed in thoroughly on every portion of the entire cutaneous surface, not even the smallest part is missed, except the face and scalp. The rubbing is repeated for the next three days. A cotton union suit is worn in order to retain the ointment, is not removed at bedtime. Sometimes it is necessary to cover the hands and feet, especially in very young children, and this is done, of course, by wearing suitable gloves and stockings. Especial attention is given to the genitals, buttocks and breasts while rubbing. Great care must be exercised while rubbing not to cause a sulphur dermatitis. On the fifth day a warm bath with plenty of soap is ordered, together with a change of clothes. All articles of clothing must be disinfected carefully. Occasionally it may be necessary to repeat the course of sulphur rubs, or a 2 per cent. beta naphthal ointment may be substituted.

Treatment of Skin Cancer.—In a series of 202 cases of cancers, most of them on the face, Cole reports results from the use of radium, roentgen ray, electrolysis, electrocoagulation and operation, according to the case. He absolutely advises against the use of caustics, pastes and carbon dioxid snow. He deprecates the general use of small amounts of radium and of roentgen-ray machines by experienced physicians.

Pennsylvania Medical Journal, Harrisburg

January, 1921, **24**, No. 4

Sinus Disease and Ocular Involvement. G. B. Jobson, Franklin.—p. 205.
School Myopia; Its Prevention, Importance of Early Recognition, and Treatment. W. W. Blair and J. G. Linn, Pittsburgh.—p. 206.
Physician and Public Schools. T. E. Finegan, Harrisburg.—p. 210.
Treatment of Malignant Disease; Special Reference to Radium in Needles. W. L. Clark, Philadelphia.—p. 214..
Health Insurance—A Challenge to Physicians. F. R. Green, Chicago.—p. 224.
Endocrines in Gastric Disease. T. G. Schnabel, Philadelphia.—p. 229.
Analysis of Chronic Gastritis. M. E. Rehfuss, Philadelphia.—p. 233.
One Thousand Hysterectomies. H. J. Donaldson, Williamsport.—p. 236.
Value of Subtotal Hysterectomy in Treatment of Fibromyoma of Uterus. F. Hurst, Philadelphia.
General Symptomatology of Mental Diseases. H. V. Pike, Danville.—p. 241.
Medical Practice and Medical Education in Its Relationship to Compulsory Health Insurance. C. Bartlett, Philadelphia.—p. 245.
Summary of the Reasons Why the Medical Profession is Opposed to Compulsory Health Insurance. F. C. Hammond, Philadelphia.—p. 248.
Cauliflower Cancer of the Cervix in a Woman of Twenty. W. E. Darnell, Atlantic City, N. J.—p. 250.

Virginia Medical Monthly, Richmond

December, 1920, **47**, No. 9

Cooperation of Physician in Tuberculosis Fight. R. K. Flannagan, Richmond.—p. 401.
Coordination of Antituberculosis Agencies. W. C. Klotz, Charlottesville.—p. 403.
Mouth Breathing. E. E. Watson, Salem.—p. 407.
Curbing Tuberculosis. S. Harnsberger, Catlett.—p. 408.
Roentgen Ray in Pulmonary Tuberculosis. J. T. McKinney, Roanoke.—p. 410.
Interpretation of Signs and Symptoms in Pulmonary Tuberculosis. H. G. Carter, Burkeville.—p. 412.
Local Tuberculosis Clinic. C. R. Grandy, Norfolk.—p. 414.
Inconstant Blood Pressure. G. Nelson, Richmond.—p. 418.
Biology and Modern Medicine. C. M. Blackford, Staunton.—p. 422.
Venereal Disease Problem. W. D. Kendig, Kenbridge.—p. 428.
Control of Venereal Diseases. E. L. Kendig, Victoria.—p. 431.
Idiopathic and Traumatic Ileus. A. G. Payne, Greenville, Miss.—p. 434.
Public and Its Medical Society. D. L. Harrell, Suffolk.—p. 437.
Rental Lithiasis. A. I. Dodson, Richmond.—p. 439.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

December, 1920, **25**, No. 7

*Red Cell Blood Content of Those Handling Radium for Therapeutic Purposes. J. C. Mottram.—p. 194.
*Histologic Changes in the Bone Marrow of Rats Exposed to Gamma Radiations from Radium. J. C. Mottram.—p. 197.
Roentgen-Ray Therapy. C. T. Holland.—p. 199.
*Suggested New Method of Measuring Roentgen-Ray Dosage. C. E. S. Phillips.—p. 215.
Oral Sepsis and Its Radiographic Diagnosis. J. H. Woodroffe.—p. 217.

Red Cell Blood Content of Radium Workers.—The red cell content of individuals working with radium has been investigated by Mottram. In many cases a diminution in the number of red cells, with a high color index, was observed. In three cases a profound anemia was found, and was followed by death after an illness of a few months. Mottram urges that the workers with radium should be given every practicable and reasonable protection.

Bone Marrow Changes Caused by Gamma Rays.—The results obtained by Mottram are in keeping with and explain the blood changes found in radium workers. The low polymorphonuclear blood content commonly found, and the anemia of an aplastic type affecting the much exposed workers, pointed to an interference with the output of blood cells from the bone marrow.

New Method of Measuring Roentgen-Ray Dosage.—The method proposed by Phillips is based on the fact that a gas becomes a conductor of electricity when traversed by roentgen rays, and its essential feature consists in the use of a thermionic valve. This plan enables the small variations of current in an ionization chamber to be transformed up to give corresponding variations of a much larger current in a separate circuit at low tension, which can be read on an ordinary milliamperemeter placed at any reasonable distance from the roentgen-ray apparatus.

Brain, London

November, 1920, **43**, No. 3

*Symptom Complexes of Lethargic Encephalitis, with Special Reference to Involuntary Muscular Contractions. F. M. R. Walshe.—p. 197.
*Decerebrate Rigidity in Man and Occurrence of Tonic Fits. S. A. K. Wilson.—p. 220.
*Relation of Form of Knee Jerk and Patellar Clonus to Muscle Tonus. H. Viets.—p. 269.
Alterations of the Golgi Apparatus in Nerve Cells. W. G. Penfield.—p. 290.

Classification of Lethargic Encephalitis.—The protean manifestations and the remarkable clinical diversity of lethargic encephalitis are discussed by Walsche, and it is suggested that the numerous schemes of classification and description adopted, though inevitable in the early and growing stages of knowledge of so polymorphic a disease, are in fact tending to confuse rather than to lend precision to our conceptions of this malady, for practically every case presents, either simultaneously or at some phase of its course, the features of several clinical "types." The example of "myoclonic encephalitis" is discussed as demonstrating the misleading results of a purely symptomatic basis of classification and description. A natural grouping of the symptoms of any toxic infective disease of the nervous system is given, and it is suggested that description, and as far as possible classification, on an anatomic basis—that is, using the focal nervous signs for the purpose of defining types—would obviate much of the confusion at present to be found in the literature, and would at least ensure a uniform terminology in descriptions of the disease.

Decerebrate Rigidity in Man and Occurrence of Tonic Fits.—The type of case described by Wilson is one in which there is evidence of withdrawal of cortical control in the form of unconsciousness or semiconsciousness, the result commonly of cerebral hemorrhage—submeningeal or intraventricular, or both—or of meningeal inflammation, or from the effect of certain intracranial tumors; also, for that matter, of hysteria. Coupled with his impairment of consciousness has been the appearance of tonic rigidity of trunk and limbs, minutely resembling experimental decerebrate rigidity, to which frequent exacerbations in the form of tonic or postural fits, accentuating and exaggerating the background of tonic posture, are superadded.

Relation of Form of Knee Jerk and Patellar Clonus to Muscle Tonus.—Viets records the results of his experiments on cats, both spinal and decerebrate, with the anterior crural-vasticrureus nerve-muscle preparation isolated in situ, and the movement of the knee joint recorded graphically.

British Medical Journal, London

Jan. 1, 1921, **1**, No. 3131

*Diagnostic Significance of Abdominal Pain in Childhood. R. Hutchison.—p. 1.
*Epilepsy a Symptom, Not a Disease. J. Taylor.—p. 4.
*Hour-Glass Stomach. C. T. Holland.—p. 6.
*Massage of Heart and Resuscitation. J. A. Gunn.—p. 9.
Practical Gains of Clinical Cardiology Since 1900. W. Gordon.—p. 12.

Abdominal Pain in Childhood.—The possibilities to be considered when confronted with a case of severe abdominal pain in childhood, Hutchison says, are acute indigestion, appendicitis and some form of acute intestinal obstruction of which that due to intussusception is especially frequent. Among the rarer causes are abdominal or Henoch's purpura and renal colic. In children, chronic or recurring abdominal pain usually has its seat of origin in the intestine. Ordinary indigestion may cause some pain, probably from distension of the stomach with gas, but it is rarely severe in degree—rather a mere discomfort—and its definite relation to meals and its relief after the belching up of wind will usually make the nature of the case plain. The intestinal cases are far more common. They are due to: (*a*) ordinary colic; (*b*) umbilical colic; (*c*) enterospasm, and (*d*) chronic obstruction.

Epilepsy a Symptom, Not a Disease.—Taylor is fully convinced that epilepsy should not be regarded as a disease but as a symptom. The convulsions of what is called epilepsy are not in their manifestations to be distinguished from the convulsions of uremia or from those occurring with heart-block and in other conditions. It is only the discovery of associated conditions which reveals the true nature of the convulsions, and the more one sees of these convulsions in what is called ordinary epilepsy the more is one driven to the acceptance of Hughlings Jackson's dictum that "there is no such thing as a case of ordinary epilepsy." Each case of recurring convulsion must be studied by itself. The origin of the convulsions, their nature, the march of the discharge, and especially any premonition or "warning," must be most carefully considered. By such study the cause of the convulsions is most likely to be revealed, and if this is disclosed, treatment, either surgical or medical, may be undertaken with some hope of success.

Hour-Glass Stomach.—Among the 151 cases of hour-glass constriction from old ulcer seen by Holland, 128 occurred in females. Of the males nine presented an hour-glass appearance, either clinically, under the roentgen rays, or at operation, or by all three methods, but they were in reality cases of definite malignant disease. Five were cases in which a gastro-enterostomy had been done some years previously, and these appeared to be due to the late effects of the gastro-enterostomy. One followed on a very severe abdominal crush. Therefore only eight out of the twenty-three males can be classified as typical hour-glass stomach caused by *simple ulcer*—and of these five were proved by a later operation.

Massage of Heart and Resuscitation.—The following directions are laid down by Gunn for resuscitation in cardiac arrest in man or animals, whether from chloroform anesthesia or from any other condition in which cardiac arrest is "accidental." If the heart has stopped, artificial respiration should be resorted to immediately by the usual methods. If, at the end of three or four minutes, no pulse can be felt, and especially if no heart beats can be heard on auscultation, epinephrin should be injected into an external jugular vein, by an assistant if available; if no assistant be available, the gain from epinephrin more than compensates for the loss of time, provided the materials are at hand. In the meantime, or subsequently, as the case may be, the abdomen should be opened high up, one hand inserted in the opening, passed up over the left lobe of the liver, and the heart felt for above the diaphragm. The heart should then be massaged intermittently. As soon as spontaneous beats of the heart, however feeble, are felt massage should be interrupted for several beats to allow the contractions to establish themselves; otherwise, continuous massage may abolish them again. The heart should then be massaged again for a short time, when the beats will probably improve. When the heart has begun beating it is safer to use too little than too much massage. The hand should not be removed from the abdomen till the heart is beating well. When the heart continues to beat regularly and strongly an intravenous injection of atropin should be given. Artificial respiration must be kept up continuously, also after the heart begins beating. After five minutes it may be interrupted to see if natural respiration will begin, but not for long. No harm is done by keeping up artificial respiration, even if it inhibits the natural respirations whereas, on the other hand, it is not safe to interrupt artificial respiration very long, if natural respiration does not commence. If it be found that positive artificial respiration can be used in man by, for example, a Brodie's pump of larger size than that used in the physiological laboratory, the problem of resuscitation will be greatly facilitated. Natural respiration may be expected to begin in five to ten minutes after the heart begins to beat again, but may be delayed for thirty minutes. During the manipulations, and afterward if these procedures be successful, care must be taken to maintain the body temperature.

Journal of Laryngology, Rhinology, and Otology, London

December, 1920, **35**, No. 12

Assessment of Aural Disability Resulting from Military Service. A. Ryland.—p. 354.
Spinose Ear Tick (Ornithodorus Megnini Duges) in Human Ear in South Africa. R. Broom.—p. 362.

Kitasato Archives of Experimental Medicine, Tokyo

October, 1920, **4**, No. 1

*Leukocytes in Influenza in Special Reference to Their Etiologic Significance. S. Yabe.—p. 1.
Serum Fastness of Spirochete of Recurrent Fever. H. Toyoda.—p. 40.

Leukocytes in Influenza; Their Etiologic Significance.—Yabe states that of all the different species of bacteria isolated from influenzal cases, *B. influenzae* is the only one that produces the same blood change as is found in the influenza patient. By a quantity of influenzal endotoxin, more or less perceptible decrease of any kind of leukocytes may be produced. With the endotoxins of other species of bacteria, other than *B. influenzae*, an increase of the leukocyte count has been observed to take place independently of the species of the experimental animals. Hence, Yabe believes that from the results obtained by him experimentally, the clinically observed phenomena of the decrease of leukocytes in influenzal cases, may be most rationally considered to be the results of the toxic action of *B. influenzae*.

Lancet, London

Dec. 25, 1920, **2**, No. 26

Future of Poor-Law Infirmary. C. M. Wilson.—p. 1287.
Poor-Law Infirmaries as Municipal Hospitals. C. Buttar.—p. 1290.
Future of Poor-Law Infirmary from Point of View of General Hospital. E. W. Morris.—p. 1292.
March of Surgery. W. I. de C. Wheeler.—p. 1294.

*Treatment of Large Defects in Peripheral Nerve Injuries. J. S. B. Stopford.—p. 1296.
*Theory of Cancer. T. C. Clarke.—p. 1298.
Blood Pressure During Intravenous Injection of Quinin. U. N. Bramachari.—p. 1301.
Case of Complete Absence of Cerebellum. D. P. Priestley.—p. 1302.
Addendum to Value and Interpretation of Some Physical Measurements. C. B. Heald and B. Thomson.—p. 1302.
Case of Shaving Brush Infection with Anthrax. D. C. L. Fitzwilliams. —p. 1304.
Case of Orbital Cellulitis. R. S. McClelland.—p. 1304.
Case of Epithelioma of Penis Following Incomplete Circumcision. C. H. Whiteford.—p. 1304.

Treatment of Large Defects in Nerves.—Only those cases were considered by Stopford in which it was impossible to bring the ends of divided nerves together both by modification of posture and freeing of both segments. The methods under observation were: (1) plastic operations on the nerve in which a flap is used from the proximal, distal, or both ends; (2) incomplete nerve crossing, which consists of the lateral implantation of the distal, or both, segments of the injured nerve into a neighboring intact nerve trunk, and (3) "bridging" by autogenous or heterogeneous nervegrafts, a fascial sheath, or a vein. No clinical evidence of regeneration was found after the flap operation (three patients), incomplete nerve crossing (seven patients), or bridging (thirty patients). Definite and satisfactory regeneration occurred after transplantation of the ulnar in front of the internal condyle of the humerus in all the twenty-nine patients examined. It seems probable that both the motor and sensory recovery will be more complete after this maneuver than in the series of simple end-to-end suture without displacement. Normal recovery, as after end-to-end suture, was seen in five out of six cases in which the two-stage operation was practiced. Stopford believes that defects may be treated with a reasonable prospect of success by the two-stage operation, or anterior displacement in the case of the ulnar, and consequently such futile procedures as the flap operation, lateral implantation, or bridging need not be considered. The first stage consists of drawing together as closely as possible after freeing the two ends of the nerve by through-and-through sutures, with the limb so fixed that the maximum relaxation is maintained. After a sufficient period has elapsed to permit stretching of the nerve and all relaxation by posture to be gradually removed, the second stage is undertaken, which consists of reexploration of the nerve, refreshing of the ends, and accurate end-to-end suture. The author's experience with this method has been good.

Theory of Cancer.—While agreeing with some of Paine's views, Clarke endeavors to argue that the degeneration of the cell is not directly caused by inflammation or other form of irritation, but is the result of an effort to respond to the destructive effect of inflammation prolonged beyond the regenerative powers of the tissue; such power being not unlimited, and varying in different tissues according to their "normal" necessities, and varying in different individuals.

Jan. 1, 1921, **1**, No. 1

Recent Advances in Science. F. G. Hopkins.—p. 1.
Psychology of Anesthesia. D. W. Buxton.—p. 7.
Oral Sepsis. W. B. Watson.—p. 11.
*Experiments with Flocculation Test (Sachs-Georgi) for Syphilis. W. R. Logan.—p. 14.
*Case of Enteric Fever Due to B. Enteritidis of Gaertner. A. B. Rosher and G. S. Wilson.—p. 16.
Pseudo Coxalgia: Osteochondritis Deformans Juvenilis. H. A. T. Fairbank.—p. 20.
*Spirochetes in Etiology of Certain Paralyses. G. Schuster.—p. 21.
Use of Citrated Mediums. H. C. Brown.—p. 22.

Sachs-Georgi Test for Syphilis.—Results can usually be obtained by the flocculation test, and in Logan's hands the most accurate and most easily read were obtained when turbid emulsions were used rather than the opalescent solutions advocated by Sachs and Georgi, and when a considerably longer period of incubation was made use of than their standard time of from eighteen to twenty hours. On the other hand, a series of false positives occurred when these thick emulsions were being used, and it is possible that the increase in the surface of the suspended lipoids carries with its advantages this particular danger. Logan believes, however, that on this occasion the cleaning of the glassware had been insufficient. When opalescent solutions are used, the readings seem to be too difficult and too liable to cause the introduction of a personal element, and for this reason it is desirable that the comparatively gross flocculation seen with the thicker emulsions should be aimed at in standardizing the test. Until the factors which may cause false reactions are definitely recognized and can be controlled, Logan says the test should not be used to supplant the Wassermann reaction, although it may profitably be used as an additional control to that test. Even when used in this way at least half a dozen negative and half a dozen positive controls should always be included. Further experiments into the nature of the reaction are in progress.

Enteric Fever Caused by Gaertner's Bacillus.—The chief features of the case cited by Rosher and Wilson were: (1) a fever lasting altogether twenty-four days and running a course simulating closely that of typhoid; (2) a very definite lowering of the pulse-temperature ratio, particularly noticeable when the pyrexia was at its height; (3) a moderate degree of toxemia during the second week; (4) absence of a rash; and (5) no evidence of enlargement of the spleen. A blood culture taken on the twelfth day of disease was negative, a point on which too much stress cannot be laid, as by this time agglutinins had appeared in the blood, and as it seems possible that these may lead to the clumping of the bacilli in vivo and their subsequent removal from the blood by filtration in such organs as the liver, spleen, and kidneys, a positive result is hardly to be expected at this stage of the disease. The examination of the feces and urine was likewise not undertaken till comparatively late in the disease—in fact, till the very day on which the temperature began to fall—so that here again negative findings are not of any great value. On the other hand, the characteristic agglutination curve, rising rapidly during the third week, falling sharply with the complete establishment of convalescence, and then coming down more slowly and remaining well above normal for at least seven weeks is a point which the authors consider to be of the greatest importance in the diagnosis of the disease.

Spirochetes in Etiology of Certain Paralyses.—Schuster claims that large quantities of spirochetes are to be found in the central nervous system in cases of general paralysis of the insane, even when the disease runs a simple course without paroxysm. The main colonies of the spirochetes settle in the lowest strata of the cortex, and while increasing in number there they may spread over other areas of the cortex; while alterations of the tissue of the cortex may be extensive the alterations of the medullary sheath are most obvious just on the edge of the cortex and medullary sheath. Schuster was able to show fine spirochetes in the lower layers of the cortex in a case of disseminated sclerosis. There seems to be some connection between disseminated sclerosis and alterations of medullary sheath, because in both cases the result caused by spirochetes is plexiform disintegration of the medullary sheath, of which the site of election is the boundary of the corticular and medullary substance.

Medical Journal of Australia, Sydney

Nov. 27, 1920, **2**, No. 22

Lumbar Puncture and Meningitis. R. Webster.—p. 487.

Lumbar Puncture and Meningitis.—Webster discusses the part played by lumbar puncture in precipitating meningitis in animals rendered artificially septicemic, and makes a plea for the conservative use of diagnostic lumbar puncture.

Dec. 4, 1920, **2**, No. 23

Treatment of Dental Abscess. A. R. Menzies.—p. 509.
Some Common Affections of Ear, Nose and Throat. T. L. Anderson. —p. 513.

Dec. 18, 1920, **2**, No. 25

Ankylosis of Metacarpophalangeal Joints. C. G. Shaw.—p. 549.
*Renal Efficiency and Hyperglycemia. L. A. I. Maxwell.—p. 551.

Renal Efficiency and Hyperglycemia.—Renal inefficiency was present in 58 per cent. of the diabetics examined by Maxwell. In cases of hyperglycemia, he says, blood sugar determination should only be interpreted in the light of renal efficiency examinations. In about four-fifth of the diabetics investigated concentration of the blood had occurred, as shown by increased total solids and raised refractive index. Lipemia was not a marked feature of the series of cases described.

South African Medical Record, Cape Town

Dec. 11, 1920, **18**, No. 23

Public Health Problems, as Viewed from South African Standpoint. L. G. Haydon.—p. 449.

Bulletin de l'Académie de Médecine, Paris

Dec. 14, 1920, **84**, No. 39

*Contagion of Lethargic Encephalitis. G. Guillain and P. Lechelle.—p. 321.
*Survival After Amputation of Breast for Cancer. E. Potherat.—p. 326.
*Amputation of Thigh for Gangrene of Leg. F. Lejars.—p. 327.
Prophylaxis of Mushroom Poisoning. L. Azoulay.—p. 329.
Psychoneuroses a Perversion of Logical Thinking. A. Deschamps.—p. 331.

Contagion of Lethargic Encephalitis.—A man died from lethargic encephalitis in a city in the interior of France in January, 1920. His son, a young physician living in Paris, did not go to settle up his father's affairs until August. Then he occupied his father's room, wore his father's underclothes and other garments, living thus for two weeks with mother and uncle who had been in the home during the father's illness. On his return to Paris he developed a typical case of lethargic encephalitis from fifteen to thirty days after infection, if this occurred from the paternal fomites.

Survival After Mammectomy for Cancer.—Potherat reports eight cases of removal of the breast for cancer with recurrence nine, ten, eleven, eighteen or twenty-four years after the operation. In three of them a recurrence was excised in less than two years, but the women died from another cause eighteen, nineteen and twenty-seven years later.

Amputation of Thigh for Gangrene of Leg.—Lejars urges high amputation from the first when gangrene below the knee calls for amputation, the cases he reports demonstrating pathologic conditions in the arteries to a much higher point than the clinical aspect suggested.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 19, 1920, **44**, No. 35

Dwarf Growth and Infantilism of Thyroid Origin. P. F. Armand-Delille.—p. 1392.
Deformity of Pulmonary Artery. C. Laubry and M. Parvu.—p. 1395.
*Gonococcus Arthritis. H. Dufour and M. Debray.—p. 1399.
*Latent Liver and Kidney Disease with Gastric Ulcer. Le Noir, C. Richet, Jr., and A. Jacquelin.—p. 1402.
Sulphates of Cerium Metals in Treatment of Tuberculosis. H. Grcnet, S. Bloch and H. Drouin.—p. 1406.
*Peritoneal Pneumoscrosa. P. E. Weil and J. Loiseleur.—p. 1415.

Autotherapy of Gonococcus Arthritis.—Dufour and Debray announce that the fluid from a gonococcus process in a joint answers all the requirements for an efficient and harmless autogenous vaccine when injected subcutaneously. There is no need to heat or sterilize the fluid; they injected it under the skin of the thigh, and state that the general symptoms, and the general and localized pain rapidly subsided, and the temperature gradually declined in their three cases. The effect on the urethral and vaginal processes could not be determined as local measures had been applied here as usual.

Liver and Kidney Disease with Gastric Ulcer.—Le Noir and his co-workers call attention to the relative frequency of liver and kidney disease with chronic gastric ulcer, although their share in the clinical picture is so overshadowed by that of the stomach that the hepatonephritis discovered at necropsy is a surprise. In five out of a recent series of seventeen operative cases of gastric ulcer, the patients died, and the discovery at necropsy of these severe kidney and liver lesions first explained the fatality. In two of these fatal cases the uncontrollable vomiting had been severer than they had ever noted in simply ulcer cases. In the third, the sclerofatty degeneration of the liver was probably a factor in the profuse gastrointestinal hemorrhages which had dominated the scene. These hemorrhages could not be attributed to the shriveled ulcer nor to ulceration of a vessel. Nothing but deficient liver functioning impairing the coagulating power of the blood could be suggested to explain the hemorrhagic tendency. In three of the cases both liver and kidneys seemed to be pathologic, and in one the kidney alone. The blood pressure was not high, and there was rarely albuminuria or edema. But the condition was revealed by uremia of 0.5 to 0.6 gm. or higher, and exaggeration of the Ambard constant. The coagulation time was prolonged, and tests for alimentary glycosuria confirmed the insufficiency of the liver. Under such conditions, an operation on the stomach, especially if chloroform is used, fans the pathologic elements into a flame. Death occurred in their cases the third, fourth, up to the eleventh day, and it is probable that certain fatalities ascribed to shock in the past were due to this insufficiency of the liver or kidneys or both.

Pneumoperitoneum.—Weil and Loiseleur inject air or nitrogen in cases of ascites and other diseases of the peritoneum, and analyze the radioscopic findings in these pathologic conditions.

Journal de Médecine de Bordeaux

Nov. 10, 1920, **91**, No. 21

*Scoliosis in Adolescents. J. Gourdon.—p. 563.

Treatment of Scoliosis in Adolescents.—Gourdon concludes his study of this subject by saying that to date nothing can be depended on to cure scoliosis in adolescents except the systematic and persevering application of progressive orthopedic treatment, preventing further development of deformity, overcorrecting the lateral displacements of the spine and of the ribs, modifying the defective statics of the trunk, and facilitating the function of the intrathoracic organs. The apparatus with which he seeks to accomplish all this has several broad bands passed around the body at different heights, each fastened to a spring a few feet away on one or the other side, the row of springs fastened to an iron standard. The bands permit overcorrection in any direction and at any height. The article is illustrated.

Paris Médical, Paris

Dec. 4, 1920, **10**, No. 49

*Pediatrics in 1920. P. Lereboullet and G. Schreiber.—p. 401.
*Purpura in Infants. P. Nobécourt and R. Mathieu.—p. 412.
Importance of Roentgenoscopy in Diagnosis of Disease in Tracheobronchial Glands. Ribadeau-Dumas.—p. 419.
*Surgery for Children in 1920. Mouchet and Roederer.—p. 425.
*Growth Epiphysitis. Frœlich.—p. 430.

Children's Diseases in 1920.—Most of the works referred to in this review of recent progress in pediatrics have been summarized in The Journal as they appeared. The subcutaneous injection of milk in infants in treatment of intolerance of milk has been endorsed by the success in Demay's fourteen cases, and Rocaz' thirty-four, but the reviewers add that the method is still on trial. They comment favorably on the method of prophylaxis introduced by Nicolle and Conseil to protect other members of a family against measles when one is attacked. They use for this convalescents' serum, drawn about the sixth day after defervescence; 4 or 5 c.c. of this phenolized serum are injected subcutaneously, repeating the injection the next day if possible. This confers a brief immunity, enough to tide past the immediate danger, and they have found it effectual in typhoid, and suggest that it might be applied also in smallpox and scarlet fever.

Purpura in Infants.—Nobécourt and Mathieu encountered five cases of purpura in a recent series of 938 infants at the maternity. The most frequent cause is inherited syphilis, next in order is pneumococcus or meningococcus septicemia, but in a number of cases it is impossible to detect the cause. These are the fulminating, the acute forms, with negative bacteriologic findings. They never found syphilis responsible for purpura in older infants, and older infants do not present the hemorrhages in mucous membranes and viscera which are common in purpura of the newly born. Specific treatment and specific serotherapy must be early and intensive. Antipneumococcus serum, which has given fine results in treatment of pneumonia and pleurisy in infants, might prove useful in pneumococcus purpura.

Orthopedics and Surgery for Children.—In this annual review Mouchet and Roederer, referring to vaccine therapy of osteomyelitis, say that operative intervention should never be delayed a moment on its account, but there is no doubt that in many cases the vaccine has a favorable influence on the general condition, reducing the pain and fever and modifying the local process, and improving the secondary abscesses, rendering the pus more fluid so it can be evacuated by puncture. They reiterate their warning never to rely on the vaccine alone. The latter is most useful in the subacute and chronic cases. The enlargement or sacralization of the fifth lumbar vertebra, which has been revealed by roentgenoscopy to be responsible for sciatica and lumbar pains in certain cases, has been thoroughly studied in 1920 in France and in Italy where it is called Bertolotti's syndrome. Some of the articles on it have been reviewed in these columns. Mouchet and Roederer add that Trèves recently demonstrated a case of Pott's disease, with hump, cured by correction in the Lannelongue frame alone, without a plaster cast. "The future alone can decide the value of the Albee method in such a grave disease as tuberculous caries of the vertebrae, with its often deceptive course."

Growth Apophysitis.—Froelich groups under this heading Schlatter's disease, Köhler's disease, juvenile arthritis deformans, trochanteritis, epiphysitis of the base of the fifth metatarsal bone, scaphoiditis, epicondylitis, etc. They are all lesions which appear at some point in the skeleton where growth is particularly active. The mild course and other features confirm, he thinks, that these lesions are an attenuated form of growth osteomyelitis. Their clinical importance lies mainly in the danger of mistaking them for a tuberculous process. There is further the danger that the subsidence of the lesion may be hailed as testimony to the "remarkable efficacy" of the treatment that had happened to be applied at the time.

Presse Médicale, Paris

Dec. 15, 1920, **28**, No. 92

*Excessive Uricacidemia in Gout and Nephrolithiasis. A. Chauffard, P. Brodin and A. Grigaut.—p. 905.
*Treatment of Extensive Burns. C. Lenormant.—p. 906.
The Nonelastic Inflatable Bag in Obstetrics. H. Vignes.—p. 907.

Excessive Uric Acid Content of the Blood.—Chauffard and his co-workers tabulate the findings in thirteen persons with gout and in twenty-one with kidney stones, listing the uric acid content, the ureosecretory constant, the cholesterin and the urea in the blood. In all, the uric acid content was decidedly above normal. In most of the subjects likewise the Ambard ureosecretory formula showed abnormal conditions in the kidneys. They explain that this hyperuricemia with gout differs from that with nephritis, as with the latter the trouble is merely from retention, while with the former it is the result of deranged metabolism. In three dogs, the uric acid content of the portal vein was much higher than that of the peripheral veins or the hepatic vein, indicating that the liver arrests the uric acid compounds. Perroncito's recent research indicates the same from another standpoint. He found that after removal of the liver the urea content of the blood dropped abruptly while the uric acid content increased. When this uricolytic function of the liver is impaired, uric acid accumulates in the blood. This special form of insufficiency of the liver, associated with an excess of cholesterin in the blood, and sometimes with an excess of bilirubin, justifies the traditional rôle that has been assigned to the liver as a factor in gout. The kidneys suffer from these incompletely transformed elements in the blood, and this sets up a secondary vicious circle, aggravating the disease and becoming one of the most important elements in the prognosis of gout and gravel. A tophus examined contained large proportions of sodium urate and of cholesterin, showing the double adulteration of the blood serum, and its connection with the local lesions. Gout and gravel are thus both traceable to a common condition, the uricolytic insufficiency of the liver cell. This has practical importance in guiding the dietary in gout and in nephrolithiasis, supervising the functioning of liver and kidneys.

Extensive Burns.—Lenormant advocates excision of the granulating surface after an extensive burn, loosening the skin and drawing it up to suture it together over the raw area. This is Morestin's method, and he describes a case in a young man to show the excellent outcome.

Dec. 18, 1920, **28**, No. 93

The Social Prophylaxis of Tuberculosis. L. Bernard.—**p. 913.**
*Epidemic Hiccup. J. Lhermitte.—p. 916.
Silver Salvarsan. M. Nathan.—p. 919.

Epidemic Hiccup.—See editorial, page 249.

Progrès Médical, Paris

Nov. 27, 1920, **35**, No. 48

Benzoin Test for Spinal Fluid. G. Guillain et al.—p. 518. See abstract on page 208.
Anthropologic Problems of Heredity. Manouvrier.—p. 519.
*Detection of Tendency to Squint. A. Cantonnet.—p. 521.

Detection of Squint.—When the tendency to strabismus is slight, it may be difficult to recognize it. A simple device which aids in this is to have the child look you in the face as you hold a card in front of one of the child's eyes. As the card is abruptly removed, if the eye that has been covered has to move to focus on your face, this movement may be accepted as a sign of strabismus. The normal eyes focus alike, whether one is covered or not, and there is no turning of the eyeball when the card is removed. A still simpler test, that can be applied even to the youngest infant, is to hold a light, a candle or burning match, about 80 cm. from the child's eyes, on a line with your eyes. Looking into the child's eyes, the reflections of the light will be symmetrical if the eyes are normal. Otherwise, the abnormal location of the reflection in one of the eyes will show the strabismus and its type.

Revue de Médecine, Paris

May, 1920, **37**, No. 5

*Flaccid Paralysis of Hand. Pitres and Laffaille.—p. 257. Conc'n in No. 10, p. 478.
Infectious Thrombosis of Ascending Aorta. Minet and Pellissier.—p. 287.
*Acute Delirium of Emotional Origin. R. Benon.—p. 313.

Flaccid Paralysis of the Hand.—Pitres and Laffaille refer to what they call flaccid global functional paralysis of the hand, consecutive to war wounds. It developed immediately after the injury, and in all the cases described the trauma had been associated with some severe emotional stress. There was some disturbance in the circulation in the arm and also in the local heat regulation, and the lax paralysis persisted long after the injury had healed. This seems to exclude a reflex origin, and the paralysis is much more tenacious than the functional disturbances, resembling it, which can be induced by suggestion sometimes in hysterics who can be hypnotized. It is impossible to foretell how long it will last. It may subside slowly and gradually, as by a kind of reeducation, or it may yield suddenly under systematic psychotherapy. It is better not to label it hysteric or psychopathic paralysis, as this may imply a lack of good will on the part of the patient. Neither should it be labeled physiopathic or reflex paralysis, as this suggests a graver prognosis than the cases call for.

Acute Hyperthymia.—Benon suggests the term acute hyperthymia with delirium to express a mental condition in which morbid ideas are based on absurd interpretations or illusions, the whole developing from worry or passion. In one of the two cases described, the man's family was in the invaded zone, and he could get no news from them. In the other case, the teasing and jokes of the man's mates were taken seriously, especially their statement that he was to be shot next day. Both the men recovered under psychiatric treatment or being transferred to farm work, but this condition may progress to actual psychoses, neuropsychoses, or dementia. It is often curable in older persons and is curable also in the young, but less frequently. The condition must not be mistaken for dementia praecox (chronic hypothymia). It corresponds to what Magnan called *bouffée délirante,* and to what others have described as the delirium of degenerates.

Revue Médicale de la Suisse Romande, Geneva

December, 1920, **40**, No. 12

*"Cerclage" in Treatment of Fractures. A. E. Robert.—p. 781.
Fatal Mercurial Gangrenous Vaginitis. H. Jæger.—p. 796.
Granuloma of Stomach. H. Vulliet.—p. 806.
*Reflex Neurosis of Nasal Origin. M. Alikhan.—p. 813.
Primary Acute Osteomyelitis of Infant's Skull; Recovery. J. Baumgartner.—p. 816.
Hemorrhage from Rupture of Ovarian Cyst. Yersin.—p. 818.

"Cerclage" or Belting of Fractures.—Robert gives an illustrated description of the Putti-Parham method of reconstituting the shaft of a long bone after a slanting fracture. A narrow, flat strip of metal with a transverse buttonhole in the enlargement at one end is passed around the bone; the end is drawn through the transverse buttonhole in the other end, and is then drawn tight and bent back, thus belting the fragments into a solid shaft. The same kind of a strip is sometimes used around the cover of preserve jars. It is safer, gives a better hold, and can be removed easier at need later than wires, screws or any other device for reconstruction of a fractured long bone. It also prevents interposition of muscle, which so often entails pseudarthrosis, with a V fracture in particular. The patient does not have to lie still for more than three weeks, while the shaft heals so perfectly that practically normal conditions are restored, and there is no shortening of the limb, no edema, vascular disturbance or irritation of nerves.

Reflex Neurosis Cured by Operation on the Nose.—Alikhan cured hysteric aphonia by removal of a small tumor in the nose in the first of his two cases, but he thinks any other operation might have cured the hysteric aphonia just as well. In the second case the woman of 53 had occasional attacks of sudden unconsciousness, suggesting epileptic seizures. There was always complete amnesia during these attacks, and they recurred at intervals of fifteen to twenty-five days. The patient seemed to be normal otherwise except for several polyps in the nose. These were removed with the cold cautery nearly a year ago, and there has been no further sign of the neurosis since, and the health seems to be perfect in every way. The irritation from the polyps, especially during exacerbation from any cause, sets up the reflex neurosis, probably on a basis of an inherited neuro-arthritic taint.

Pediatria, Naples

Dec. 1, 1920, **28**, No. 23

*Leukolysins in Infectious Diseases. G. Jemma.—p. 1081.
Digestive Leukocytosis in Infants. L. Auricchio.—p. 1193.
The Thymus in Infants. II. A. F. Canelli.—p. 1108.

Leukolysins in Children's Diseases.—Jemma's research confirms the statements of Maggiore and Sindoni in 1917 and 1918 in regard to the presence in blood of children with internal leishmaniasis, malaria, etc., of substances that have a destructive action on the leukocytes, especially on the polymorphonuclears. Jemma gives the details of three cases of leishmaniasis, three of typhoid, eleven of inherited syphilis and four with tuberculosis. These leukolytic substances were never found in the tuberculous nor in inherited syphilis without leukopenia; they were present in all the others tested but disappeared under effectual treatment, and returned as the effect of the treatment wore off. These and other facts suggest that these leukolysins are the direct products of the causal agents of the disease, and are an important factor in the pathogenesis of infectious diseases, especially from the standpoint of the defensive reactions.

Policlinico, Rome

Dec. 13, 1920, **27**, No. 50

*Galactorrhea. T. Luzzatti.—p. 1439.
*Vaccine Therapy of Whooping Cough. A. Cammarata.—p. 1442.
*Catheterization with Enlarged Prostate. P. Tilli.—p. 1444.
Unity of Syphilis Virus. G. Dragotti.—p. 1446.

Galactorrhea.—In the case described by Luzzatti, colostrum began to flow from the breasts at the fourth month of the first pregnancy, and the flow kept up profuse until term. After the birth of the child the milk began to flow profusely, and this kept up for several months longer, a total of ten months of this annoying galactorrhea, the incessant dribbling keeping the woman constantly soaked with milk. She seemed normal otherwise except for signs of hypertonia of the sympathetic system. Under astringent treatment of cracks in the nipples, glycerin with tannin with fomentations, with a support for the breasts, the dermatitis healed, and with it the mammary secretion subsided to normal limits and the woman could be considered cured. The irritation from the constant moisture had evidently maintained a vicious circle by reflex action, and the cure of the dermatitis had broken it up. Luzzatti does not know of any instance of colostrorrhea in the pregnant on record.

Vaccine Therapy of Pertussis.—Cammarata adds ten cases to the long list previously published by Caronia and Pastore, all testifying to the very satisfactory results of vaccine treatment of whooping cough. He made from eight to ten injections but did not happen to begin them until the tenth to the twentieth day of the severe whooping cough.

To Facilitate Catheterization.—Tilli remarks that nearly every physician has encountered cases in which it seemed to be impossible to introduce the catheter into the bladder, and an emergency operation became necessary. He has never had this experience since he has been making a practice of introducing the soft catheter, No. 18, as far as it will go, and then inserting through it a stiff metal catheter, No. 8 or 10, duly curved, and pushing this as far as it will go. Then he twists the soft catheter on this metal catheter guide, lifting the penis to promote its progress. The soft catheter gradually worms its way into the bladder. The metal catheter does not force the obstacle, but it serves to transmit to the soft catheter the force from the fingers, and this in the correct direction. He has never had this little maneuver fail or had the least harm result from it.

Riforma Medica, Naples

Nov. 20, 1920, **36**, No. 47

Early Bacteriologic Diagnosis of Cholera. G. Pansini.—p. 1069.
Precipitation in Serum Does Not Reduce Its Complement Value. G. Tiscornia.—p. 1073.
Genital-Dystrophic Geroderma in Insane Epileptic. A. Gadani.—p. 1073.
*Microbiologic Test for Sugar in Urine. I. Iacono.—p. 1075.

Nov. 27, 1920, **36**, No. 48

The Ambard Ureosecretory Constant. G. Nicolich.—p. 1097.
Experimental Immunization Against Typhoid, Paratyphoid and Dysentery. M. Mazzei.—p. 1099.

Mycologic Test for Sugars in Urine.—Iacono states that Castellani's further research has confirmed the simplicity and reliability of what he calls the conjugated or parallel mycologic test for sugars. He adds an equal quantity of 1 per cent. solution of peptone to the urine and then sows it with a fungus, *Monilia balcanica,* which develops gas only in the presence of glucose. Other tests with other monilias which develop gas only in the presence of some other sugar, differentiate the exact sugar involved. The specimen of urine or other fluid can be tested with the different monilias in turn, and the whole scale of sugars it contains can thus be determined.

Archivos Latino-Amer. de Pediatría, Buenos Aires

September-October, 1920, **14**, No. 5

*Case of Ophthalmoplegia in Boy. E. Caprario.—p. 404.
*Case of Intestinal Trichomoniasis. J. Bonaba.—p. 407.
*Measles and Membranous Croup. L. Morquio.—p. 412.
*Abortive Measles. M. María Armand Ugón.—p. 417.
*Pneumococcus Arthritis and Meningitis. V. Zerbino.—p. 419.
Lethargic Encephalitis in Two Children. C. Pelfort.—p. 423.
*Pericarditis with Mediastinitis and Cirrhosis of Liver in Boy. Mamerto Acuña and J. P. Garrahan.—p. 426.
Fatal Uremia in Boy of Fifteen. J. C. Navarro.—p. 436.
Value of Tuberculin Treatment. L. K. Wimmer.—p. 442.

Transient Ophthalmoplegia.—The 7 year old child, free from hereditary taint, suddenly developed fever and intense headache, mostly above the right eye. These symptoms abated the next day but then came diplopia, strabismus and paralysis of the external rectus on that side. All these symptoms gradually subsided by the tenth day without leaving a trace.

Trichomoniasis.—Bonaba found large numbers of trichomonas in the stools of a boy of 4 who had been having a dysenteriform diarrhea for a month. During an intercurrent mild measles no trichomonas were to be found but they reappeared after recovery. Treatment with turpentine by Escomel's technic was only slightly effectual and emetin was then given. By mistake a larger dose (4 cg.) was administered than intended, on two consecutive days. This induced vomiting, chilliness and collapse, but this toxic shock answered the purpose, the parasites disappearing definitely from the stools. The measles had displayed a partial action of the same kind.

Measles and Croup.—Morquio refers to the intense epidemic of measles prevailing at the time in his city, while diphtheria is endemic. The simple laryngitis in the measles of former epidemics was merely one element of the disease, but in the present epidemic it seems to invite diphtheria, so that membranous croup is a not infrequent complication now. Three typical cases are described, and the prompt injection of antitoxin urged whenever a child who has or has been having measles exhibits laryngeal symptoms.

Abortive Measles.—Three infants from four to nine weeks old were in charge of one wetnurse who developed severe measles. Eight days later the three infants presented an abortive type of measles.

Pneumococcus Meningitis.—Zerbino mentions seventeen cases of pure pneumococcus meningitis in Morquio's service, and three in which the pneumococcus was associated with other bacteria. He reports the case of an infant of 10 months who had bronchitis and a suppurating process in the ankle, with pneumococci in the pus, and terminal meningitis.

Pericardiomediastinitis with Enlarged Hard Liver.—The typical Hutinel's disease had developed in a boy of 13 with inherited syphilis. There was no pleural effusion and no ascites. The symptoms and long course indicate a process with growth of fibrous tissue. It may perhaps be of tuberculous origin on the basis of the inherited syphilis, but the condition has grown no worse in the last year and there is comparatively little subjective disturbance.

Brazil-Medico, Rio de Janeiro

Oct. 23, 1920, **34**, No. 43

Removal of Foreign Body from Bronchus of Boy of Ten. F. Castilho Marcondes.—p. 703. Conc'n in No. 47, p. 777.
*"Nervousness." U. Paranhos.—p. 705.
Leeches of Brazil. III. C. Pinto.—p. 707.
*Gastralgia Early in Syphilis. J. P. Botelho Vieira.—p. 709.

"Nervousness."—Paranhos stresses the importance of the most scrupulous examination of the patient from head to foot seeking for the cause of the "nervousness." Most frequently the endocrine system is at fault and this can usually be brought under control. Endogenous or exogenous toxins frequently are responsible for the nervous condition and especially the combination of varicose veins, headache, dizziness and depression which Castellino groups as the hemorrhoidal syndrome. Old inveterate cases are sometimes traceable to unsuspected syphilis. An organic cause can generally be found sooner or later.

Painful Gastritis Early in Syphilis.—Botelho Vieira was summoned to relieve intense gastralgia which had developed suddenly in a man of 29 and had persisted for about two months. The fact that the gastralgia was worse at night and that the pain was localized at the pylorus, suggested syphilis, and a source of possible contagion was ascertained twenty days before the onset of the gastralgia, and a still unhealed chancre was found. Under specific treatment, conditions in the stomach returned to normal, and there has been no further disturbance during the three years to date.

Nov. 20, 1920, **34**, No. 47

Causes of Failures with Laparotomies. J. de Mendonça.—p. 767.
Importance of Syphilis and Its Treatment. O. Clark.—p. 771.
*Pseudo-Urinary Abscesses. C. Burgos.—p. 779.

Pseudo-Urinary Abscesses.—Burgos reports the cases of two men with a tumor in the perineum and difficulty in micturition, but in neither of these cases was a urine abscess the cause of the disturbances. The operation revealed in one a small fibrous tumor compressing the meatus, with a local gonococcus process, and in the other a high perineorectal fistula. In a third case a bullet wound had caused a fistula between rectum and urethra. All were cured by the operative measures applied. In the last mentioned case, as Burgos says, he spent forty days in the vast sewer resulting from the fistula, clearing out the remotest crevices, etc.

Gaceta Médica de Caracas

Sept. 15, 1920, **27**, No. 17

Classification of Ascaris Found in Chicken. J. M. Romero Sierra.—p. 215.
Ascarid Found in Stools of Two Children. Idem.—p. 216.
Ankylostomiasis in Venezuela. C. E. Salom.—p. 218.

Sept. 30, 1920, **27**, No. 18

National Tribute to Memory of Dr. J. G. Hernández.—p. 225. See News Dept., Nov. 13, p. 1352.
The Surprises of Appendicitis. E. P. de Bellard.—p. 235. Idem. L. Razetti.—p. 235.
New Species of Conorhinus. J. Quintini M.—p. 238.

Revista Española de Medicina y Cirugía, Barcelona

October, 1920, **3**, No. 28

Acquired Stenosis of Vagina. F. Proubasta.—p. 525.
*Early Diagnosis of Cancer of Stomach. A. Pérez Ortiz.—p. 528.
Postoperative Mishaps with Tonsillectomy. L. Vila Abadal.—p. 530.
Deep Roentgen-Ray Treatment of Cancer. Comas and Prió.—p. 532.

Early Diagnosis of Gastric Cancer.—In addition to the usual tests, Pérez Ortiz ascribes great differential importance to what he calls "absorption of the wave." A wave in the fluid in a smooth walled organ is transmitted regularly to all the parts of the wall of the organ. But if there is any unevenness in the wall, the wave is broken up, and the smooth, regular transmission is arrested. The transmission of the wave when the stomach is full of fluid is interrupted in case of cancer, and the interruption is greater the more the cancer protrudes. He has also noted a reduction in the power of conducting electricity in cases of cancer, and especially with scirrhous cancers. Lecithin is one of the substances most commonly met with in embryonal bodies, such as egg yolk, semen, graafian follicles, fish spawn, etc., and consequently he suspected that it would be found in extra amounts in cancer cells, as these are a kind of pseudo-embryonal formation. His suspicion was confirmed, lecithin being found in stomach content and feces when there is malignant disease in the stomach. After a few days of lecithin-free diet and lavage of the stomach the night before, he introduces into the fasting stomach 15 gm. of water or oil or dilute alcohol, and an hour later examines the stomach content for lecithin, precipitating it with a few drops of a solution of ammonium molybdate. On adding a few drops of sulphuric acid to the precipitate, a green ring, changing to violet, forms at the point of junction. Or the lecithin can be precipitated with barium chlorid or platinum chlorid, etc. For the stools he proceeds as for occult hemorrhages, and then applies the above test as for lecithin in oil. By mixing the precipitate with ammonium magnesium, and weighing, the quantity can be determined, but the qualitative test is usually sufficient. The softer cancers usually yield more lecithin than the scirrhous type. He regards this method as one of the simplest and most reliable means for an early diagnosis of cancer of the stomach. It has the advantage over other methods that the lecithin production presumably starts with the incipiency of the malignant disease.

Revista Médica del Uruguay, Montevideo

September, 1920, **23**, No. 9

*Syphilitic Croup. F. Arocena.—p. 411.
Ocular Symptoms of Lethargic Encephalitis. A. Isola.—p. 414.
The Fight Against Tuberculosis. G. Pelfort.—p. 427.

Syphilitic Croup.—Arocena refers to syphilitic disease of the throat presenting the same picture as membranous croup, as he observed it in two small boys in one family in a rural district. Diphtheria was somewhat prevalent in the region at the time and the croupy breathing, inflammation in the throat, and pseudomembranous patches on the tonsils imposed the diagnosis of diphtheria, and antitoxin was administered. The throat symptoms had begun about two days before. Two days later the symptoms were much aggravated in the younger child, stationary in the other. Antitoxin was injected anew, but the condition continued to grow worse in the younger child, and Arocena in view of the failure of the antitoxin began for the first time to doubt his diagnosis, and think of syphilis. He ascertained that the young and healthy parents had had a maid servant for a year whom they had dismissed about two weeks before, and Arocena discovered that she was a patient of his, in a most highly contagious phase of syphilis. He examined then the third child in the family, and found a well defined roseola on the chest.

Semana Médica, Buenos Aires

Nov. 11, 1920, **27**, No. 46

*The Spermatozoa of Syphilitics. V. Widakowich.—p. 633.
Training in the Care of Children. T. A. Tonina.—p. 670.
Psychasthenia from Tardy Inherited Syphilis. G. Bermann.—p. 675.

The Spermatozoa of the Syphilitic.—An extensive bibliography and sixty-four illustrations of anomalous forms of spermatozoa accompany this report of Widakowich's further research on the exceptional prevalence of deformed spermatozoa in syphilitics. He discusses it from a number of standpoints, tabulating the findings in parallel columns with the findings in normal men of different ages. The average of pathologic forms in the large group of healthy men was 18.6 per thousand and in the fifty-eight syphilitics 55.8 per thousand. More than two heads plus two tails was never found in the healthy, while three heads plus two tails were found in 0.09 per thousand of the syphilitics and even up to four heads plus four tails in 0.06 per thousand. Abnormally large and abnormally small heads were found in 3.93 and 9.34 per thousand in eight syphilitics, and anomalies in the intermediate portion in 13.75 per thousand, while the corresponding figures in the healthy were 0.09; 1.58 and 5.86. In a group of youths, the total of pathologic forms was 55.8 per thousand in the syphilitic; in the healthy, 18.7 per thousand. In a group of young men examined, the remarkably large proportion of abnormal spermatozoa—up to 100 and 117 per thousand in two of the young men—first revealed their inherited syphilis. The number (five cases) is too small to be decisive, but the proportion of pathologic forms was double that in the cases of acquired syphilis.

Siglo Médico, Madrid

Sept. 4, 1920, **67**, No. 3482

*Meningitis Consecutive to Spinal Anesthesia. J. Sanchis-Banús.—p. 665.
Necessity for Including Psychology in Medical Course. H. F. Delgado (Lima).—p. 668.

Meningitis Consecutive to Spinal Anesthesia.—The young man developed intense headache and vomited, forty-eight hours after inguinal herniotomy under procain spinal anesthesia. High fever, herpes on the lips, and other signs of meningitis were explained by the turbid lumbar puncture fluid, and *Diplococcus crassus* was cultivated from it. The meningitis proceeded to a rapidly fatal termination. Whether the diplococcus infection had been already installed at the time of the operation and had flared up under the irritation from the spinal anesthesia, or whether the infection was an accidental contamination, or whether a saprophyte had been roused to virulence by the trauma of the operation, are open questions.

Archiv für Gynaekologie, Berlin

1920, **113**, No. 2

*Symphysiotomy or Pubiotomy. G. Broer-Lindemann.—p. 229.
*Normal and Pathological Ovulation. R. Meyer.—p. 259.
*Spontaneous Infection in Childbirth. W. Poten.—p. 316.
*Parturition Injuries and Feeblemindedness. Schott.—p. 336.
*Caries of Symphysis and Pubic Bone. S. Speyer.—p. 363.
*Ectopic Epithelioma of Chorion. R. Zimmermann.—p. 370.
The "Butter Globules" in Dermoid Cysts. K. Friedländer.—p. 413.
Cystic Hypertrophy of Uterus. M. Henkel.—p. 427.
Formation of Gubernaculum Testis. R. Meyer.—p. 441.

Symphysiotomy or Pubiotomy.—Lindemann, acting upon the suggestion of Frank, introduced into the Gynecological Clinic at Mainz the method of subcutaneous symphysiotomy in eighty-six cases of narrow pelvis. The mortality among the mothers was 0, among the children 8.1 per cent. The operation was indicated with great care, in that 50 per cent. of cases with flat, rachitic pelvis were allowed to proceed to spontaneous delivery. The operation proved superior, in its effects, to either caesarean section or pubiotomy, because it lessens the danger for the mother and facilitates later deliveries. A complete statistic analysis, with clinical data fully tabulated, of all eighty-six cases, is appended.

Normal and Pathologic Ovulation. — Meyer continued his studies (*ibid.*, Vol. 100 [1913]) of menstruation and ovulation and concludes that menstruation is not due to rhythmic-specific processes, but to the limited life of the unimpregnated ovum. This does not die suddenly at regular or slightly varying intervals, but gradually, through loss of its functional faculty, and simultaneous with gradual changes in the corpus luteum (accumulation of fatty substances, probably already on the twenty-second to the twenty-sixth day after menstruation). The living ovum retards the development of the remaining, less developed ova, probably by the aid of the corpus luteum, but this retardation ceases with the death of the ovum, whereupon the cycle begins anew. The corpus luteum possesses no immanent duration; its life depends on that of the ovum. Without the functional irritation of the corpus luteum, the uterine mucous membrane will not receive the nutrition necessary to support the pregravid state, consequently, with the death of the corpus luteum it reassumes the atrophic condition of presexual and postsexual life. Menstruation is a necrotic process with hemorrhage: a consequence of the cessation of function. The cessation of physiologic function is relieved by the development of the next ovum, when the pregravid status returns. The cycle thus is primarily one of ovulation, and it is incorrect to speak of a menstrual cycle, or periodicity.

Spontaneous Infection in Childbirth.—Poten analyzes 20.125 cases, of which 15,291 terminated without fever; 3,602 developed fever. Of the latter, about 26 per cent. might be owing to infections induced by handling or examining the patients. In 5,349 cases where no prepartum examination was made and no postpartum interference was necessary, 12 per cent. showed fever symptoms. The question of a possible spontaneous infection is closely related to the weaknesses of antisepsis as commonly practiced, and which at best is insufficient. While a *noli-tangere* treatment may be theoretically preferable in healthy individuals, experience shows that even with this precaution grave dangers arise, not only from postdelivery infections, but also from the absorption of their products. The postpartum injection of 0.5 per cent. lactic acid is recommended as a protection against vaginal infection, in preference to vaginal douches which in themselves frequently are dangerous owing to their insufficiency.

Birth Injuries and Feeblemindedness.—Schott found in 1,100 cases of epilepsy 16.63 per cent. with a history of injuries at birth. The complications include difficult and prolonged labor, forceps delivery, twin and triplet birth, and navel injury. Most of these histories were complicated with nervous lesions in one or both parents. An analysis of the material shows that difficult and protracted labor is connected with feeblemindedness in the child, while premature delivery and birth after a fall give rise to submeningeal hemorrhages. Navel hemorrhage is followed by a retardation of mental development. Part II of this paper is concerned with epilepsy. The possibility of a combination of birth injury and a spasmophilous diathesis in one or both parents, as a component contributory cause of epilepsy, cannot be denied. But there are no data showing a direct causation from birth injuries without an anamnesis showing nerve lesion in one or both parents.

Caries of Symphysis and Pubic Bone.—Speyer describes two cases of this rare disease and mentions seven others. The only possible treatment is surgical removal of the affected portions, tamponade with iodoform gauze, and treatment with iodoform-glycerin. The prognosis is favorable, including possibility of locomotion.

Ectopic Chorio-Epithelioma After Vesicular Mole.—Zimmermann regards the proliferation of the chorion epithelium as a process analogous to the penetration of the endometrium epithelia by the human ovum and the interstitial imbedding of the latter in the decidua. On the basis of clinical findings and biological experiments on the involved tissues, he reached the conclusion that the serum of gravid subjects contains specific or unspecific lysins directed against the fetal elements. The chorial invasion histologically presents a picture of cells uniformly in a regressive stage beside young, strongly stained, fresh ones. This indicates that the villus epithelium shows an excessive proliferative tendency: a sign of a poverty of cytolysins in the serum of the particular individual. Other investigations have demonstrated that the serum of women suffering from malignant deciduoma does not possess the faculty of dissolving cancer cells. The many analogies between fetal cells and cancer cells make this relation significant.

Deutsche medizinische Wochenschrift, Berlin

Oct. 7, 1920, **46**, No. 41

Tardy Peritonitis in Childbed. M. Henkel.—p. 1133.
Heart Tone and Paralysis After Diphtheria. U. Friedemann.—p. 1134.
Localization and Origin of Gastric Ulcers. K. H. Bauer.—p. 1136.
Case of Gastric Myoma. L. von Friedrich.—p. 1139.
Surgery of the Bile Ducts. W. Budde.—p. 1139.
Polycythemia as Hereditary Endocrine Disturbance. Engelking.—p. 1140.
Abderhalden Dialysis Test in Renal Tuberculosis. Fritsch.—p. 1142.
The Radial Nerve Phenomenon. T. Hoffa.—p. 1144.
Counting in Place of Coughing for Roentgenographic Examinations of Apex of Lung. S. Kreuzfuchs.—p. 1145.
Otologic Hints for General Practitioners. G. Brühl.—p. 1145.

Deutsche Zeitschrift für Chirurgie, Leipzig

1920, **157**, No. 3-4

*Cystic Tumors of the Knee-Joint. M. Jastram.—p. 145.
*Surgical Topography of Struma. H. Klose.—p. 157.
*Osteochondritis and Traumatic Loose Bodies in Joints. M. Kappis.—p. 187.
*Origin of Loose Bodies in Joints. M. Kappis.—p. 214.
*Gallstone Surgery. W. Eichmeyer.—243.
*Renal Cysts. Brandenstein.—p. 261.
*Intratracheal Struma. W. Odermatt.—p. 279.

Ganglion or Cystic Tumor at the Knee-Joint.—Jastram found in previous literature twenty cases of cystic tumors developing on the knee. One, of traumatic origin, was fully described by Ebner in 1904. Sex frequency is 82.5 per cent. for men, 17.5 per cent. for women, while cases of carpal ganglion give the relative figures of 87.5 and 12.5 per cent. The etiology of all cases, including author's, show an initial strain, with consequent edema, which induces a degenerative process in the connective tissue, with secondary changes in the blood vessels. Operation is indicated owing to the proximity of the knee-joint capsule, with which some of the cystic tumors have been found to connect. These tumors are liable to develop at any point where there is fibrous tissue.

Surgical Topography of Growing Goiter.—Klose makes a distinction between struma diffusa and struma nodosa, the first being a phase of exophthalmic goiter, the second of common goiter. The diffuse form is the result of a cellular and functional hypertrophy, or even dystrophy of the thyroid (entire or partial); the nodosa form is an adenoma of the same organ, an abnormal development with the character of a tumor. The growth of the struma takes place in the direction of least anatomical resistance. A distinction is made of the following forms: 1. Struma of the neck. 2. St. intrathoracica: (1) St. intrapleuralis. (2) St. mediastinalis: (a) anterior, (b) posterior. Diagnostic data and clinical symptoms are given for each form, and typical cases cited.

Osteochondritis Dissecans and Traumatic Loose Bodies in Joints.—Kappis reviews the history of loose bodies in joints as fragments of bone or cartilage become detached, spontaneously, or traumatically, and undergo a necrotic process. He denies the existence of an osteochondritis in the sense of König (1887), and describes a case of a knee-joint where a flake of cartilage (3.6 by 3 cm.) had detached itself and caused an effusion, and exemplifies an unmistakable fracture and the earliest observed stage of loose body in a joint. Seven other cases, without a history of trauma, were analyzed, also some of undoubted traumatic origin. At the elbow joint forty-five cases of loose bodies were observed, thirty-seven of which were caused by cartilage detachment at the capitulum humeri. In twenty-one of these cases a slight trauma could be definitely determined. Aside from the patella, where a similar process now and then occurs, the condyles of the femur and the elbow are the only points where this detachment of the cartilage is liable to occur, with production of loose bodies. Common to these joints is the power of angle and torsion movements which occasionally induce abnormal positions; and as the attendant phenomena of pressure and tangential effects naturally affect the convex element of the respective joints, it is natural that no cartilage detachment ever has been observed at the concave surfaces. The initial lesion probably is exceedingly slight. If the cartilage segment remains in situ, and no interarticular hemorrhage occurs, the surface will be unbroken except for minor irregularities, but when the cartilage remains attached to its bed by a pedicle, the bone will produce a callus; and as the cartilage forms no such, the fracture develops into a pseudarthrosis, in the fissure of which manifold pathological processes may be exemplified. While the surface layer of the cartilage segment is nourished by diffusion from the synovia, its deeper elements are separated from the blood supply, and this gives rise to necrosis which is complicated by ever possible fresh traumas. Early operation is the only means of lessening the consequences of these complications and the danger of recurrent arthritis.

Structure, Growth and Origin of Loose Bodies in Joints.—Kappis makes an exhaustive histological investigation of the formations discussed in the previous paper. He describes the transformation of the completely detached cartilage tissue into fibrocartilage capable of intense proliferation, without perichondrium, while a bone loose body invariably becomes necrotic. No hyaline cartilage is formed. Previous literature is discussed exhaustively.

Gallstone Surgery.—Eichmeyer describes a case of gallstone disease in a gravida at sixth month, where condition necessitated cystectomy and choledochotomy with drainage of the deeper bile passages. Adhesions were numerous and exceedingly complicated, the gallbladder perforated. The pregnancy continued normal, and delivery occurred normally. Other cases are discussed with the result that operation during pregnancy should be undertaken only when medicinal treatment fails and weakness becomes extreme.

Renal Cysts.—Brandenstein describes fully a correctly diagnosed and clinically treated fatal case in a girl of 17. The tumor was ball-shaped, growing from one pole of the kidney, cystic, filled with an amber exudate containing traces of urea, uric acid, grape sugar and a large amount of albumin. Its presence is detected by radiography considered in connection with status of intestines, the position of which is affected. The operation may or may not include nephrectomy. A pararenal cyst, with operation, also is described and discussed.

Intratracheal Strumas.—Odermatt collected twenty-five cases from previous records and adds one, which he treated by operation. The radiograph is facilitated by exposure from the side by strong reclining of the head and extreme dorsal position of arms and shoulders. Where this position produces dyspnea, an additional ventrodorsal exposure is made. In the case of all tumors with a broad base, such as these strumas, cricotracheotomy is the surest way of relief.

Münchener medizinische Wochenschrift, Munich

Oct. 1, 1920, **67**, No. 40

Technic of Artificial Pneumothorax. E. Leschke.—p. 1135.
Intermittent Therapy and Effect of Narcotics. H. Königer.—p. 1136.
*Partial Antigens in Tuberculosis. A. Ott.—p. 1139.
Growth of Bean Sprouts—Vicia Faba Equina—as Gage for Biologic Value of Roentgen Irradiation. O. Jüngling.—p. 1141.
Aneurysm of Aorta from Contusion. Toenniessen.—p. 1144.
Deformity as Result of Resection of Tuberculous Knee Joint in Childhood. M. Schwamm.—p. 1145.
Character and Treatment of Epicondylitis. W. von Goeldel.—p. 1147.
Treatment of Nerves in Amputation Stumps. A. Hedri.—p. 1148.
Metastatic Paranephritis After Influenza. W. Boecker.—p. 1149.
Brain Edema After Injection of Neo-Arsphenamin. Von Lücken.—p. 1149.
Treatment of Gastric Hemorrhage. R. Decker.—p. 1149.
Proposed Terminology for the Stomach. J. Volkmann.—p. 1150.

Six Years Experience with the Treatment of Pulmonary Tuberculosis with Partial Antigens.—Ott says that, in order to test properly and with any degree of thoroughness a remedy for which its discoverers, on the basis of long and extended experience, have set up pronounced therapeutic claims, four requirements must be complied with: The examiner must be familiar with the method of using the remedy, and test it long enough. Ott used the partial antigens from February, 1914, until into 1917, not only in ambulant treatment but also in hospitals. The number of patients must be sufficiently large to eliminate as far as possible the element of chance, which plays a part in all disease. Ott can report on at least 489 cases of pulmonary tuberculosis. Finally, the remedy must be tested impartially and with interest, otherwise it is easy to bring any remedy into discredit by selecting hopeless cases. For purposes of comparison, he gives the result in 420 practically corresponding cases formerly treated by him with old tuberculin. The results are essentially the same as with the Deycke-Much partial antigens. Ott concludes that the Deycke-Much partial antigens are by no means entirely innocuous. In their therapeutic effects they are not in the least superior to tuberculin. He is also convinced that the theoretic premises of the treatment rest on a very uncertain basis.

Wiener klinische Wochenschrift, Vienna

Sept. 30, 1920, **33**, No. 40

Study on the Genesis of Fear. R. Stern.—p. 875.
*Rôle of Bacillus Coli in Induced Peritonitis. F. Gál.—p. 878.
Inflammation of Meckel's Diverticulum. H. Lehmann.—p. 884.
Parathyroid Graft in Pregnancy Tetany; Recovery. N. Róth.—p. 886.

The Rôle of the Colon Bacillus in Induced Peritonitis.—Gál's experimentation on guinea-pigs was for the purpose of ascertaining whether it is possible by means of bacteria or their products, and more particularly by means of *Bacillus coli*, to influence infectious inflammations of the peritoneum. The fact that the colon bacillus can assume the most diverse characters under varying circumstances, having a strong tendency to variations and mutations and easily changing its virulence, made it seem quite likely that it might exercise considerable influence. In how far these results are applicable to the human body must be shown by clinical investigations. In any event he thinks the results justify further investigation in this field. It seems probable that with the fundamental idea as a basis many interesting results may be anticipated. His investigations showed that guinea-pigs with induced peritoneal infections can be cured for the most part by means of an autolysate of *Bacillus coli*. The autolysate exerted no particular influence on the opsonic index, but it induced leukocytosis and a more marked phagocytosis of various bacteria in the abdominal cavity, and thus indirectly counteracted the toxicity of the bacteria. The greater omentum was the main center of the conflict.

Zeitschrift für Geburtshülfe und Gynäk., Berlin

Feb. 14, 1920, **82**, No. 2

*Gynecologic Disturbances After Severe Burns. K. Beckey.—p. 257.
*The Fetal Heart Sounds. E. Sachs.—p. 284.
*Myoma and Childbearing. E. Hindermann.—p. 357.
*Treatment of Febrile Abortion. L. Missler.—p. 382.
*Iniencephalus. B. Michel.—p. 403.
*Eclampsia Without Convulsions. F. Ranzel.—p. 427.
Criminal or Infectious Abortion? M. Henkel.—p. 438.
*Roentgenography of the Placenta. Warnekros.—p. 458.

Effect of Severe Burns on Menstruation and Pregnancy.—Beckey comments on the scant literature on the relations between trauma and menstruation, and relates his own observation of fifty-four women and girls burned in an explosion in a munitions factory. Nearly all developed fever, vomiting, delirium and apathy, confirming the assumption that a severe burn causes an anaphylactic reaction from the toxic action of the products of parenteral albumin destruction. But the effect on menstruation and gestation is mainly if not entirely of psychogenous origin. This is shown (1) by the sudden arrest of menstruation in some of the women; the immediate arrest of the menses already under way can be explained only by a psychic reflex; (2) by the fact that two of the women in the room who were not burned at all presented the same menstrual disturbances, and (3) by the psychoneuroses which developed in nearly all, both the burned and the nonburned. Menstrual disturbances of different kinds were noted in 93.3 per cent. Four of the women were pregnant and the explosion was followed by expulsion of the contents of the uterus in two of the women, two and five months pregnant. In the two others, at the third and eighth months, the pregnancy continued unmodified to term. The details of the fifty-four cases are tabulated on six pages. Amenorrhea for five or six months is recorded in six cases, amenorrhea persisting to date in four others, while in the others menstruation was of an abnormal type thereafter in nine.

The Fetal Heart Sounds.—Sachs has a record of the curve of the fetal heart sounds as determined in 4,000 cases at fifteen, five or one minute intervals during the pauses between the labor pains. The normal range is from 132 to 144, but a drop to 120 and rise to 160 is so common that they cannot be regarded as pathologic. But a drop below 100 or rise to over 160 is not within the physiologic range. A rise above 160 calls for close supervision but does not in itself demand artificial delivery. But a drop below 100 or fluctuation within a very wide range above this is a warning of grave danger. The typical danger curve shows a primary drop, but the danger does not become acute until the count goes below 100. The lower it drops, the greater the danger. Sachs declares that delivery is imperatively called for when the count is found below 100 in several successive intervals between labor contractions. Even the first drop below 100 may indicate the gravest danger, as showing blocking of the child's circulation. This can occur only from traction on a too short cord or by the cord being squeezed flat. This is liable to occur from the inflatable bag when the attachment of the cord is low. The drop in the count below 100 was sometimes observed from exaggeration of the labor contractions under the influence of pituitary treatment. But this drop was transient and seemed to be harmless. "Under other conditions," he reiterates, "a sudden drop from the normal range to below 100 even during a single interval between labor contractions, during the expulsion phase, calls imperatively for delivery at once, even although in very rare cases this may prove to have been unnecessary. If the drop below 100 occurs gradually, we have time for deliberation, possibly taking advantage of the subsiding labor contraction for auscultation." In conclusion he warns that forceps extraction is not free from danger for the child, and hence it should not be resorted to without strict indications. Sachs groups and tabulates his 4,000 cases from various standpoints, the causes for changes in the rate, importance of operations, of eclampsia, and of the Stroganoff treatment, etc.

Myoma and Childbearing.—Hindermann reviews the history of the connection between myoma and sterility from Galen down. He presents evidence from 690 myoma cases at Basel that uterine myomas develop indiscriminately in those who have many or few or no children or have never conceived. The social condition is also without influence.

Febrile Abortion.—Missler compares the outcome in von Jaschke's service with those of others. In the 141 cases of febrile abortion much better results were realized with expectant and conservative measures than with more active procedures. When the fever drops in previously febrile cases—which usually occurs under bed rest for two and a half days—then the uterus can be cleared out regardless of the kind of bacteria involved. The temperature should be taken several times for estimation of the fever. In the five fatal cases, hemolytic streptococci were found in one, ordinary streptococci in two, and staphylococci in two others. He advises the general practitioner to adopt this two and a half days of bed rest as the criterium for expectant treatment before proceeding to clear out the uterus. It can generally be waited for.

Iniencephalus.—Michel compares a case of this deformity with the literature on such monstrosities. The malformation must develop at an early stage of fetal existence, as he explains.

Eclampsia Without Convulsions.—The woman of 29, at term with her first pregnancy, presented symptoms diagnosed as eclampsia without convulsions and acute nephritis, and was delivered in coma by cesarean section of a viable child. The woman did not regain consciousness and died the next day. The organs showed the changes regarded as typical for eclampsia, but in addition Ranzel found a hemorrhage in the frontal lobe. He regards the eclampsia as responsible for this cerebral hemorrhage.

Roentgenoscopy of Placenta.—Warnekros allows 40 to 50 c.c. of blood to flow from the cord after it has been severed. This blood is mixed with a suspension of barium sulphate and is reinjected into the umbilical vein. He gives a series of eleven roentgenograms of the placenta taken in this way, with the placenta thus rendered visible, demonstrating the way in which the placenta is cast off. (Warnekros' communication is published in Society Proceedings.)

Zentralblatt für Chirurgie, Leipzig

Oct. 2, 1920, **47**, No. 40

*Access to Maxillary Nerve. E. Payr.—p. 1226.
Treatment of Large, Rigid Empyema Cavities. A. Tietze.—p. 1230.
Technic of Physiologic Gallbladder Incision. Pochhammer.—p. 1231.
"Mesenteric Pressure Pain as Symptom in Appendicitis." V. Kolbe. p. 1234.

A Simple Route to the Maxillary Nerve for Production of Anesthesia and for Alcohol Injections in Neuralgia.—For the last two years Payr has been using a new route to the second branch of the trigeminal, the maxillary nerve. This route passes above the zygomatic arch and leads to the pterygopalatine fossa. The superficial skin area is anesthetized by a wheal; then the needle, which is from 6 to 7 cm. long, is inserted immediately in front of the junction line between the temporal process and the zygomatic arch, in the angle between the frontal and temporal processes of the zygomatic bone, pushed directly downward toward the sharp, concave margin of the zygomatic bone, about a finger's breadth behind the lateral border of the orbital cavity. It passes close behind said border and is then slanted backward toward the maxillary tuberosity, which it reaches at a depth of from 2.5 to 2.75 cm. from the margin of the bone where it was introduced or about 3 to 3.25 cm. from the skin surface. If the needle is inserted too far forward it may enter the inferior orbital fissure, but if guided properly it enters without resistance the pterygopalatine fossa and strikes the point where the nerve trunk gives off a number of branches that are important for the treatment of neuralgia; namely, the sphenopalatine, the posterior superior alveolar and the middle superior alveolar nerves, and is about to enter the orbit through the inferior orbital fissure. Payr thinks that by this route the way is not only shorter but also more clearly defined and less likely to give rise to errors. The technic is extremely simple. Injury of the internal maxillary artery is much less likely than if the needle is inserted beneath the zygomatic bone. In six cases of neuralgia of the maxillary nerve, Payr has made alcohol injections in this manner with good success and without the slightest complications. Three illustrations show the technic.

Zentralblatt für Gynäkologie, Leipzig

Oct. 2, 1920, **44**, No. 40

Treatment of Eclampsia. F. Engelmann.—p. 1113.
*Anaphylactic Manifestations in Proteotherapy. Van Randenborgh.—p. 1128.
The Specific Ovarian Secretion. O. O. Fellner.—p. 1133.
"Significance of Diphtheria Bacilli in Vagina." Broer.—p. 1138.

Anaphylactic Manifestations in Proteotherapy.—Van Randenborgh calls attention to the unfavorable manifestations that sometimes follow parenteral administration of proteins: a few minutes after the injection, cyanosis, dyspnea, small pulse, occasionally unconsciousness, transient edema and transient erythema; a few hours after the injection, chills, fever and outbreak of sweat. Cachexia, which may follow the parenteral administration of large amounts of protein, is occasioned by the overproduction of proteolytic ferments.

Zentralblatt für innere Medizin, Leipzig

Oct. 2, 1920, **41**, No. 40

Prevention and Treatment of Influenza. F. Jessen.—p. 690.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 13, 1920, **2**, No. 20

*Roentgen-Ray Treatment of Surgical Tuberculosis. A. van Ree.—p. 1985.
Causes and Diagnosis of Disease of the Cecum with Chronic Colitis. J. W. M. Indemans.—p. 1995.
*Cinnabar for Roentgen-Ray Examination. J. G. Kopp.—p. 2009.

Roentgen-Ray Treatment of Surgical Tuberculosis.—Van Ree expatiates on the brilliant results he has obtained with radiotherapy of tuberculous glands. In most of his 470 cases the glandular lesions were in the neck, but some were in the axilla or groin. Improvement was realized in every instance and a clinical cure in 85 per cent. within a few months. The length of the treatment required can be estimated from the first as benign tuberculous glandular lesions develop slowly and gradually and run a torpid, painless course. The more malignant processes make their presence felt from the first, and are always tender and soon develop fistulas. This type is more rebellious to the roentgen rays and usually requires preliminary surgical measures. The benign type may be larger but they retrogress under a few exposures. A cheesy agglomeration of lymphomas may require six or eight exposures at three week intervals, and after this a few treatments at three month intervals. The cheesy matter can be aspirated through a large needle, and any particularly favorably located single gland can be excised. An abscess of this painless type can be punctured in association with a few exposures at three week intervals. He advises against opening the abscess with an incision. In other types the painful glandular process, if solitary, had better be excised, followed by six roentgen-ray exposures. If inoperable, the exposures alone must be the reliance. When combined with an abscess, he advises incision with one exposure a week but never to expose red skin. The result is generally a scar and sometimes a fistula. When the abscess has already broken through the skin, he advises ample opening up of the gland, scraping out cheesy masses, and a few exposures at three week intervals. The turn for the better occurs immediately and invariably after the exposure of the tuberculous gland, but bone and joint processes are not amenable except those in small bones in hands or feet, which give very favorable results. Amputation of fingers and toes is no longer necessary, as the tuberculous lesions may heal under the roentgen rays, merely removing sequesters. Tuberculous processes in ribs, sternum and skull bones are also liable to be favorably influenced by radiotherapy. If there is a fistula, it should be curetted and the exposures will complete the cure. He adds that tuberculous epididymitis responds to the roentgen rays as favorably as the glandular processes.

Cinnabar for Contrast Suspension in Roentgen Work.—Kopp relates that a 50 per cent. suspension of cinnabar has been used in his service for seven or eight years for all roentgen examination of stomach, intestines or blood vessels. There has never been the slightest indication of toxic action therefrom, while the shadows cast by the cinnabar are much sharper than with other contrast meals. This technic shows up lesions which are not clear with other contrast suspensions, such as stenosis of the esophagus, cardiospasm, boring gastric ulcer, etc. The cinnabar passes through the digestive tract and is voided unmodified, its red color showing in the stools. The power of absorption of the roentgen rays possessed by cinnabar is particularly evident in roentgenography of blood vessels, as he shows by stereoscopic views of the hand, giving directions which enable the vascular system of the cadaver, to the finer ramifications, to be rendered visible by the contrast suspension. The red color shows even to the naked eye beneath the skin.

Hygiea, Stockholm

Dec. 16, 1920, **82**, No. 23

*Discharge of Meconium in Relation to Asphyxia. W. Gejrot.—p. 785.
Fee Book of Irish Physician, 1619-1633. V. Djurberg.—p. 805.

Discharge of Meconium During Delivery and Its Connection with Intra-Uterine Asphyxia.—Gejrot relates that there was discharge of meconium in 369, that is, in 5.72 per cent. of 6,437 deliveries at Stockholm. It occurred in the more difficult deliveries, as a rule, but in twenty-four instances of extreme asphyxia there was no passage of meconium. He is inclined to regard it as an anomaly which lies within or close to physiologic limits.

Ugeskrift for Læger, Copenhagen

Dec. 9, 1920, **82**, No. 50

*Secretion of Hydrochloric Acid in Infants. I. Chievitz.—p. 1529.
*Erythrocytes and Hemoglobin in Venous Blood. H. C. Gram.—p. 1543.

Gastric Secretion in Young Infants.—Chievitz tabulates the findings in 10 infants with rachitis or other disturbance but no gastro-intestinal disturbances, in 5 children from 4 to 12 years old, in 7 infants convalescing from dyspepsia, and in groups of others with different diseases, a total of 53 infants less than a year old. He found the proportion of hydrochloric acid less than in older children under the same conditions, but there was no difference to be noted between those being fed on milk or without milk. There was no congenital achylia in any of the infants. In the healthy the average response to the Günzburg test was 8, to congo paper 11, and to phenolphthalein 14. Much reduced secretion was found in 50 per cent. of the infants with digestive disturbance, and with acute parenteral disease the production of hydrochloric acid was often reduced a few weeks after the beginning of the illness.

The Hemoglobin and Erythrocyte Count in Venous Blood.—Gram found the hemoglobin range from 90 to 111 in thirty-two healthy men and the erythrocyte count from 4.85 to 5.82 millions in the venous blood. The corresponding figures in fifty-six normal women were 78 and 96 per cent. hemoglobin and 4.21 to 5.33 millions erythrocytes. Repetition of the tests showed approximately constant figures in the same persons under like conditions, notwithstanding the wide daily variations.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 7 | Chicago, Illinois | February 12, 1921

THE TECHNIC OF CHENOPODIUM ADMINISTRATION IN HOOKWORM DISEASE *

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Chenopodium is now widely accepted as an efficient drug in the treatment of hookworm disease. The maximum dose is 3 c.c. for adults, but the dose most commonly given is 1.5 c.c. with graded dosage for children. Darling, Barber and Hacker [1] found that this dosage should be divided into two parts and given two hours apart in freshly prepared hard gelatin capsules. The last capsule is followed in two hours by a purge. They found that if this treatment was given twice at an interval of ten days, more than 97 per cent. of all hookworms were removed, with slight inconvenience to the patient. There are certain details in this method of treatment of hookworm disease by chenopodium that are not yet definitely worked out. The purpose of the four experiments here described is the study of the technic of chenopodium administration, considering the influence of various factors that affect the efficiency of chenopodium administration, in the field. The factors studied are: (1) the influence of the preliminary purge, two experiments; (2) the influence of the preliminary starvation period, and (3) the influence of food.

The experiments were all carried out on the same plantation, and on persons living under the same conditions. This coffee plantation was comparable in every way to other large São Paulo coffee fazendas: an unprotected water supply, absence of latrines, colonists living in groups of houses, two families to a house, and from twenty to thirty houses in each colony. All persons treated were colonists that were under contract to care for the coffee trees. The method of study was the one used by Darling, Barber and Hacker,[1] in which a trial treatment is given and all stools are kept and all worms counted and classified. Ten days later a full 3 c.c. test treatment is given to remove all remaining hookworms, and a comparison of the results of the trial and test treatment is made.

DESCRIPTION OF GROUPS

Group 1 (twenty-six persons).—No preliminary purge was given. All patients ate their usual supper. All adults were given 1.5 c.c. of chenopodium in two doses of 0.75 c.c. each at 6 and 8 a. m. A final saline purge was given at 10 a. m. Children from 12 to 13 years were given 0.6 c.c. of chenopodium, and children from 14 to 15 years were given 1.0 c.c. No children under 12 were treated. The children were given the small dosage because it is the approximate dosage that has been adopted by the field laboratories, is being given daily, and because it is well below the toxic limit for children of the age. Twelve days after the trial, the 3 c.c. test chenopodium treatment was given.

Group 2.—The patients were treated in exactly the same way as those in Group 1 with the exception that a preliminary purge was given at 8 p. m. on the evening before treatment. All patients ate their usual supper at 5 or 6 p. m. All other details of treatment were similar to those of Group 1.

Group 3.—This group was chosen from the same settlement of houses as Groups 1 and 2. They were allowed no solid food after 11 a. m. on the day before treatment. They were allowed milk or broth or other liquids at 5 p. m., but no food whatever after this hour. No preliminary purge was given. The following morning the same details of treatment were carried out as had been used in Groups 1 and 2. Twelve days later the usual test treatment was given. The toxic symptoms of chenopodium in this treatment were much more marked than those of any of the other groups. Prostration was universal.

Group 4.—This group was exactly comparable to the other three. The patients were given no diet instructions on the day before treatment and no preliminary purge. On the morning of treatment they were allowed to eat food during the time they took the treatment. The chenopodium was given at 6 a. m., and between 6:30 and 7 a. m. they had coffee, milk and bread. The amount allowed was: milk, 250 c.c.; coffee, 100 c.c.; bread, 200 gm. At 8 a. m. a second capsule of chenopodium was taken, and at 10 a. m. the final saline purge was given. There were no toxic symptoms at all from this treatment. To our surprise, the patients did not even complain of mild discomforts from chenopodium treatment, which are always experienced in routine treatment. Ten days later the test treatment was given.

A comparison of the results obtained in those experiments is given in the tables. Table 1 includes a summary of all cases treated. Table 2 includes only adults who were given full doses, 1.5 c.c. of chenopodium, in the trial treatment. Table 3 is a summary of the results obtained in children that were given a small dose—0.6 of chenopodium. The results of all four experiments are compared from four points of view:

1. Per cent. of hookworms removed by trial treatment.
2. Per cent. of cures by trial treatment.
3. Average number of hookworms left behind by trial treatment.
4. Percentage of failures by trial treatment, e. g., cases harboring ten or more hookworms on test treatment.

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* From the Laboratorio de Hygiene, Faculdade de Medicine e Cirurgia.

* Work done under a grant from the International Health Board of the Rockefeller Foundation.

[1] Darling, Barber and Hacker: Hookworm and Malaria Research in Malaya, Java, and Fiji Islands, Pub. 9, International Health Board, 1920.

COMMENT

Preliminary Purge.—The tables show conclusively that a preliminary purge does not add to the efficiency of the divided 1.5 c.c. dose of chenopodium. To the contrary, there is a slightly diminished efficiency of the treatment in Group 1, treated with preliminary purge, over Group 2, in which no preliminary purge was given. The lowering of efficiency in treatment when the preliminary purge is employed is still more marked when smaller doses of chenopodium are given in children (Table 3). We realize that this conclusion is contrary to the generally accepted belief that a preliminary purge should be given in all anthelmintic treatment. Theoretically, also, it would seem that a preliminary clearing of the intestinal tract should prepare the field, so that the chenopodium would be much more effective in removing hookworm. This experiment and many of our previous experiments have invariably shown, however, that the preliminary purge not only is not necessary in the treatment of hookworm disease with chenopodium, but, to the contrary, actually reduces the efficiency of the drug.

TABLE 1.—COMPARISON OF TOTAL RESULTS, ALL AGES

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	26	26	31	26
Average hookworms per case	220.5	150.5	199.6	216.0
Per cent. of total worms removed, trial treatment	90.3	87.0	75.5	44.1
Number of patients cured	2	6	0	1
Per cent. of patients cured	8	23	0	4
Average number of worms remaining per case	21.2	19.3	48.7	120.6
Number of failures, 10 or more worms remaining after trial treatment	6	13	22	16
Per cent. of failures	23.3	50.0	70.0	61.6

Preliminary Starvation Period.—Theoretically, a preliminary period of from fifteen to twenty hours' starvation before chenopodium administration should leave the intestinal tract empty, and enhance the activity of chenopodium treatment. This does not occur. There is a rapid absorption of chenopodium, with marked symptoms of intoxication, and the efficiency of the treatment is considerably lowered, as the tables show clearly. This failure is especially marked in the children who are given small doses of the drug. We have no explanation for the findings of this experiment. They agree with the results obtained by Darling, Barber and Hacker.

TABLE 2.—COMPARATIVE RESULTS IN ADULTS RECEIVING 1.5 C.C. OF CHENOPODIUM ON TRIAL TREATMENT

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	19	20	20	17
Total worms removed by trial treatment	4,369	2,442	3,665	1,816
Total worms removed by test treatment	423	248	344	1,431
Total	4,772	2,690	4,009	3,247
Average number of worms per case	230.1	134.5	200.4	191.0
Per cent. of worms removed by trial treatment	91.0	90.7	90.1	56.2
Per cent. of cures	10	30	0	6
Average number of worms remaining per case	22	12.1	17.2	84.1
Number of failures: 10 or more worms per case	4	7	12	10
Per cent. of failures	21	35	60	58

Food Taken During Treatment.—There are various theories concerning the taking of food during chenopodium treatment. In Brazil the belief is almost universal that food eaten during the treatment is almost sure to result fatally. In the Netherlands Indies, on the other hand, some physicians believe that chenopodium may be administered with food without diminution of its anthelmintic properties.

Neither of these theories is correct, as the tables show clearly. A light breakfast of a cup of milk with coffee and a little bread, taken during chenopodium treatment, reduces the efficiency of the treatment by more than half. In children, especially when small doses of chenopodium are given with food, the drug has very slight action on hookworms. There is also no absorption of the drug, very few symptoms are experienced, and the common toxic manifestations of routine chenopodium treatment are conspicuous by their absence. The food was given only during the treatment in these experiments. If food had been given two or three hours after administration of the drug and just before the administration of the purge, the results might have been disastrous. Field directors in Brazil believe that eating food during treatment is one of the chief causes of severe chenopodium poisoning; but in their cases, food is eaten at the end of treatment and not at the beginning. We can say definitely that food administration with chenopodium does not cause increased absorption of the drug.

TABLE 3.—COMPARATIVE TABLE OF RESULTS IN CHILDREN TREATED WITH 0.6 C.C. OF CHENOPODIUM IN THE TRIAL TREATMENT

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	6	3	7	5
Total worms removed by trial treatment	779	439	615	454
Total worms removed by test treatment	128	182	1,109	1,134
Total	907	621	1,724	1,588
Average number of worms per case	151	207	246	317
Per cent. of hookworms removed, trial treatment	85.6	70.6	35.6	28.5
Number of cases cured	0	0	0	0
Per cent. of cures	0	0	0	0
Average number of worms remaining per case	21.3	60.7	158	226
Number of failures, 10 or more worms remaining per case	2	3	7	3
Per cent. of failures	33	100	100	60

The conclusions to be drawn from these four experiments are self-evident.

CONCLUSIONS

1. A preliminary purge does not add to the efficiency of the treatment with chenopodium, when the drug is given in two doses, 1.5 c.c. being considered the adult dose.

2. A preliminary starvation period is not necessary in the treatment of hookworm disease with chenopodium in divided doses of 1.5 c.c.; on the contrary, the efficiency of the chenopodium is lessened.

3. A small amount of food given coincidently with the drug, when the chenopodium is given in divided doses of 1.5 c.c. greatly diminishes the efficiency of the drug in the treatment of hookworm disease.

4. In the smaller doses of chenopodium that are given children, the decrease in efficiency of chenopodium caused by the factors of preliminary purge, starvation period and food is much more striking than in the full adult dosage of 1.5 c.c.

THE SIGNIFICANCE OF GROUP PRACTICE

IN ITS RELATION TO THE PROFESSION AND TO THE COMMUNITY

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I. UNSATISFACTORY CONDITIONS OF PRIVATE MEDICAL PRACTICE

Time was, and not so long ago, when the phrase "has been found proficient and qualified to practice medicine and surgery in all their branches," as appearing on the state license, contained an essence of truth. Today we are all of us ready to admit that no one could possibly cover the entire field of medicine proficiently, in spite of the fact that most of us are attempting to do so. In everyday general practice the majority of us, through lack of time or facilities, are forced to satisfy ourselves with an imperfect history, a cursory examination, more or less of a snap diagnosis, and treatment that is based on incomplete knowledge of the case.

What has characterized scientific medicine and differentiated it from the practices of the faddists and charlatans has been and always will be its tireless pursuit of truth, which, applied to the practice of medicine, means, more than anything else, the tireless effort to make a complete and accurate diagnosis. The vast advances in the medical sciences made during the last few decades have thrown many new responsibilities on the practicing physician, and chief among these is the ever increasing demand for accurate diagnosis.

In an effort to bring these great advances into common use for the benefit of the public, various specialties have been developed. With the sacrifice of a more or less important amount of general knowledge, certain men have devoted a term of years to special study in restricted fields and, having obtained the special knowledge and proficiency desired, confine their work to their chosen specialty. The public has not been slow to realize the superiority of the services of these especially trained men, and in the cities, at least among the well-to-do, it is not uncommon to find the family physician supplanted by a number of heterogeneous specialists, the services of any one of whom may be directly sought by the patient according to his self-diagnosed complaint. It can hardly be maintained that such a state of affairs offers the patient any better service in the long run that was to have been had from his family physician, who at least knew a great deal of he patient as a whole. It would be difficult to appreciate the story of a drama of the screen if we were to be shown nothing but "close-ups." While the majority of those of us in general practice are frequently forced by existing conditions to get along without expert opinions in special fields and the more complicated aboratory work, those of us engaged in special work are inclined to lose sight of general considerations of great importance to the patient. Whatever our field of endeavor in medicine may be, it is becoming increasngly difficult to do our patients justice single handed.

The conscientious specialist now finds himself confronted by precisely the same difficulties that harass the general practitioner in an honest and painstaking attempt to obtain for his patient the best that medical science can offer. Whatever his field, he, like the general practitioner, finds himself constantly in need of expert opinions in other fields to correlate with his own; or with these reports before him he may find that he lacks the necessary experience to evaluate them properly and obtain the critical point of view of the internist, an important specialty in itself. If, in addition to these difficulties, the patient is in moderate circumstances and cannot afford a number of expensive consultations, he is forced into the position which the vast majority of practicing physicians occupy today: that of doing the best he can under admittedly unsatisfactory circumstances. The practice of medicine, whether limited to a specialty or not, has long since ceased to be a "one man job."

It is not intended to imply by the foregoing that every patient who seeks medical aid should be made to run the gantlet of numerous special examinations and laboratory tests, regardless of the nature of his complaint. Indeed, the majority of patients first consulting their physician present minor or perfectly obvious ailments. There is a large group, however, which should be regarded as obscure and which requires not only intelligent direction but also a variable amount of special diagnostic work, both laboratory and clinical, and finally a critical survey and correlation of all the facts brought out, in order to establish a diagnosis. Every general practitioner, every specialist, finds himself responsible for the welfare of many such patients; in fact, the higher the type of man he may be, the more such cases will he find. He realizes that his knowledge of the case is inadequate, and that he needs the cooperation of several especially trained men and much laboratory work to establish a diagnosis and to direct his patient along the proper therapeutic road. The necessary cooperation is not at hand. The patient drifts from one physician to another, perhaps consulting a number of specialists from time to time and becomes known as a neurasthenic, that convenient pigeonhole ever ready to receive our diagnostic difficulties; no intelligent guidance, no cooperation, no correlation, no results.

II. THE DANGER OF LEGISLATION DESTRUCTIVE TO THE PROFESSION AND TO MEDICAL PROGRESS

To persist in our inefficient methods of private medical practice is to discount much of the importance of the great advances in the medical sciences already accomplished as well as those to come; to deny the public the full benefit of these advances, and to invite degrading and destructive legislation which may ruin the profession here as it has ruined it in Germany and is now ruining it in England. The increasingly socialistic trend of recent legislation has not left our profession untouched. The alert and unscrupulous politician, ever ready to rob Peter to pay Paul, is even now turning his attention to the medical profession. The degradation of a great profession is to him inconsequential. His object is the establishment of state medicine; his only opponent is an insufficiently organized profession, unable to meet his attacks by adequate defensive means, much less to undertake a vigorous offensive against this and other pernicious and destructive legislation. Small matter to him if a deluded public awakes later to find the dregs of a once noble profession administering its vital problems of health both individual and public. He will have gone his way.

It is not my purpose to enter into a discussion of the intolerable conditions attendant on the institution of any system of state or social medicine, compulsory health insurance or whatever name may be given it. It has failed miserably from the standpoint of the laity as well as from that of the profession wherever it has received a fair trial, and I am assuming that every intelligent physician now knows enough of it to want none of it.[1] My object is rather to emphasize the fact which every one knows, that our present methods of private medical practice are antiquated and inefficient; that unless there is a decided change in the near future both the public and the profession will suffer through destructive legislation, initiated by the unscrupulous opportunist and fostered by the incompetents and myopic enthusiasts in the profession and out of it; that with our present relatively weak organization for defense we are inviting disaster; and, finally, that there is a remedy.

III. THE RELATION OF PHYSICIANS' FEES TO INEFFICIENT MEDICAL SERVICE

A few centuries ago, an honorable physician considered it beneath his dignity to require or even to suggest that he receive any remuneration for his services. True, it was customary to present the physician with an "honorarium," the nature and amount of which was left entirely to the discretion of the patient. The tradition still lingers in our profession to such an extent that, in approaching the subject, one risks the criticism of commercialism. The fact remains, however, that it is now quite proper for a physician to charge a fee, and it is generally recognized that he is entitled to it. Therein lies the crux of the whole situation.

The best that medical science can offer is open to those able to seek it out and pay for it. The best that medical science can offer is provided in many of our large charitable clinics and dispensaries for those unable to pay anything. For the vast majority, unable to pay large fees and unwilling to accept charity, there remains relatively poor medical service. The bulk of almost any physician's practice is largely made up of the middle class. The physician, whether he be a general practitioner or a specialist, finds himself constantly in need of expert opinions in other fields to correlate with his own; but he also finds that he cannot make a clearing house of his office by referring his patients hither and yon and make ends meet. The result is inevitably medical service which falls far short of the best. The conscientious physician realizes this and genuinely regrets it, while the public on its part is rapidly coming to realize it. The wail of "dispensary abuse" from the city practitioner is merely one of many indications. This subject has been thoroughly investigated by Dr. J. Whitridge Williams[2] of Baltimore. In his opinion, those able to pay moderate fees are attending charitable or semicharitable clinics and dispensaries, not because they are unwilling to pay a moderate fee for medical services, but because they have become dissatisfied with the quality of medical services which they have received. He says:

> This is partly the result of poor work by imperfectly educated practitioners and is partly attributable to the increasing complexity of medical practice, in which the knowledge of one man, no matter how extensive, no longer suffices to establish a diagnosis or lead to the rational treatment of many conditions. Who can blame a well paid worker or a clerk in modest circumstances for seeking dispensary aid after he has compared notes with less favored friends who have utilized the services of a well organized dispensary? The former knows that he has long been treated by his physician without relief, and that all he had received for his money was to have his pulse felt, his tongue inspected and to receive a prescription, while the latter will relate that in his case a thorough physical examination had been made, the blood and urine examined, and possibly an x-ray picture taken or the stomach contents analyzed. The first man must inevitably feel that he has been neglected, while the second realizes that all the resources of science have been utilized in the investigation of his malady. Whether his symptoms have been relieved is another matter; but until human psychology has changed, the result of the comparison is inevitable.

Neither the dissatisfied physician nor the dissatisfied patient can justly be criticized. Both are the victims of circumstances. However this may be, it is plain to be seen that the present state of affairs cannot long endure; that the future of private medical practice is already in the balance, and that unless we mend our ways to meet modern conditions, they will be mended for us by those least suited for the task, with the probability that disastrous and irreparable damage will be done.

IV. THE NECESSITY FOR COLLABORATIVE EFFORT TO MEET THE DEMANDS OF MODERN CONDITIONS

If we are ready to admit that the great expanse of medicine is now too broad for our individual vision, whether because our training has been a general one and we have been unable to master more than the rudiments of many special fields, since developed to great complexity, or whether because we have spent our time mastering the details of one of these special fields, we must admit in the same breath that we are dependent on others for opinions and help which may be essential to the patient's best interests. The conclusion is inevitable. It may be said, perhaps, that this is nothing new; that consultations between physicians is a principle as old as the practice of medicine. My answer is that the Golden Rule is as old as Confucius but is still far from being generally applied as a guiding principle or looked upon as a constant necessity in our daily routine.

Granting that a collaborative effort on the part of several especially trained men is now necessary to establish an accurate diagnosis and lead to the rational treatment of a large number of conditions, how can such a medical service be best accomplished?

Experience has amply demonstrated that such a service cannot be rendered by a number of men working independently of one another, except very inefficiently, not only on account of much repetition of work and unnecessary expense, but also because of serious omissions that are liable to occur. Given the necessary professional talent, there must be, in addition, proper guidance of the patient as well as close cooperation and collaborative effort on the part of the physicians before an accurate evaluation of the facts brought out can be obtained and put to practical use. Given all these requirements, the work will still be inefficient if it becomes necessary for the patient to be referred from one physician's office to another in different buildings or perhaps in different parts of the city. No matter how ideal the spirit of these physicians may be, real cooperation and collaborative effort become increasingly difficult the more they are scattered. The constant necessity for interdepartmental communication and ready access to all records are reasons sufficient in themselves to demand the housing of such a staff of physicians under one roof.

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[1] At the New Orleans session of the American Medical Association this resolution was adopted: "Resolved, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness, or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled or regulated by any state, or the federal government.

[2] Williams, J. W.: Dispensary Abuse and Certain Problems of Medical Practice, Bull. M. & Chir. Fac. Maryland 8: 229 (June) 1916.

The increasing complexity of medical practice and our own human limitations are demanding more and more insistently that we form ourselves into cooperative groups for the purpose of private medical practice. The demand for accurate diagnosis and therapy based on scientific facts rather than personal speculation must be met by the medical profession. It can be met only by organization into cooperative groups. The alternative is some form of social medicine. The practice of medicine as a private enterprise must measure up to its increasing responsibilities or eventually be legislated out of existence.

What would become of the general practitioner if such a reorganization of our methods of private practice were to become widespread? This would naturally depend on a number of factors in each individual case. The rural practitioner would as a rule, I believe, be content to remain at his old location and at the same kind of work, especially if at the nearest town he could at any time obtain the help of a cooperative organization to see him through his diagnostic and therapeutic difficulties. The higher the type of man he might be, the more would he appreciate and make use of such a service. There would be a number of practitioners in the towns and cities as well who would prefer to continue in their old work and refer their difficulties to a group. Large numbers of men now in general practice would become active members of groups; in fact, in the smaller communities, cooperative groups would probably be largely composed of such men. Becoming members of a cooperative group, they would carry their following with them and, while retaining it, they would be given an opportunity to develop along diverse special lines toward which they might individually lean. Within a few years a cooperative group of the primitive type, that is, one composed of general practitioners, each with his own following, could by proper cooperation, encourage the gradual development of each of its members along chosen lines, eventually completing the metamorphosis into a departmental organization. Young men, recently trained in special fields, could be added from time to time to round out the organization, bringing with them new enthusiasm and special knowledge, and receiving in return the guidance, protection and encouragement of the organization as well as the assurance of a future in work of their own choosing, unhampered by financial worries and the sordid necessities of individual competitive private practice.

For those who for various reasons would prefer to remain in independent general practice, many of the disadvantages of such work under present conditions would be removed. With a well rounded organization at hand equipped to do first-class diagnostic work, the physician could send his patient to it for a diagnostic study much as he now sends his patient's blood to the laboratory for a Wassermann test. The patient would be returned to him with a report of the work done, a complete and accurate diagnosis, and full suggestions as to therapy. An organization handling a large volume of work could offer such service at a cost well within he reach of the average patient. In addition to its own work it could function as a diagnostic laboratory for he practitioner, and bear the same relation to him that he pathologic laboratory bears today.

V. THE OBSTACLES TO GROUP FORMATION

The average practitioner of medicine in time obtains a following in his community made up of people who not only hold him in very high professional regard but who look to him for advice and guidance in many intimate matters far afield from considerations of health. He may even, in time, as Osler said in his farewell address to American and Canadian medical students, "develop into that flower of our calling—the cultivated general practitioner. May this be the destiny of a large majority of you," continued Osler; "You cannot reach any better position in a community." The very truth of these words has developed in many of those of us who are thoroughly established a state of mind against which Osler was careful to warn his students, a state of mind which effectually blocks all further progress. I refer to that powerful narcotic—complacence—a poison lethal even in tiny doses to all progressive thought and action. Complacence on the part of successful practitioners is the greatest obstacle to group formation. Your complacent practitioner will tell you that he has worked hard and that he is only now enjoying the fruits of his labors; that he has a clientele which he can retain regardless of any legislation which might ruin a less successful practitioner. In group work he can see only the division of a portion of those fruits with less successful competitors. No argument will have the slightest effect on such an individual unless by some miracle the blight of complacence should become disturbed by the sacred hunger for progress. Only then will he be able to see that he must forget his present day advantages over his confrères and, with a genuine spirit of cooperation, join with them in the task of bringing private medical practice to the point at which it can creditably shoulder its responsibilities and give real service.

Among other obstacles to group formation may be mentioned professional jealousies and misunderstandings, the difficulty of reaching a financial understanding agreeable to all, and a satisfactory division of the work. Business men have precisely the same obstacles to overcome in perfecting a working agreement or partnership. They are neither more nor less difficult of solution. Yet when it becomes obvious to them that it will be advantageous to combine forces, you will find them seeking such combinations; the obstacles mentioned are overcome one way or another. Why should the situation be any more difficult in the medical world? Fairfield,[3] in speaking of this question before the Tri-State Medical Association in September, 1919, aptly said:

> Lack of organization for business has kept medical men apart since the time of Esculapius. The barbers, who have always been inclined to the curative art, practice in groups; but we doctors only occasionally get together, and then we are under the influence of a centrifugal force which tends to separate us, namely, lack of business capacity and a business system.

Groups of physicians have, however, occasionally found it possible to combine their efforts along more or less cooperative lines for the purpose of more efficient private medical practice. The tendency is increasing rapidly in this country, especially in the Middle West and the Northwest. Groups which have thus far been organized fall readily into four main divisions, some of which show several varieties. These will be described briefly in the following classification in an attempt to make clear that type of group which is best calculated

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3. Fairfield, W. E.: Business Evolution and the Future of Private Medical Practice, Illinois M. J. **36**: 250 (Nov.) 1919.

to become a permanent and increasingly efficient organization.

VI. CLASSIFICATION OF GROUP TYPES

A. *Closed Hospital Groups.*—The staffs of a number of closed hospitals affiliated with medical schools have for many years been practicing a sort of group medicine. Through chance, more or less, these men have been brought together by a common interest and, being closely associated with one another in their teaching, it is natural that they should extend their cooperation to their private work. Such groups are merely the natural result of a community of interests. The organization is not one deliberately planned in a spirit of cooperation to make private medical practice more efficient, and I have observed in more than one instance among our best known institutions that the public ward service is distinctly more efficient than that in the private wards. However that may be, membership in such groups must necessarily be so restricted as to make their importance negligible as regards the subject under discussion.

B. *"One Man" Groups.*—By what I have chosen to designate as the "one man" group, for want of a better term, is meant that type of organization which has been gradually developed by a successful physician or surgeon around himself and his large practice as a nucleus. Groups of this type are far more numerous than any others, and as a rule they offer a very high quality of medical service. For this reason they are usually very successful, at least from the point of view of those who direct their destinies. As might be expected, a group of this type will develop along one of a number of different lines, depending entirely on the inclinations of its dominating head, so that eventually a number of sharply differentiated varieties may be recognized. For the most part these varieties may be grouped under the following headings:

1. The Primitive Type: The primitive type of "one man" group is represented in its earliest stages by the busy practitioner who engages a young assistant on a salary. Organizations of this character seldom attain more than very modest dimensions unless there is some partnership arrangement and division of the work along departmental lines. Given a generous and far-sighted policy on the part of its dominating head, however, such a group may eventually be developed into a well balanced departmental organization. Such instances have occurred, but they are rare.

2. The Surgical Type: Among the surgical type of "one man" groups may be numbered some of the most successful examples of group medicine thus far. A successful general surgeon gradually assembles about himself a diagnostic organization to handle all but the actual operative work. As the work grows, one department after another is added to the diagnostic machine, increasing its efficiency and adding to the thoroughness of the work. It may in time assume all the earmarks of a finely balanced departmental organization, but its essentially surgical character is never lost. The chief function of the diagnostic organization is liable to remain fixed—the differentiation of surgical from nonsurgical cases. Given a keen and far-sighted policy on the part of those who direct such groups, there is scarcely any limit to their possibilities for development.

3. The Medical Type: The medical type of "one man" group is usually gradually developed by a successful internist much in the same way as the surgical type just described. In spite of the fact that a very high quality of medical service is usually offered, the growth of such an organization is limited by its somewhat restricted financial possibilities. Groups of this type differ in no essential features from the next variety.

4. The Specialty Type: Developed in precisely the same way as the surgical and medical varieties, this type of "one man" group exhibits the chief characteristic of all the groups of this division, namely, its work is largely or entirely confined to the specialty in which its dominating head has become identified. We have examples of such groups representing urology, dermatology and syphilology, as well as orthopedics and pediatrics, to say nothing of the laboratory branches. As would be expected, groups of this type are seldom found outside a large medical center.

There is one great objection to all groups of the "one man" type: when it becomes necessary to replace its dominating head, through death or retirement, with one who presumably controls a less numerous following, the organization so carefully assembled over the years past crumbles and scatters. The group disappears with its leader. The recent death of a famous Chicago surgeon has offered striking proof of this contention. Furthermore, for the reason that perhaps all but one or two of the members of such an organization occupy a position distinctly subordinate to the leader, the plan of organization is not suitable for general adoption by the profession at large.

C. *Diagnostic Groups.*—Diagnostic groups are characterized, as the name would imply, by the fact that their work is confined solely to diagnosis. Depending, as they must, almost entirely on referred work, they are to be found only in the large medical centers. There are two distinct types:

1. The "One Man" Type of Diagnostic Group: This variety is represented by the internist who confines his work to diagnosis alone, with a more or less complete diagnostic organization developed about him. In practical application, the services of such an organization are as a general rule open only to those able to pay large fees. The possibilities for development are therefore rather limited, and it is obvious that the plan of operation is not suitable for general adoption.

2. The Departmental Type of Diagnostic Group: The departmental type of diagnostic group as a private enterprise is rare. I know of only two examples, one in New York, the other in San Francisco. The basic idea of these organizations is to offer the medical profession a diagnostic service of the highest type, namely, one based on a collaborative study by the several special departments indicated in any given case. The organization functions solely as a diagnostic team for the profession. Owing to the rather unremunerative results of purely diagnostic work when extended to include those able to pay only very modest fees, these institutions aim only to be self-supporting. The physicians comprising their staffs continue with their private work independent of the organization. Although marking a distinct advance in the effort to give individual private medical practice an opportunity to become more efficient by leaning rather heavily on the support offered by such a service, the plan does not seem to strike deeply at the root of the trouble. If it is necessary to bolster up the medical practitioner in his private work by means of the services of a number of semiphilanthropic institutions for the purpose of bearing the brunt of the burden, we may as well admit that medical practice as a private enterprise can no longer be made to meet its responsibilities, and that some form of social medicine is the only ultimate solution of the

difficulty. Furthermore, should the application of the principles of the diagnostic group of the departmental type find general acceptance, and should such institutions be gradually developed in various localities, it would then be only a short step to state or federal subsidy and ultimate control of such institutions, thereby practically insuring the ultimate state or federal control of medical practice in general.

The recent experiences of the medical profession in New York State, while it was fighting for its very right to existence against such pernicious and destructive legislation as represented by the Davenport bill, have disclosed the lengths to which unscrupulous legislators and the influences behind them are willing and able to go. In these days of unrest and increasingly socialistic tendencies in legislation it behooves the thinking physician to regard with care every move toward the socialization of medicine, however slight or in whatever guise presented, and to assure himself beyond the peradventure of a doubt that the seeds of his own destruction do not lurk beneath a pleasing and cleverly fabricated exterior, before honoring it with his approval or support. If private medical practice is to hold its own against the forces bent on its dissolution, it cannot be through general dependence on semiphilanthropic measures. Any system which at best can develop only a financially anemic institution could never provide the protection necessary. While registering a clean-cut scientific advance in private medical practice, the diagnostic group of the departmental type falls far short of the complete solution of the difficulties which must sooner or later be squarely met and overcome.

There is a method by which the practicing physicians of this country can overcome the shortcomings of present day private medical practice and at the same time erect a bulwark against which the political forces bent on denying it the privilege of existence will go down to discouragement and defeat. Cooperation is the one essential element. In the past, cooperation between physicians has been a negligible factor in preserving the honor and stability of the profession. In the future, cooperation must become the very life blood of private medical practice: its one assurance of a future of freedom and honor. This brings us to a consideration of the fourth and last division of group types in this classification—that type of group which is best calculated to meet and overcome the difficulties of private medical practice by present methods, because of the possibility of the application of its ideals and its methods of operation by the profession at large.

D. *Cooperative Groups.* — Cooperative groups all exhibit three characteristics which differentiate them from all other types and on which is founded their assurance of success:

First, the physicians comprising the group have, in a spirit of cooperation, organized themselves into a more or less concrete body for the purpose of private medical practice and with the object of offering their patients a more comprehensive and efficient medical service than could otherwise be had.

Second, there is no dominating head. Each member not only retains his identity but has a voice in the conduct of the organization's affairs.

Third, each member, if he is not already a mature specialist, is given the opportunity and is encouraged to develop himself along chosen lines, the ultimate ideal being a well balanced organization of especially trained individuals, each responsible for that type of work for which he has become best fitted.

Two varieties of cooperative groups may be distinguished; but they differ from one another only in their degree of development, and between the two all gradations may be found.

1. The Primitive Type of Cooperative Group: This variety of cooperative group is probably the only type of organization that would be possible of adoption at present by the practicing physicians of the smaller communities. A cooperative organization composed of general practitioners from the same community, each of whom has, perhaps, been attempting to cover the entire fields of medicine and surgery, is not only possible, as has been demonstrated in several instances, but is highly beneficial to both the community and to the individuals of the group. Such a group could at least afford those luxuries of yesterday which have become the necessities of today—a well equipped roentgen-ray and pathologic laboratory. An efficient clerical force could be engaged and more careful records kept: in short, the quality of medical service as rendered that community would suddenly take on a great improvement. This improvement would continue from year to year if each member of the organization should be encouraged to develop himself in the direction of one of the various specialties. Within a comparatively short time each member would be able to add something definite to the group in the way of special knowledge. Given the encouragement and the opportunity, one who perhaps had been only mildly interested in a certain type of medical work would soon become more proficient in that work than any one else in his community had ever been. As the work of each individual became more and more specialized, the organization would gradually undergo its complete metamorphosis into the ultimate type of cooperative group—a well balanced and comprehensive departmental organization, a mature specialist representing each important division of medicine and surgery.

2. The Departmental Type of Cooperative Group: In the larger cities there will be found numbers of physicians who, having devoted a certain number of years to acquiring a thorough training in some special field of medicine or surgery, are confining their private work to that specialty. As previously stated, these men are finding it increasingly difficult to do justice to many of their more or less obscure cases for the reason that the necessary cooperation from other especially trained men is either difficult or practically impossible to obtain. The close interrelationship between the various departments into which the practice of medicine has been rather arbitrarily divided, their interdependence and their overlapping are making it increasingly imperative that the work of these various departments be correlated. This can be accomplished only by a genuine cooperation on the part of those engaged in the exclusive practice of these specialties. An excellent demonstration of the truth of this statement is afforded by the somewhat recent and steadily increasing realization of the importance of dental cooperation in medicine. What had been considered in the past, a therapeutic field so sharply defined, so highly technical, so self sufficient as to justify its existence as a separate profession, has been shown to be intimately associated with every department of medicine. A negligible factor a few years ago, dental cooperation is now generally recognized as a necessity.

By merely combining their efforts along cooperative lines, a group of specialists practicing in the same community can at once assemble a finely balanced organization for the scientific practice of medicine—an organization which would be in a position to offer the community a quality of medical service, and its members innumerable advantages, unobtainable by any other means.

How should an organization be assembled, granting that the necessary professional elements are at hand? As long as the three characteristics of all genuine cooperative groups, mentioned above, form the basis of the agreement, the details of organization will be easily disposed of by common consent. The group should occupy one suite of offices, preferably its own building devoted exclusively to its purposes. There need be no pooling of fees, the stumbling block so often obstructing progressive action in this direction. The pooling of professional talent, not fees, is the important consideration, and in this respect each member should add something perfectly definite. In this manner individual initiative may be preserved. Each department head is free to shape his own career in his own way. He is free, if he pleases, to develop about himself a subsidiary organization devoted to his specialty; in fact, he is much more likely to succeed in this accomplishment as a member of such a cooperative group than otherwise. There need be no friction between the members of such a group regarding the amount of work this or that member is doing, the amount of revenue this or that member is producing, or the number of hours he puts in at his work. All of these are fruitful sources of friction and discontent in the "common pool" type of cooperative group, to say nothing of the difficulties of such a group when it comes to apportioning its earnings among its various constituents in a manner satisfactory to all.

In addition to the private work of the various departments, such an organization can readily offer the profession a diagnostic service of the highest type. It can function perfectly as a diagnostic group of the departmental type.

As has been pointed out by Fairfield, a group of men practicing medicine in such close association will quickly develop "a policy of practice" which will redound to the credit and material advantage of all. Destructive practices will be eliminated, and the benefit of sound ideas emanating from this or that department will be shared by all. A common system of record keeping, embodying the original thought and requirements of each department, a common library, constant association with men of progressive thought, and justifiable pride in the institution will all tend to stimulate the investigative impulse, so sadly neglected by the individual practitioner. Osler's "sacred hunger" will become aroused, and food for its consumption will be at hand.

There is yet another advantage, and a great one, which may be enjoyed by the members of a cooperative group. I wish to touch only on its salient feature, as the plan is shortly to be made the subject of a detailed discussion by one of my associates, Dr. F. M. Turnbull, to whom full credit is due for its conception. Dealing, as he does, in that intangible commodity known as personal service, it is natural that a physician's greatest asset while he is in active practice is his "good will." On death or retirement his greatest asset usually becomes worthless, in spite of the fact that had he dealt in groceries or hardware instead of personal service, it might be worth a small fortune to him or to his heirs. By the cleverly conceived plan to which I refer, it becomes perfectly practicable "to conserve to each member of the group and especially to his heirs, in the event of his decease, the just fruits of his labors and attainments." This is accomplished through the successor of the deceased, who is enabled to purchase the department by partial payments over a number of years, the actual price being based on the previous earnings of that department and its earnings for the first few years under its new management. The benefits are paid to the former department chief, should he retire, otherwise to his heirs. The plan becomes possible of successful operation by the members of a cooperative group of the departmental type, for the reason that the "good will" of any of its departments, backed by the "good will" of the entire organization, becomes a very real and tangible asset, so real in fact that its actual cash value can be readily and accurately calculated at the end of a few years under the new management.

Knowingly running the risk of criticism at the hands of the "complacents" as a visionary enthusiast, I cannot deny myself a glimpse at the brilliant future in store for our profession when cooperation will become its watchword; when individual inefficiency will yield to the broader conceptions of organized effort; when the scattered and incoordinate efforts of individual practitioners will become a powerful constructive force for the purpose of medical research as well as for that of public and personal service; when a physician's success will be determined more by his ability and scientific attainment than by his willingness to stoop to questionable methods of competition; when an organized profession will become an impregnable barrier to the pernicious influences bent on its emasculation, through the destruction by legislative means of its right to independent existence and its power for public good.

CONCLUSIONS

1. Present methods of individual private medical practice are inefficient.

2. The individual practice of medicine, whether limited to a specialty or not, can no longer be considered self sufficient, because the demands of modern conditions cannot be met without constant cooperation from others.

3. Unless the medical profession prepares itself to meet its just obligations in providing an efficient medical service within the means of the average patient, the practice of medicine as a private enterprise will be legislated out of existence.

4. In order to meet its responsibilities in the ever increasing complexity of thorough medical work, the profession must reorganize itself into cooperative groups. The choice lies between this reorganization and some form of social medicine.

5. Under any form of state or social medicine thus far devised, the practicing physician is degraded, medical efficiency drops to the lowest level, and the public is forced to accept a miserable quality of professional service.

6. A cooperative group will succeed where the unaided individual must fail; it will meet its obligations to the patient and meet them efficiently; it will make contributions to medical sciences that could not be made otherwise; it will present a solid front to the political schemer or misguided enthusiast who would launch destructive legislation; it will insure its constituents a future of honorable service and adequate reward.

STUDIES IN THE PROPERTIES OF BLOOD PLATELETS *

A NEW METHOD FOR COUNTING PLATELETS

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The increasing difficulty in obtaining brilliant cresyl blue led us to search for another dye that might be used for the vital staining of blood. After experimenting with a large number of dyes, we finally adopted as the most satisfactory, easily procurable, vital stain crystal violet, pentamethyl pararosanilin hydrochlorid.[1] This dye, like brilliant cresyl blue, stains the leukocytes deep blue. The platelets and the reticular substance of young erythrocytes, which also are stained blue by brilliant cresyl blue, are stained a deep lilac by crystal violet. Hemoglobin is stained but faintly.

In the accompanying table are recorded the percentages of reticulated cells in twenty-nine different cases counted by Robertson's method,[2] using both brilliant cresyl blue and crystal violet. The two dyes give substantially the same figure in every case.[3] In fresh preparations, a rough estimate also may be obtained of the number of platelets as satisfactorily with crystal violet as with brilliant cresyl blue preparations.

Having demonstrated the efficacy of crystal violet as a stain for platelets, we endeavored to devise a method for the counting of platelets. From experiences with other methods of counting platelets (those of Wright and Kinnicut,[4] Gram,[5] Pratt [6] and Ottenberg [7]), we became convinced that satisfactory counts are possible only when these conditions are fulfilled: (1) The platelets must be discrete and evenly distributed; (2) they must present sufficient characteristic morphology to enable them to be readily identified, and (3) they must be stained. To fulfil these conditions it is of the utmost importance that the blood be obtained in a manner that prevents the initial stages of coagulation from ocurring, particularly thrombin formation, which, as Wright and Minot [8] have shown, permits the coalescence and viscous metamorphosis of platelets. It is of importance, secondly, that the diluting fluid contain a stain for platelets, that it be isotonic, that it be microscopically homogeneous, and that it contain some substance capable of preventing the formation of fibrin.

We believe that the technic and solution described herein fulfil these conditions and, as evidence of the efficiency of this method, we submit the table.

PROCEDURE

Blood is obtained from a vein and allowed to flow into a miniature transfusion tube, evenly paraffined, attached to a paraffined hypodermic needle, of 18 gage. The tube that we use is similar to the one described by Lee and Vincent,[9] and has a capacity of about 6 c.c. As the blood wells up in the tube, the tip of a "red count pipet" is introduced and blood drawn up to the 0.5 mark. The pipet is then immediately filled with the diluting fluid to the 101 mark and shaken for three minutes. A drop from this pipet is then mounted in a Türk counting chamber in the usual manner. At the end of three minutes a red count may be made. At the end of five minutes a white count may be made, counting 9 square millimeters of the field and using the high dry objective. When the specimen has stood for twenty minutes, all the platelets will have "settled" and a platelet count may then be made, using again the high dry objective and counting 4 square millimeters of the field. A second, and, if need be, a third drop is similarly counted and the average of the counts taken. Red, white, and platelet counts may be made as long as four hours after the taking of the specimen.

THE DILUTING FLUID

Six gm. of glucose and 0.4 gm. of sodium citrate are dissolved in 100 c.c. of distilled water, and the solution is filtered. To this are then added about 0.02 gm. of toluene red, dimethyldiamidotoluphenazin, sometimes also called "neutral red." Solution is slow but ultimately clear. To this is then added 0.1 gm. of crystal violet, and the solution is gently heated to 60 C. and held at that temperature for five minutes. It is allowed to cool slowly to room temperature and centrifuged for ten minutes at 2,000 revolutions a minute. The supernatant liquid is then filtered twice, each time through three thicknesses of No. 30 Whatman filter paper (dry). The solution is preserved by adding 0.2 c.c. of formaldehyd solution and then keeps indefinitely.

COMMENT

The Procedure.—Just what the first change is that takes place after blood leaves a vessel and just how soon that change occurs has never been determined. Yet, it is generally conceded that the coalescence of platelets is a very early change and a change that is irreversible. This change may be retarded to some extent by the addition of anticoagulants and by dilution. It is hastened by admixture of tissue juice which, by permitting the formation of thrombin, causes a clumping of platelets. Blood obtained in the manner described above is as unaltered as can be obtained and contains a minimal admixture of tissue juice. The method gives uniform results. Blood obtained from the ear in such a manner as to give a uniform flow yields usually, but by no means always, satisfactory specimens.

We recommend the use of a paraffined tube not only for purposes of platelet counting but also because it furnishes a convenient method of obtaining unaltered blood which may be used for determining coagulation time, and for making subsequent observations on the quality of the clot,[10] data that are often desired in cases in which platelet counts are done. If the tube is rinsed with cold water as soon as the blood has been allowed to run out, it may be used repeatedly without reparaffining.

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* From the Medical Clinic of the Boston City Hospital. This is study No. 3 of a series of studies on the physiology and pathology of the blood from the Harvard Medical School and allied hospitals.

* The expenses of this research were in part defrayed by a fund subscribed by members of the visiting staff of the Boston City Hospital, and in part by a grant from the Proctor Fund of the Harvard Medical School.

[1] In our experience the penta dye has been more satisfactory than the hexamethylpararosanilin hydrochlorid. We are indebted to the Will Corporation, Rochester, N. Y., for specimens of this and other dyes used in this work.

[2] Robertson, O. H.: Experimental Plethora and Blood Production, J. Exper. Med. **26**: 227 (Aug.) 1917.

[3] At the suggestion of Dr. T. D. Cunningham we attempted to superimpose Wright's stain on films stained first with crystal violet after the method described by him (A Method for the Permanent Staining of Reticulated Cells, Arch. Int. Med. **26**: 405 [Oct.] 1920). Crystal violet alone is not satisfactory for this purpose. If, however, a 0.3 per cent. solution of crystal in 2 per cent. sodium tungstate solution (mordant) is used, fairly satisfactory preparations may be made. They are not, however, so clear as the preparations made with brilliant cresyl blue.

[4] Wright, J. H., and Kinnicut, R. S.: A New Method of Counting Blood Platelets for Clinical Purposes, J. A. M. A. **56**: 1457 (May 20) 1911.

[5] Gram, H. C.: On the Platelet Count and Bleeding Time in Diseases of the Blood, Arch. Int. Med. **25**: 324 (March) 1920. Thomsen, O.: Direct Count of Blood Platelets, Acta Med. Scand. **53**: 507 (Aug.) 1920.

[6] Pratt, J. H.: Observations on the Coagulation Time of the Blood and the Blood Plates, J. M. Res. **5**: 120 (Aug.) 1903.

[7] Ottenberg, Reuben, and Rosenthal, Nathan: A New and Simple Method for Counting Blood Platelets, J. A. M. A. **69**: 999 (Sept. 22) 1917.

[8] Wright, J. H., and Minot, G. L.: The Viscous Metamorphosis of the Blood Platelets, J. Exper. Med. **26**: 305 (Sept.) 1917.

[9] Lee, R. I., and Vincent, Beth: The Coagulation of Normal Human Blood, Arch. Int. Med. **13**: 398 (March) 1914.

[10] Lee, R. I., and White, P. D.: A Clinical Study of the Coagulation Time of Blood, Am. J. M. Sc. **145**: 495 (April) 1913.

RESULTS OF COUNTS WITH PRATT'S, OTTENBERG'S AND AUTHORS' METHODS

						Red Count		Retic. Count, Fresh Smear		Platelets								White Count	
										Fresh Smear									
Case	Date	Diagnosis	Bleeding Time, Min.	Coagulation Time, Min.	Clot Retraction	Standard Method	Crystal Violet, Ear	Cresyl Blue %	Crystal Violet %	Cresyl Blue	Crystal Violet	Ottenberg and Rosenthal	Wright and Kinnicut	Gram	Pratt	Crystal Violet, Ear	Crystal Violet, Vein	Standard	Crystal Violet, Ear
1. A.	9/ 2/20	Normal	2	6	Good	5,230,000	4,936,000	0.7	0.8	Normal	Normal	260,000	....	....	280.000	282,000	290,000	7,100	6,400
2. G.	9/ 7/20	Normal	2¼	6	Good	5,220,000	....	0.6	0.8	Normal	Normal	270,000	....	....	274,000	....	250,000	9,800	9,600
3. M.	9/ 7/20	Normal	1¾	7	Good	6,550,000	....	0.9	0.8	Normal	Normal	260,000	....	....	232,000	....	302,000	3,600	3,800
4. Y.	9/ 3/20	Normal	2½	8	Good	5,760,000	5,860,000	2.1	2.4	Increased	Increased	250,000	....	....	233 000	242,000	270,000	9,900	10,200
5. M.	9/ 8/20	Normal	2	7	Good	5,540,000	5,750 000	1.2	1.4	Normal	Normal	240,000	....	....	260,000	....	246,000	11,100	12,000
6. C.	9/ 9/20	Normal	2½	5	Good	5,350,000	5,080,000	1.0	1.1	Normal	Normal	240,000	....	....	266,000	....	280,000	28,800	29,000
7. J.	10/ 4/20	Normal	2	8	Good	4,820,000	4,680,000	....	....	....	....	276,000	....	....	284 000	....	300,000	7,400	8,000
8. O'H.	9/14/20	Normal	2	8	Good	4,800,000	4,770,000	....	....	....	....	280.000	....	....	274,000	....	292,000		
9. C.	9/17/20	Normal	2¼	8	Good	5,100,000	5,160,000	....	....	....	....	220,000	....	....	312,000	....	328,000		
Average platelet count for normal cases												255,111	....	....	268,333	262,000	284,222		
10. S.	8/20/20	Secondary anemia, postpneumonic	1¾	9	Normal	3,810,000	3,832.000	0.5	0.8	Normal	Normal	238,000	265,000	259,000	212,000	270,000	294,000	6,700	6,500
11. A.	8/21/20	Idiopathic purpura hemorrhagica	30	..	Poor	1,166,000	1,164,000	....	....	....	....	16,000	13,000	25,000	14,000	16,000	12,000	6,000	6,800
12. H.	8/23/20	Secondary anemia; convalescent empyema	2¾	7	Fair	3,820,000	3,592,000	0.9	0.7	Normal	Normal	192,000	164,000	175,000	192,000	190,000	204,000	8,400	6,750
13. K.	8/24/20	Convalescent arthritis	2¼	7	Normal	5,200,000	5,032,200	1.8	1.5	Normal	Normal	226,000	212,000	232,000	258,000	258,000	290,000	11,700	12,400
14. C.	8/25/20	Myelogenous leukemia	3½	..	....	....	4,469,000	4.1	3.7	Normal	Normal	184,000	194,000	179,000	156,000	....	178,000	116,400	120,800
15. T.	8/25/20	Pernicious anemia	3¼	9	None	520,000	428,000	7.1	6.3	Diminished	Diminished	32,000	28,000	34,000	28,000	26,000	31,000	3,200	4,800
16. M.H.	8/26/20	Pernicious anemia	3¼	9	None	460,000	400,000	1.6	1.0	Practically absent	Practically absent	172,000	136,000	126,000	156,000	116,000	118,000	1,700	1,300
17. A.	8/26/20	Myelogenous leukemia	2¼	4	Poor	3,420,000	3,740,000	....	....	Slightly diminished	Slightly diminished	264,000	294,000	302,000	304,000	334,000	328,000	137,600	142,000
18. S.	8/27/20	Chronic, not definitely pernicious anemia	12	8	None	1,270,000	1,176,000	4.6	5.0	Diminished	Diminished	32,000	28,000	32,000	44,000	30,000	28,000	3,200	3,600
19. K.	8/28/20	Diabetes	1½	8	Good	4,800,000	4,752,000	0.3	0.5	Abundant	Abundant	276,000	310,000	257,189	296,000	304,000	282,000	7,000	7,000
20. F.	8/30/20	Tuberculosis	1	9	Good	4,860,000	4,256,000	1.1	1.0	Slightly increased	Slightly increased	284,000	304,000	261,000	280,000	278,000	270,000	9,900	9,000
21. S.	8/31/20	Chronic endocarditis	4	7	Good	5,250,000	4,830,000	1.8	1.6	Normal	Normal	241,000	224,000	202,000	210,000	222,000	216,000	6,500	6,600
22. L.	9/ 1/20	Pernicious anemia	4¾	7	Good	440 000	....	6.4	6.0	Normal	Normal	160,000	180,000	....	188.000	....	190,000	3,000	2,800
23. G.	9/ 2/20	Myelogenous leukemia	1½	8	Poor	3,530,000	3,750,000	....	....	Greatly increased	Greatly increased	1,000,000	....	....	1,316,000	....	1,400,000	138,200	134,000
24. G.	9/ 3/20	Lymphatic leukemia	1¾	8	Poor	4,265,000	4,230,000	0.9	0.7	Diminished	Diminished	248.000	....	....	282,000	264,000	300,000	45,900	42,000
25. F.	9/ 4/20	Idiopathic purpura hemorrhagica	13¾	7	Very poor	3,700,000	4,090,000	3.1	3.0	Greatly diminished	Greatly diminished	2,000	....	....	4,200	6,000	10,000	7,800	7,000
26. L.	9/ 4/20	Hemophilia	3	40	Fair	5,710,000	5,744,000	1.0	1.0	Increased	Increased	180,000	....	....	165,000	152,000	180,000	7,700	8,200
27. K.	9/ 7/20	Chronic empyema, secondary anemia	1	9	Good	3,700,000	3,600,000	0.7	0.7	Normal	Normal	....	....	....	250,000	....	264,000	8,200	8,800
28. H.	9/ 8/20	Secondary anemia, chronic endocarditis	1¾	11	Good	3,880,000	4,216,000	1.1	0.9	Normal	Normal	....	....	....	334,000	....	326,000	7,100	7,200
29. S.	9/ 9/20	Chronic nephritis	3	8	Good	4,720,000	4,870,000	2.1	1.9	Normal	Normal	....	....	....	240,000	236,000	224,000	7,300	6,600
30. H.	9/10/20	Pernicious anemia	2½	8	Fair	2,100,000	2,150,000	9.1	10.8	Diminished	Diminished	....	....	....	....	....	....	3,400	3,000
31. T.	9/10/20	Pernicious anemia	3½	6	Good	1,800,000	1,760,000	7.8	6.4	Diminished	Diminished	....	....	....	....	....	....	2,800	3,600
32. McH.	9/10/20	Pernicious anemia	4	7	Good	900,000	940,000	2.0	2.3	Diminished	Diminished	....	....	....	....	....	....	1,600	2,000
33. W.	9/20/20	Idiopathic purpura hemorrhagica	22	10	Poor	3,200,000	3,300,000	....	....	Diminished	Diminished	40,000	....	....	48,000	....	36,000	12,000	11,200
34. McC.	9/18/20	Hemophilia	3	50	Fair	4,600,000	4,640,000	....	....	....	....	290,000	....	....	270,000	....	310,000	9,200	7,800
35. D.	10/ 4/20	Hemophilia	3¼	30	Fair	4,700,000	4,690,000	....	....	....	....	220,000	....	....	260,000	....	290,000	7,400	7,600
36. L.	10/ 6/20	Hemophilia	3¾	55	Good	5,400,000	5,420,000	....	....	....	....	240,000	....	....	220,000	....	270.000	6,800	7,200
37. S.	10/ 8/20	Hemolytic jaundice	2½	6	Good	6,100,000	6,000,000	16.4	17.2	....	....	270,000	....	....	300,000	....	346.000	10,000	9,400
38. L.	9/15/20	Pernicious anemia	1¼	10	Good	3,200,000	3,180,000	....	....	....	....	101,000	....	....	116,000	....	110,000		
39. R.	10/ 4/20	Chronic platelet insufficiency, not definitely purpura hemorrhagica	21½	8	Poor	4,110,000	4,110,000	....	....	....	....	14,400	....	....	22,000	....	18,200		
40. F.	10/18/20	Pernicious anemia	2¼	6	Good	2,200,000	2,140,000	....	....	....	....	171,000	....	....	154,000	....	166,000		
41. O'T	9/22/20	Polycythemia vera	3	10	Fair	9,500,000	9,200,000	1.0	0.8	....	....	800,000	....	....	960,000	....	1,100,000		
42. C.	9/23/20	Polycythemia vera	2¾	8	Good	7,100,000	7,080,000	1.4	0.9	....	....	312,000	....	....	318,000	....	290,000		

The Solution.—A solution of crystal violet in water behaves as an electropositive suspensoid. The dye is easily precipitated by electrolytes, and is separable from the dispersion medium (water) by capillary analysis (i. e., it is adsorbed by filter paper). It also is cathodophilic and is coagulated by the addition of colloidal arsenous sulphid (electronegative). The addition of sodium citrate in quantities greater than 0.5 per cent. precipitates the dye completely. In smaller quantities, sodium citrate has no obvious influence on the dye and is effective in preventing the formation of thrombin, which would produce small strands of fibrin. The solution is rendered isotonic by the use of glucose, rather than a salt, in order to avoid electrolytic precipitation of the dye.[11] Toluene red is added for the purpose of staining the red cells.

It is a curious phenomenon that this solution, after one filtration through three thicknesses of filter paper, though microscopically homogeneous and though staining the platelets deeply, nevertheless frequently permits clumping of the platelets. From certain studies, not yet reported, which we have made on the colloidal properties of platelets, we believe this clumping is associated with an antagonistic action of the colloidal crystal violet. Further filtration, although it removes a considerable part of the dye and yields a fluid which stains the platelets less intensely, nevertheless always obviates the clumping phenomenon. We have had to be contented, therefore, for the present, with a solution that stains the platelets less intensely than could be desired, but which, nevertheless, stains them sufficiently well to enable one readily to distinguish them, not alone by their morphology, but also by their characteristic blue color. In carefully prepared specimens the platelets appear as discrete, uniformly distributed, pale blue, oval bodies, about one-sixth to one-third the size of a normal erythrocyte. Their cytoplasm is very finely granular, their periphery slightly irregular, and they show clearly the apron-like appendage that is so characteristic of platelets.

The Results.—In the table are recorded the results of simultaneous platelet counts made in thirty-six cases by three methods, namely, Pratt's, Ottenberg's and our method. In twelve other cases, in addition to these three methods, Gram's method and Wright and Kinnicut's method also were used. The counts obtained by the various methods as a rule do not differ substantially from one another, especially when one considers that, at its best, platelet counting is hardly more than an approximate procedure. Our method yields counts generally slightly higher than those obtained by the other methods, and especially so when the number of platelets is great. We regard this fact as very important. Even slight clumping inevitably reduces the platelet count obtained in a given specimen. Moreover, other things being equal, the greater the number of platelets, the more readily are they clumped. If, then, a series of counts is simultaneously done by different methods on a given specimen of blood, and if due care is taken in the preparation of the mount to exclude dust and other extraneous matter, the highest count will presumably be the most nearly correct one. That is to say, other things being equal, a high count is evidence of absence of clumping; a low count suggests clumping, even though no clumps are observed. Counts obtained by our method more nearly parallel those obtained by Pratt's method than those obtained by any of the other methods that were used.

In seventeen cases, simultaneous counts of platelets were made with our solution, obtaining blood from both vein and ear. The platelet counts made from ear blood are in agreement with those made on venous blood. However, whereas venous blood obtained as described above may always be depended on to yield a satisfactory specimen, it frequently happens that in ear blood specimens, clumping of platelets occurs. Such specimens, of course, invariably yield low counts. It is our opinion, however, that when a satisfactory (i. e., unclumped) ear blood specimen is obtained, by our method the resulting count is as near the true count as is that obtained from venous blood.

Simultaneous counts of red cells and white cells were made in thirty-five cases for the purpose of comparing the counts by our method with the counts obtained by the standard methods now in use. With respect to both red counts and white counts the results obtained are substantially the same by both methods.

SUMMARY

By this method for the simultanous determination of platelets, red cells and white cells, uniformly satisfactory preparations of platelets may be readily made and the platelets easily counted. It gives results for all three of the formed elements of the blood which closely parallel those obtained by standard methods.

SODIUM CITRATE TREATMENT OF THROMBO-ANGIITIS OBLITERANS *

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Thrombo-angiitis obliterans (Buerger's disease) is an inflammatory disease of the blood vessels of unknown origin. It affects all the coats of both arteries and veins. It begins usually in the blood vessels of the legs below the bifurcation of the popliteal artery, and from here spreads by continuity or appears independently in other vessels. It has a tendency to periodic relapses, and ends fatally when some important vessel, such as the renal or a large visceral artery, is attacked. In this country it is almost entirely limited to middle aged, male members of the Jewish race of Russian origin, but is said to be prevelant in Japan, where it is called "the gangrene of the young."

PATHOLOGY

The pathologic picture is primarily that of an acute inflammatory lesion of the intima with an occlusive thrombosis. This is followed by organization and canalization of the clot, with disappearance of the inflammatory products, and finally by a periarteritis which may bind firmly together artery, venae comites and accompanying nerves. The pathologic process is of such a character as to suggest a microbic origin. It has a tendency to self cure, shown by the attempted establishment of a compensatory circulation both by anastomotic routes and by the vascularization of the occluding thrombus.

SYMPTOMS

The symptoms are due to the gradual shutting off of the arterial blood by the occluding thrombus. The first sign noticed by the patient, and usually attributed to rheumatism or flatfoot, is pain in the foot or calf of the leg while walking or standing. This pain is relieved when he sits down and holds up his leg, but recurs again on attempts to walk. This characteristic symptom is spoken of as "intermittent claudication." The affected foot takes on a purplish blue color when dependent, and blanches white when held horizontal; it feels colder than its fellow, and is sensitive to damp cold weather. As thrombosis develops, first the posterior and then the anterior tibial pulse is cut off, and a dry gangrene appears usually in the great toe and slowly spreads up the leg. As a result of the toxemia and pain, the patient becomes thin and anemic and takes on a classical septic appearance.

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[11] In our earlier work we attempted to use urea in place of glucose for the purpose of rendering the solution isotonic. Solutions made up with urea permit the laking of the red corpuscles, as red corpuscles, in the absence of electrolytes, are permeable to urea. Compare Hamburger: Osmotischer Druck und Ionenlehre, Wiesbaden, J. F. Bergmann 1: 206, 1904.

* Read before the Philadelphia County Medical Society, Dec. 22, 1920.

TREATMENT

The general plan of treatment has been to increase the capillary hyperemia and encourage the formation of a collateral circulation, namely: (1) elevation of the leg and exposure to dry heat; (2) Bier suction cylinders; (3) administration of vasodilator drugs—potassium iodid and nitroglycerin; (4) intravenous and subcutaneous injection of drugs to lessen blood viscosity—Ringer's solution and sodium citrate; (5) femoral vein ligation and arteriovenous anastomosis. Operative measures have proved failures. The other plans of treatment have all given some measure of success.

THE INTRAVENOUS SODIUM CITRATE METHOD

In 1915, Mayesima showed that there was a constant high viscosity of the blood in all types of gangrene. Acting on this suggestion, Koga used Ringer's solution hypodermically over long periods of time and reported many cures. Meyer [1] followed Koga's idea, and was the first to use sodium citrate intravenously in conjunction with Ringer's solution hypodermically. He used a small dosage over a short period of time, and many of his patients relapsed and had to undergo amputation.

I have employed the sodium citrate method for the last three years with encouraging results, using this technic: During the first month the patient is kept in bed with the legs constantly under a hot air electric light bath at 110 F.; 250 c.c. of 2 per cent. sodium citrate solution is given intravenously every second day. The second month the interval of injection is lengthened to every third or fourth day; daily leg massage is given, and the patient is put in a wheel chair with the feet hanging down a short time each day; or, if the case is not advanced, some walking is allowed. The intervals of injection are now gradually lengthened until at the end of a year the patient gets one every two weeks. Increased walking is permitted as the symptoms subside and evidence of a functional collateral circulation appear. Potassium iodid, 10 drops three times daily, is given during the whole course of treatment. The iodid is always well borne. The length of treatment is regulated by the results obtained in establishing a functional collateral circulation.

The effects of this plan of treatment have been: (1) relief of pain after the second injection; (2) the checking of the gangrene and spontaneous amputation of the dead tissue; (3) healing of indolent, painful ulcers, and (4) a slow but sure establishment of a collateral circulation, as shown by improved color, warmth of the foot, the swelling of the subcutaneous veins, and a strengthening of any existing pulse. In two cases there occurred a reestablishment of an anterior and a posterior tibial pulse.

The injections are given in the veins of the arm through a curved slip joint needle, by the usual skin puncture method. No bad after-effects were noted.

Six patients in all have been treated. Two have resumed their regular occupations. One is walking around again functionally able, but has no financial urge to set him to work. One with a previous leg amputation has resumed his occupation as a playwright. One case is progressing satisfactorily. In the sixth case, a desperate one, the patient walked after one year of treatment, but suffered a relapse after four months of walking. He is now yielding to a second course of injections.

SUMMARY OF CASES

Case 1.—L. K., a delivery wagon driver, aged 53, who had had symptoms for one year, was bedfast on admission three years ago, both legs were affected, there was gangrene of one great toe, and there was loss of both posterior tibial and one anterior tibial pulse. He received fifty injections and was functionally cured. He walks without pain or limp. There is one full anterior tibial pulse. No treatment has been given for one and one-half years.

Case 2.—S. K., a mill laborer, aged 51, had presented symptoms for three months. On admission, one and one-half years ago, he could take only a few steps. Both legs were affected. There was no gangrene. There was loss of both posterior tibial and one anterior tibial pulse. The patient received eighty-five injections and was functionally cured. He is working again. The absent anterior tibial pulse reappeared after one month of treatment. No treatment has been given for the past month.

Case 3.—A. S., a merchant, aged 57, had had symptoms for one and one-half years. On admission, one and one-half years ago, he was bedfast; both legs were affected; there was gangrene of one great toe and threatened gangrene of both feet. There was loss of both posterior and both anterior tibial pulses. The general condition was very bad. He received sixty-nine injections, and the condition was improved. He walked after one year of treatment, but suffered a relapse after walking four months. He is now responding to a second course of injections. There was reappearance of one posterior tibial pulse after seven months' treatment.

Case 4.—D. G., a tailor, aged 53, who had had symptoms for eighteen years, was bedfast on admission fourteen months ago; both legs were affected; there was gangrene in the tip of one great toe, and loss of both posterior tibial and one anterior tibial pulse. He received fourteen injections. He is functionally cured. He has been doing his regular work for one year, and walks any distance without pain. There is no return of the absent pulse. He has a perfect collateral circulation.

Case 5.—W. S., an actor and playwright, aged 34, had had symptoms for three and one-half years. On admission, seven months ago, he could walk a few steps with crutches. Both legs were affected. The left leg had been amputated below the knee six months before admission. The stump had a chronic ulcer at the flap edge, 2 by 3 inches. One toe of the right foot had been amputated two and one-half years ago. The right foot was blue and cold and in a state of impending gangrene. There was no anterior or posterior tibial pulse. The patient's general condition was bad. He received forty-eight injections. The stump ulcer healed in three weeks. He walks well on his crutches. There has not been any pulse return, but a functional collateral circulation is forming. The patient has resumed his occupation as a playwright. He is still under treatment.

Case 6.—A. V., a laundry ironer, aged 30, who had symptoms for four and one-half years, could walk only a few steps on admission five months ago. Both legs were affected. There was an area of gangrene on the side of one great toe. There was loss of both posterior tibial and one anterior tibial pulse. He received thirty injections, and reports that he can walk six blocks. The collateral circulation shows steady improvement. There has not been any return of the lost pulse. He is still under treatment.

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[1] Meyer, Willy: Ann. Surg. 63: 280 (March) 1916.

CONCLUSIONS

One cannot hope for a full functional regeneration in such badly damaged members. But results in these six cases would seem to show that suffering can be relieved; that the progress of an otherwise fatal disease can be checked; that amputation can be avoided, and that a certain percentage of patients can be returned to active life, and others fitted in some measure to help themselves.

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BEHAVIOR OF BLOOD PRESSURE DURING THE USE OF THE STOMACH TUBE[*]

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The occurrence of epistaxis during stomach lavage in a case of arterial hypertension suggested this brief study of the temporary effects on blood pressure caused by the passage of the stomach tube. Aside from the known effects of mental excitation, muscular activity and straining, the question presented itself as to the part that the irritation of the buccal, esophageal and gastric mucosa played in causing temporary increase in blood pressure quite constantly observed. Of interest has also been the possible significance of sudden rises in blood pressure as a possible cause of vascular accidents.

CONDITIONS OF EXPERIMENT

Blood pressure readings were taken in a series of cases in which stomach lavage was performed as a routine diagnostic and therapeutic procedure. The only selection made was to include cases in which there was hypertension. Readings were made with the spring sphygmomanometer which had been checked with a mercury sphygmomanometer, immediately before passage of the stomach tube, while the tube was in the stomach and immediately after its withdrawal. The patients were in the sitting posture, and the same arm was used for the determinations in each case.

TABLE 1.—BLOOD PRESSURE DETERMINATIONS IN GROUP 1 A.

Case	Systolic	Diastolic		Systolic	Diastolic
1............	100	65	to	120	80
2............	120	85	to	150	110
3............	130	80	to	160	110
4............	112	95	to	132	90
5............	105	85	to	125	100
6............	130	90	to	160	120
7............	126	..	to	164	...
8............	112	..	to	135	...
9............	130	80	to	170	100
10............	110	80	to	130	90
11............	115	90	to	115	90

TABLE 2.—BLOOD PRESSURE DETERMINATIONS IN GROUP 1 B

Case	Systolic	Diastolic		Systolic	Diastolic
1............	120	95	to	160	...
2............	130	80	to	170	100
3............	122	100	to	160	130
4............	130	90	to	170	110
5............	120	..	to	160	...

DATA OBTAINED FROM BLOOD PRESSURE DETERMINATIONS

Group 1 includes sixteen cases in which the systolic blood pressure was within normal limits. In Subdivision A are included eleven of these cases in which there was virtually no straining or mental excitation. The average increase in systolic blood pressure in ten cases was 22 per cent., with a minimum increase of 20 mm. of mercury and a maximum of 40. In Case 11 the blood pressure was not increased. Subdivision B includes five cases in which straining was marked, as is frequently seen in cases in which the stomach tube has not been passed before. The average increase in systolic blood pressure was 31 per cent., with a maximum increase of 40 mm. of mercury. The blood pressure returned to the former level within thirty minutes in all cases observed, and in a majority within ten minutes after withdrawal of the tube.

Group 2 includes four cases in which there was arterial hypertension. The maximum increase was 70 mm. of mercury and was associated with epistaxis. The average increase was 33 per cent.

Group 3 includes three cases with hypertension in which pilocarpin was administered hypodermically in dosage sufficient to show physiologic action, as evidenced by salivation, sweating and slow pulse. The average increase was 19 per cent.

TABLE 3.—BLOOD PRESSURE DETERMINATIONS IN GROUP 2

Case	Systolic	Diastolic		Systolic	Diastolic
1............	175	95	to	235	...
2............	212	..	to	260	...
3............	150	..	to	210	...
4............	180	120	to	250	...

TABLE 4.—BLOOD PRESSURE DETERMINATIONS IN GROUP 3

Case	Systolic	Diastolic		Systolic	Diastolic
1............	178	120	to	220	140
2............	195	120	to	230	140
3............	145	90	to	170	120

TABLE 5.—BLOOD PRESSURE DETERMINATIONS IN GROUP 4

Case	Systolic	Diastolic		Systolic	Diastolic
1............	190	90	to	260	140
2............	145	..	to	170	...
3............	195	125	to	260	150

Group 4 includes cases with hypertension under the influence of atropin, with an average increase in systolic blood pressure of 29 per cent.

COMMENT

The increase in blood pressure observed in these cases may be due to a combination of causes. Undoubtedly the excitement attendant on such a procedure in certain types of cases is an important factor. That there is an added factor is seen in those cases in which the psychic element is lacking, for it is found that in those cases in which passage of the stomach tube has become almost habitual and in which straining and excitation are absent, there is a constant and average increase in systolic blood pressure of from 20 to 30 mm. of mercury which is maintained as long as the tube is in the stomach. It may be suggested that mechanical irritation of the buccal, gastric and esophageal mucosa by reflex causes increase in blood pressure. Mechanical irritation of the rectal and vaginal mucosa is asserted by Tigerstedt[1] to cause lowering of blood pressure. The lessened increase in those patients under the influence of pilocarpin, compared with those in which it has not been given, may be of significance. When the inhibitory mechanism of the heart is under stimulation, it might be expected that any reflex would cause a smaller increase in blood pressure than when the heart was not under such increased inhibition. On the other hand, the lessened vagus inhibition following atropin does not cause any marked alteration in the percentage of increase in systolic blood pressure, which in the hypertension cases under observation is virtually the same with or without atropin, as shown by 33 per cent. increase in Group 2, and 29 per cent. in Group 4. It therefore appears that whatever increase in blood pressure occurs through reflex action cannot be altered through lessening of vagus inhibition by the use of atropin.

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[*] From the Department of Medicine, University of Minnesota Medical School.

1. Tigerstedt: Lehrbuch, pp. 528-529.

CONCLUSIONS

1. There is, as a rule, an increase in blood pressure of from 20 to 50 mm. of mercury with the passage of the stomach tube.
2. There is a greater increase in those cases in which there is retching.
3. The increase in blood pressure is not dependent on straining or mental excitation.
4. The percentage of increase is greater in cases in which there is hypertension.
5. Cases in which there is hypertension when under the physiologic effects of pilocarpin giving vagus inhibitory action show an average increase in systolic blood pressure which is less than the increase when pilocarpin has not been given. Similar cases with diminished vagus inhibition following atropin show no marked variation in the average increase from that noted in cases without atropin.

THE FIRST HEART SOUND AND THE PRESYSTOLIC MURMUR *

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BOSTON

A presystolic murmur heard over the apex of the heart has long been regarded as strong evidence of stenosis of the mitral valve. But experience has shown that a presystolic murmur may be recorded in some cases in which postmortem examination discloses intact mitral curtains. Thus, in an analysis of forty-six necropsies in which no stenotic change of the mitral valve was demonstrated although the presence of a presystolic murmur had been recorded, Phear,[1] in 1895, found that in seventeen there was aortic regurgitation, in twenty adherent pericardium, and in nine dilatation of the left ventricle.

Furthermore, there is a type of normal heart which closely simulates what in the literature is described as one variety of mitral stenosis. On this point Henry Sewall,[2] in an excellent article, writes:

> In the structurally normal heart, especially in conditions of excitement, the first sound frequently begins with a crescendo tone, simulating closely the faint and brief presystolic murmur or acute accent initiating the first sound in certain stages of organic mitral stenosis.

Lastly, at times the first heart sound is so modified by a systolic murmur that it is sometimes described as "a presystolic murmur ending in a sharp first sound" and, if the murmur continues further, "followed by a systolic murmur." I have learned to interpret this as one of the ways in which an apical systolic murmur may modify the first sound. My contact with other physicians convinces me that the mistake, for such I am satisfied it is, of terming the first part of this systolic murmur as presystolic is quite common.

Can the foregoing facts be reconciled? To do so is not without interest and is of obvious value in enabling us to distinguish between heart conditions differing very considerably in prognosis and treatment.

PHYSIOLOGIC AND OTHER DATA

Let me cite certain observations made in the physiologic laboratory and elsewhere.

As the presystolic murmur is generally held to be a direct result of auricular contraction (I am not aware of any dissenting opinion), it seems well to consider for a moment a few facts pertaining to the physiology of the auricles. The report of Yandell Henderson,[3] published in 1906, gave new light on the function of the auricles. He found that the ventricles are filled from the auricles so rapidly after the opening of the auriculoventricular valves, i. e., in the first part of diastole, that in hearts beating at a slow rhythm ventricular filling may be complete, and a period of quiescence, termed diastasis, may ensue before the onset of auricular systole. Henderson asserted, therefore, that auricular systole plays a part which is mechanically of very minor importance. The auricles are to be regarded, in his opinion, as elastic reservoirs rather than as force pumps.

The accuracy of Henderson's work was denied in 1910 by Straub;[4] but Henderson[5] was soon able to reaffirm the essentials of his original observations. Within the next few years a number of physiologists reported studies on the function of the auricles; but while these papers[6] contain much valuable information, they do not appear to have shaken the truth of Henderson's statement made in 1906.

The intra-auricular pressure,[7] as a result of experimental observations, has been estimated to reach a maximum of from 2[8] to 15[9] mm. of mercury, whereas we know that that of the left ventricle reaches that of the systemic circulation, from 120 to 150 or more. It is important to remember this relatively low pressure in the auricle, since pressure is a factor in giving velocity to the blood stream, and the velocity of the flow, again, is a prominent factor in the production of murmurs when the other conditions are present.

As the blood passes rapidly from the auricle to the ventricle, the curtains of the auriculoventricular valves are gradually floated upward until they are nearly shut. Auricular systole will then complete the closure of the auriculoventricular valve; but it is known that an auricular contraction is not essential to perfect valve closure, as the systole of the ventricle will effectively close the

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* From the Heart Clinic of the Boston Dispensary.

[1] Phear, A. G.: Lancet **2**: 716, 1895.

[2] Sewall, Henry: Am. J. M. Sc. **88**: 10, 1909.

[3] Henderson, Yandell: Am. J. Physiol. **16**: 353, 1906.

[4] Straub: J. Physiol. **40**: 378, 1910.

[5] Henderson, Yandell: Am. J. Physiol. **31**: 356, 1912.

[6] Gesell, R. A.: Am. J. Physiol. **29**: 32, 1911; **40**: 267, 1916. Wiggers, C. J.: Ibid. **33**: 13, 1914; **40**: 218, 1916; **42**: 133, 141, 1916. Dean, A. L., Jr.: Proc. Soc. Exper. Biol. & Med. **13**: 6, 1915; Am. J. Physiol. **40**: 206, 1916. Erlanger, J.: Ibid. **40**: 150, 1916.

[7] Many physiologists do not directly give figures for the auricular pressures. Much of the experimental work has been carried out on large dogs; and since the intraventricular pressures were found to be well over 100 mm. of mercury, as it is known to be in human beings, it seems reasonable that the figures obtained for the intra-auricular pressures in these animals give a reasonable criterion of those in man. For the right auricle Porter obtained a somewhat higher figure, namely, 9 mm. of mercury.

[8] Porter, W. T.: J. Physiol. **13**: 513, 1892.

[9] Burton-Opitz, R.: Text-Book of Physiology, Philadelphia, W. B. Saunders Company, 1920, p. 300.

valve. This, of course, is the procedure when normal auricular contractions are replaced by fibrillation.

The closure of the mitral opening is accomplished by a twofold mechanism—the approximation of the valve curtains and the contraction of the surrounding musculature. In case the muscular element is deficient, the valve may be insufficient, even though the mitral curtains are structurally normal. This may be observed in the dilated heart or in febrile conditions in which the tone of the muscle is impaired. In the normal heart, Hesse [10] estimated that the size of the base and the area of the auriculoventricular valves is one-third greater in diastole. The valve curtains would be unable to close the aperture unless aided by the constricting action of the muscular contraction.

The first heart sound is largely muscular in origin.[11] Burton-Opitz writes: "All contracting muscle tissue emits a sound which is caused by the molecular shifting of its substance, and the displacement of its fibers. The intensity of this sound must therefore be proportional to the mass of the tissue involved as well as its power of contraction." It begins with the "setting" of the ventricles, and continues until the highest intraventricular pressure has been produced. The systole of the ventricles then continues in silence the discharge of blood into the aorta and pulmonary artery for a period of from 0.15 to 0.25 second [9] until its sudden termination, which is marked by the second sound."

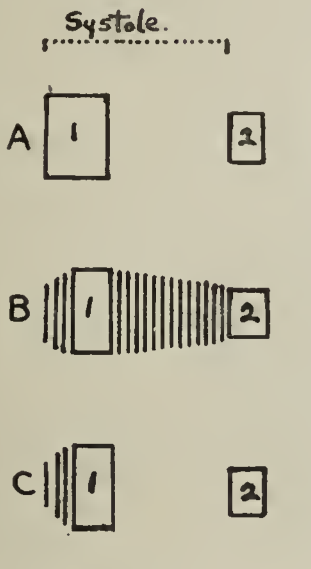
Burton-Opitz states that the contracting auricles also emit a sound which, however, remains below the threshold of audibility, owing to the small mass of tissue involved.[12]

Lewis [13] has shown that the first heart sound is crescendo and then diminuendo. The studies of the heart sounds by Wiggers and Dean [14] also produced graphic records in which the vibrations show the same crescendo character.

The loudness and intensity of the first sound has been found [15] to be directly proportional to the intracardiac tension, and especially to the tension developed during the isometric period, i. e., before the opening of the semilunar valves.

According to Howell,[16] the size of the heart increases during exercise, apparently because of the greater venous inflow. Shortly after the cessation of exercise, the heart resumes its former lesser size, as the increased rate accompanying the exercise continues for a short period and the heart is now emptied faster than it is filled.

To turn next to the systolic murmur heard at the apex: It has been found in the use of the electrophonograph that at times the murmur will be recorded and the sound not, or vice versa, although the ear may detect the presence of both. But the reverse may be true. On this point Lewis [13] writes: "When a systolic is present with the first sound, the microphone records both; the ear detects one or the other and exaggerates it according to the degree and direction in which the mind is concentrated."



How a systolic murmur may modify the first sound: *A*, time (represented by dotted line) during which a systolic murmur may occur; *B*, systolic murmur masking first part of first sound and continuing after it; *C*, systolic murmur inaudible after first sound.

As regards the quality of murmurs, a word should be said. I am in accord with the often repeated dictum that the quality of a given heart murmur does not per se disclose the extent of valvular damage, nor does it make certain the presence of the latter. But some experimental studies [17] on the production of heart murmurs reaffirm [18] that the velocity of the blood flow past the point at which the murmur is produced is important. In other words, the intensity of a murmur, other factors being equal, varies directly with the velocity of the stream. Furthermore, as can readily be understood, the velocity of the blood flow is directly proportional to the pressure, and especially to the difference between the pressure on the near side and beyond the point of murmur production.[19]

COMMENT

An understanding of how a systolic murmur may modify the first sound is important in attempting to reconcile the apparently discordant facts stated at the beginning of this paper. A systolic murmur may occur with the first sound and persist throughout systole, i. e., until the second sound. This may be represented diagrammatically. In the condition marked *A*, the dotted line ("systole") indicates the time during which the systolic murmur may occur. The murmur may mask the first sound in whole or in part. At *B*, the murmur is represented as masking the first part of the sound and continuing after it. In the condition marked *C*, it is not audible after the first heart sound.

It is, however, with the murmur heard in early systole that this paper is dealing. Such a murmur is indicated in the diagram as occurring with a longer systolic murmur in *B* and alone in *C*. As observed clinically I am conscious that it commonly has an intensity and pitch which are inconsistent with the velocity of the flow which may conceivably be produced by the relatively low pressure (i. e., from 2 to 15 mm. of mercury) found in the left auricle, while they are quite in accordance with a stream velocity which should arise as a result of contraction of the left ventricle. In my experience, no murmur occurring at any period of diastole due to the blood passing through a stenosed mitral valve has any such quality. These true diastolic murmurs of mitral stenosis are less marked in intensity and are of a lower pitch. The matter of pitch is important enough to cause sometimes a failure to detect them in auscultation unless the auscultator uses a bell-shaped attachment to his stethoscope.[20] The difference in quality of the diastolic murmur arising at the aortic valve, as compared with the diastolics of mitral origin, may well be explained by the fact that a much greater pressure (that of the first part of the aorta) is concerned in the production of the former. Furthermore, the work of Henderson,[3] referred to earlier in this paper, suggests the relatively small volume of blood propelled past the mitral valve by auricular systole, when present.

As regards the time of the presystolic murmur of mitral stenosis and that represented in the diagram as early systolic, I would suggest that clinically one may appreciate that the former murmur occurs at a slightly earlier period[21] in the heart cycle, namely, the time of auricular systole. It is no new fact that in the diagnosis of mitral stenosis it is safer to rely on the presystolic murmur which is definitely late diastolic in time. It is, of course, not always present—never when the auricles are fibrillating—and is usually observed as a presystolic accentuation of a murmur occurring earlier in diastole.[22]

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[10] Hesse, F.: Arch. f. Anat. u. Entwcklngsgeschicht., 1880, p. 328. Prince, Morton: M. Rec. **35**: 421, 1889.

[11] Flack, M., and Hill, L.: Textbook of Physiology, New York, Longmans, Green & Co., 1919, p. 154.

[12] An exception to this occurs in some cases of heart block.

[13] Lewis, Thomas: Quart. J. Med. **6**: 446, 1912-1913.

[14] Wiggers, C. J., and Dean, A. L., Jr.: Am. J. Physiol. **42**: 476, 1917.

[15] Wiggers, C. J.: Factors Determining the Relative Intensity of the Heart Sounds in Different Auscultation Areas, Arch. Int. Med. **24**: 471 (Nov.) 1919.

[16] Howell, W. H.: Textbook of Physiology, Ed. 6, Philadelphia, W. B. Saunders Company, 1915, p. 545.

[17] Unpublished.

[18] Chauveau, M. A.: Gaz. méd. de Paris, Series 3 **13**: 247, 1858.

[19] Marey, F. J.: La circulation du sang, Paris, 1881, p. 647.

[20] Reid, W. D., and White, P. D.: Med. Clin. N. Am., September, 1920, p. 383.

Now, is there a possible explanation of the early systolic murmur, not infrequently confused with a murmur presystolic in time? It should be recalled that the approximation of the borders of the mitral orifice is an essential part of successful closure of the valve. Since the valve curtains do not increase in size to meet the extra need, anything interfering with this muscular element will cause delay or failure completely to shut off the aperture with a resulting mitral insufficiency, which in turn will be noted in auscultation by a systolic murmur produced by the stream of blood which regurgitates to the auricle. It should be noted that the patients presenting a presystolic (so-called) murmur in life but with no structural change in the mitral valve on postmortem examination, as reported by Phear[1] and others, are all those with large hearts. It may be said to be the rule that when cardiac enlargement is present, some degree of dilatation occurs. It is quite conceivable, therefore, that in cases in which there is some dilatation of the left ventricle, an imperfect closure of the mitral valve may result from inadequacy of the muscular element. It is suggested that in dilatation such as obtains in certain large hearts, the valve may be completely closed only after systole has been under way for a short period, owing to the increased distance from which the periphery of the mitral valve must be approximated. Such a conception will explain a murmur of regurgitation in early systole (as in condition *C* of the diagram. The first sound, as has been observed in phonocardiography, is held to be present, but its initial components may be masked by the murmur.

The normal heart with the crescendo tone, so well described by Sewall,[2] is in agreement with the statement of Lewis[13] that the first heart sound is crescendo and then diminuendo. In the phonocardiograms obtained by this author and by Wiggers and Dean,[14] the crescendo character of the first sound is evident. Only a certain exaggeration of this feature is needed to account for the first heart sound which commences with a crescendo tone.

Since the effect of exercise is to cause the heart to dilate,[16] it is possible that in some normal hearts the primary results of exercise or excitement may be an early systolic murmur produced as described above. It is suggested, as theoretically possible, that in some normal hearts following exercise or excitement, there may be some degree of incoordination of the muscular element of the closure of the mitral orifice so that this is perfected only after systole has been under way for a short period. If this is true, the mitral valve might be temporarily insufficient and an alteration of the first sound or an early systolic murmur could result.

It is not easy to apply with conviction Wiggers'[15] observation that the intensity of the first sound is directly proportional to the intraventricular tension and especially to that produced in the isometric period. Yet it is not infrequent to note a sharp or accented first sound in cases of organic mitral stenosis. To explain this as due to an exaggeration of the normal crescendo character of the first sound, noted above, stops short of giving the reason why. To theorize a bit: It is known that in mitral stenosis the ventricular filling may be incomplete, especially when the heart rate is rapid. In such case it is conceivable that the first part of ventricular systole may be expended in shutting down on the blood content; and thus a slight delay or a lengthening of the period necessary to produce the intraventricular tension, which Wiggers states is directly related to the intensity of the first sound, would account for a crescendo character or an accentuation of the sound. In the case of the large hearts in which an early systolic murmur is present, owing, as I have suggested, to an insufficiency of the mitral valve, the final complete closure of the valve would terminate the murmur with its masking effect on the initial phase of the first sound. The latter would then become audible abruptly at the time of its maximum vibrations, and therefore would appear sharp. It may be that the size of these vibrations is not greater than normal, but the obscuring of the lesser initial vibrations could reasonably account for the impression of increased intensity or sharpness. Further work in phonocardiography may clear up some of these points.

SUMMARY

In the foregoing I have presented three apparently discordant facts concerning the first heart sound and the presystolic murmur, have cited certain data bearing on them, and have suggested a possible explanation.

CONCLUSIONS

1. To term the murmur that is noted in some large hearts without structural change in the mitral valve early systolic rather than presystolic is more consistent, in consideration of its intensity and pitch, with a murmur produced by a pressure such as obtains with ventricular systole.

2. It is safer to designate as "presystolic" only such murmurs as are definitely late diastolic in time.

3. The early systolic murmur (sometimes wrongly termed presystolic) occurs in large hearts, and it is suggested that it is produced by an insufficiency of the mitral orifice due to a delay or failure of the muscular contraction in approximating the margins of the opening.

4. The crescendo tone sometimes characterizing the first heart sound may be merely an exaggeration of the normal.

5. Owing to the physiologic tendency of the heart to dilate somewhat as the primary effect of exercise or excitement, it is suggested that a murmur occurring in early systole (and produced as described in Conclusion 3) may sometimes be obtained in the normal heart after exercise or excitement.

510 Commonwealth Avenue.

Venereal Disease in the U. S. Navy.—For the eight years preceding the World War the venereal disease rate in the U. S. Navy was approximately 165 per thousand enlisted men. During the fiscal year ended June 30, 1918, the rate had dropped to 99 per thousand, and for the period from July 1 to Dec. 30, 1918, the rate was 74 per thousand enlisted men. Some of the agencies that have contributed to this reduction in morbidity were: (1) closing bawdy houses and saloons to sailors; (2) provisions for wholesale recreation and entertainment; (3) activities of public health authorities in removing from society known carriers of infection, and (4) the carrying on of a vigorous educational propaganda.

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[21] Before the apex beat.

[22] Reid, W. D., and White, P. D.: Med. Clin. N. Am., September, 1920, p. 379.

SECONDARY PULMONARY HYPERTROPHIC OSTEO-ARTHROPATHY

REPORT OF A CASE

SAMUEL KLEINBERG, M.D.
NEW YORK

This case is reported, first, because the condition is comparatively rare, and secondly, because the patient presents virtually all the cardinal signs and symptoms that are characteristic of secondary hypertrophic osteo-arthropathy. This condition is not well known generally, and many cases, I believe, are overlooked because of lack of acquaintance with the definite group of symptoms and pathologic changes. In institutions in which lung lesions, such as bronchiectasis, chronic pleuritis, tuberculosis and abscesses of the lung, are numerous, this disease is seen frequently enough as a complication. In the average private and hospital practice, on the other hand, hypertrophic osteo-arthropathy is very uncommon. Men of wide experience have told me that they have not seen a single case. Yet so characteristic are the evidences of this disease that, once a case is seen, the condition will always be readily recognized.

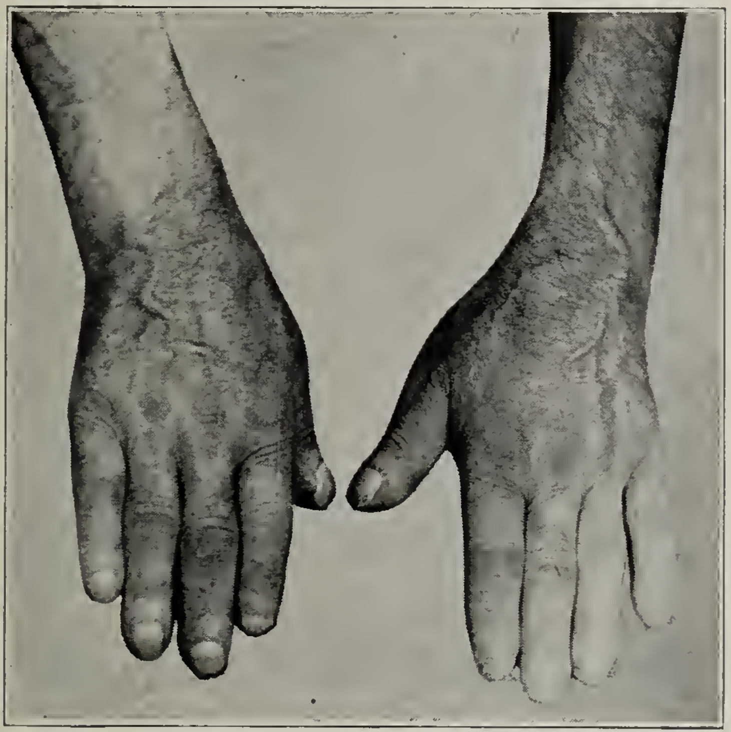
Fig. 1.—Swelling of hands and fingers, and parrot-beak nails.

REPORT OF A CASE

History.—L. S., a man, aged 53, a tailor, was referred to me about a year ago for pain in both knees, and difficulty in walking. He had been apparently well until about fifteen years ago. He was never very stout, his highest weight having been 125 pounds, but he was active, worked hard, was agile and, except for frequent attacks of what appears to have been pharyngitis or tonsillitis, he had had no illnesses. About fifteen years ago he had a chill, developed a cough, and rapidly lost weight. He applied to the board of health for advice. There he was told that he had "lung trouble." Treatment was prescribed, and while under observation he gained weight and his pulmonary condition improved. He soon resumed work and remained free from symptoms referable to his chest until two years ago. Some time after the onset of the pulmonary trouble he developed club-fingers. These caused no inconvenience, and no attention was paid to them. This clubbing of the fingers was noted by one of his sons, who states that the condition has been in existence for at least ten years, and possibly longer. It had also been noticed by the patient's wife that during the winter months the distal phalanges of the fingers were frequently very pale. Two years ago he had a chill and developed a sore throat. This lasted for three or four days. Following this he developed pain in both feet and in his left knee, and stiffness of his fingers. These symptoms became intensified, and about one year prior to examination he noticed that his limbs were tender to the touch. About this time he developed a laryngitis, became hoarse, and the hoarseness has continued. Although he suffered a good deal of pain and stiffness in his limbs, he was able to be up and about and walk until three months before I saw him.

First Examination.—When seen, July 22, 1920, the patient was in fair general condition. The most evident abnormalities were: (1) swelling of the lower limbs from the middle of the thighs down to and including the toes; (2) swelling of the upper limbs from the elbows down to and including the fingers; (3) clubbing of the fingers and toes and (4) globular enlargement of the tip of the nose.

Right Lower Extremity: There was moderate swelling of the knee, leg and foot. There was enlargement and engorgement of the superficial veins resulting in typical varicose veins. There was a distinct bluish tinge in the color of the leg, and a very distinct pallor of the ends of the toes. The distal extremities of the toes were globular, thus producing club-toes. The nails were curved sharply downward with longitudinal ridges producing the so-called parrot-beak deformity. There was very marked tenderness of the thigh, most intense near the knee, and marked tenderness of the bones of the leg and foot. There was no palpable irregularity of the tibia or of the bones of the foot. The swelling was due in part to an edema, but chiefly, apparently, to thickening of the subcutaneous tissue. The knee was moderately swollen and limited in its mobility. Extension was limited to 170 degrees, and flexion to about a right angle. The ankle was moderately swollen, and all of its motions were partly restricted. Manipulation of the knee and ankle was painful. The restricted mobility and the enlargement of the knee and ankle were due to thickening of the periarthritic tissues. There was no evidence of fluid in either joint.

Left Lower Extremity: This showed virtually the same pathologic changes as the right lower limb, namely, swelling of the knee, leg and foot, varicose veins, clubbing of the toes, parrot-beak nails, pallor of the distal extremities of the toes, thickening and tenderness of the thigh, leg and foot, and restricted mobility of the knee and ankle. The left foot differed from the right foot in only one particular, namely, that it was in rigid valgus.

Right Upper Extremity: There was slight swelling of the forearm and hand, and very distinct swelling, or rather thickening, of all of the fingers. The tips of the fingers were globular, producing typical club-fingers. There was very distinct parrot-beak deformity of the nails, that is, typical incurvation of the nails with longitudinal ridges. There was a peculiar pallor of the fingers which began at the first interphalangeal joint and became intensified at the tips of the fingers. There was very distinct tenderness of the arm and forearm to deep pressure, and marked tenderness of the bones of the hand and fingers. The elbow was not swollen, but extension was limited to about 160 degrees; flexion was complete. The shoulder appeared normal; its mobility was unchanged, and it evidently was not involved in the pathologic process affecting the rest of the limb. The tenderness of the fingers was distinctly limited to the shafts of the phalanges. The same thing was true of the radius, ulna and humerus. Only the shafts of these bones were tender.

Left Upper Extremity: This limb showed exactly the same changes as were noted in the right upper extremity: swelling of the hand and fingers, clubbing and pallor if the fingers, parrot-beak nails and tenderness of all of the long bones.

The nose showed distinct enlargement of the tip, which was more or less globular in outline. The face was symmetrical, and there was no enlargement of the malar regions, and no tenderness or other palpable abnormality of the bones of the face.

The man was able to walk without assistance and without a limp. He did not show lesions, clinically recognizable, of other parts of his skeleton besides the extremities. The skull was not enlarged, deformed or tender. Neither scapula was tender or deformed. His back was symmetrical, his spine was in the median line, and motions of the spine were free and painless. The left ribs were somewhat tender near the costal cartilages, but the right ribs were not tender, and none of the ribs showed any palpable irregularity.

Roentgen-ray examination of the entire skeleton showed changes only in the shafts of the long bones, namely, both humeri, both ulnae, both radii, the metacarpal bones, the phalanges of the fingers, both femora, both tibiae and fibulae, the metatarsal bones, and the phalanges of the feet. The tarsal and carpal bones, the bones of the skull, both scapulae, the clavicles, the ribs, patellae and the extremities and articular surfaces of the long bones were unaffected. The change in the shafts of the long bones was a very definite one. There was a subperiosteal deposition of bone along the entire length of the shaft from one extremity to the other. The thickness of this new bone varied from a mere line to as much as one-quarter inch. It also varied in different parts of the same bone. In some places, as in one of the tibiae, the new bone was, or appeared to be, distinctly separate from the cortex. In other places it had become fused with and indistinguishable from the cortex; this probably represented a lesion of long standing. The lesion is very evident in the accompanying illustrations. The medulla and the cortex of the shaft were entirely changed.

The bones of the pelvis showed changes only in the iliac bones immediately above the acetabula. The vertebrae showed no apparent alteration in structure.

The patient's chest was examined by Dr. J. J. Wiener, who reported that there were positive signs in both lungs indicating chronic fibrous tuberculosis of the upper halves of both lungs, with a slight amount of scattered fresh infiltration in these areas. The bases of both lungs showed evidences of a widespread fresh tuberculous process. The heart was apparently normal. The sputum had shown tubercle bacilli on several occasions. Examination of the throat showed that there was a mild form of laryngeal tuberculosis.

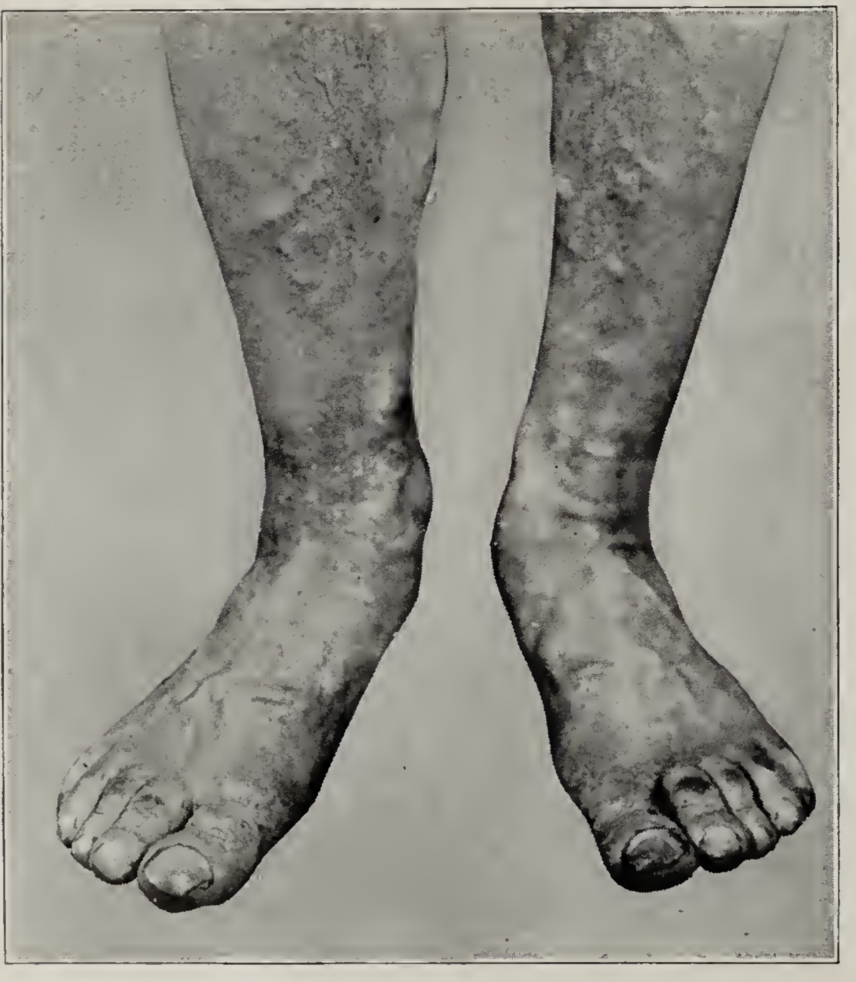

Fig. 2.—Swelling of legs, ankles and feet; parrot-beak nails.

Review of Case.—The sequence of events seems to have been about as follows: The patient developed pulmonary tuberculosis about fifteen years ago. The process was a slow but progressive one with advancing changes in the pulmonary tissue and resultant interference with the return circulation, which has caused a chronic stasis in the extremities. After several years there appeared clubbing of the toes and fingers and later swelling of the hands, feet, legs and knees. It is interesting to note that the lesion is much more extensive in the lower than in the upper limbs. This is probably due to the fact that the upper limbs are less often in the pendent position than the lower, and hence the stasis is less persistent in the upper limbs than in the lower ones. The clinical and roentgen-ray findings made the diagnosis unquestionable. So far as the etiology is concerned, it has been assumed, and probably correctly, that the pathologic changes are due to two factors: (1) the chronic stasis or hyperemia due to mechanical interference with the return circulation by the changes in the pulmonary tissue, and (2) the toxemia resulting from the infection of the lungs. If these factors are not solely responsible for the changes in the limbs, it is at least reasonable to assume that they have an important etiologic relationship to them.

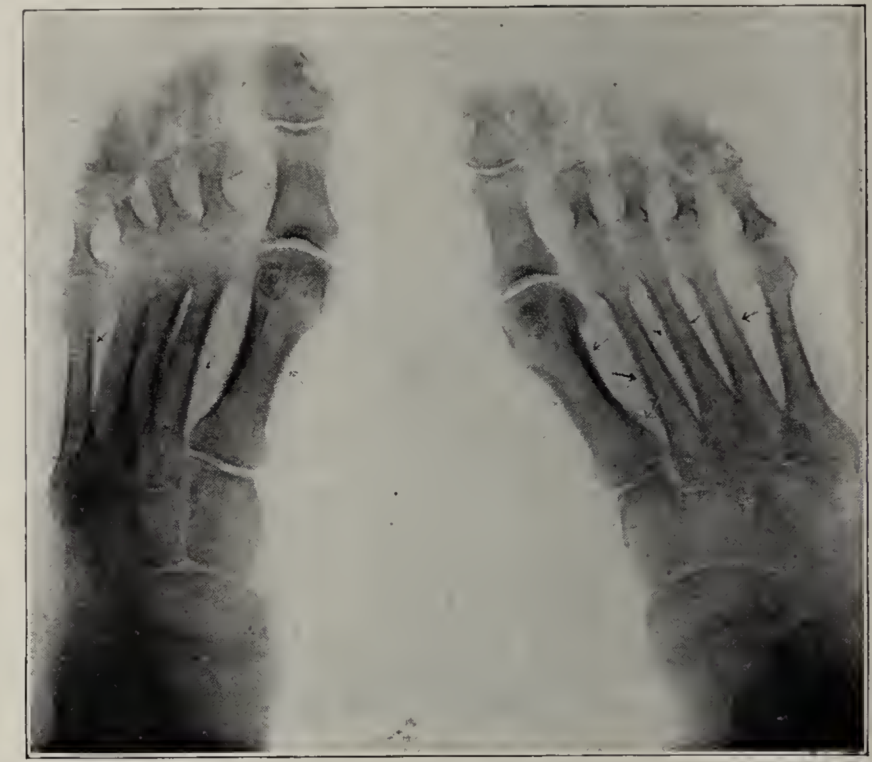

Fig. 3.—Marked subperiosteal deposit of bone along shafts of metatarsal bones and the phalanges. In some places the new bone is fused with the cortex; in others it is still separated. The tarsal bones are not affected.

Second Examination.—We had an opportunity in this case to prove that the pendent position of the limbs and the consequent increased mechanical interference with the return circulation from them had an important influence on the swelling and sensitiveness of the limbs. Some time after the examination noted above, the patient suffered from severe pain in the chest and back which, together with an increased degree of weakness, kept him in bed for a period of two months. At the end of this time, Oct. 29, 1920, and while he was still in bed, I again examined him. On this date his chief complaint was pain in the back. He had no pain whatever in his limbs, and we were greatly surprised to find that except for the clubbing of the fingers and toes, the swelling of his limbs, which was very marked and evident at the last examination, had entirely disappeared. In addition, the tenderness of his limbs was much less marked and, in fact, had disappeared from many places. Thus, the left thigh, the right leg and both forearms were not tender at all. The hands and feet were only slightly tender. Thus, there can be no doubt that the fibrous tissue replacement of the lung tissue impeding the circulation of the blood through the lungs and the resultant stasis of blood in the extremities is at least one cause of the swelling of the limbs; For, when the circulation was improved, as it is during the recumbent position, the swelling was reduced.

With the recession of the swelling we were able to examine more carefully many of the affected bones. The internal surface of the right tibia, for instance, was definitely irregular, while the left tibia and the bones of both forearms were not irregular. The left scapula was found to be very irregular, and the spine of the scapula found to be thickened and irregular. The enlargement of the tip of the nose was markedly increased, and there was now a mild degree of thickening of the malar regions. The spine presented a rigid mild total curve to the right. The spinous processes of the dorsal region were very tender, while those of the cervical and lumbar vertebrae were not.

SUMMARY

1. This patient developed pathologic changes in the extremities as a result of a chronic fibrous pulmonary tuberculosis.

2. He has swelling of the distal extremities of all the limbs, most marked in the legs and feet. The swelling is due to three conditions: (*a*) hyperemia, (*b*) fibrous tissue thickening of the subcutaneous tissue, and (*c*) ossifying periostitis of the long bones.

3. He has (*a*) permanent globular enlargement or clubbing of the distal phalanges of the fingers and toes; (*b*) parrot-beak deformity of the nails of the toes and fingers; (*c*) subperiosteal deposit of bone along the shafts of the long bones of the extremities, and (*d*) thickening of the tip of the nose and to a less marked degree of the malar regions.

1 West Eighty-Fifth Street.

ADMINISTRATION OF CARBON DIOXID AFTER ANESTHESIA AND OPERATION

THE ACID-BASE REGULATORY MECHANISM *

STANLEY P. REIMANN, M.D.
GEORGE H. BLOOM, M.D.
AND
HOBART A. REIMANN
PHILADELPHIA

The administration of carbon dioxid after anesthesia has been urged on a number of occasions.[1] Its benefits have been considered both from the theoretical standpoint and from actual trial. From the theoretical standpoint, it might be remarked, before proceeding to a discussion, that considerably more factors than are ordinarily taken into account must be considered. From the actual practice of this procedure, it is claimed that recovery from the anesthetic is hastened by the augmentation of breathing, that it has a powerful stimulating effect on the circulation, particularly the venous return, and that it causes a rapid restoration of arterial pressure without subsequent relapse. It produces a decrease of postoperative nausea and thirst, and a possible restoration of intestinal tonus. The latter leads to a diminution or entire absence of gas pains.

These propositions, it is evident, are essentially matters of opinion. It is extremely difficult, if not impossible, definitely to compare differences in recovery time between anesthetized patients to whom carbon dioxid is given and those who are allowed to recover in the ordinary way. Possibly a statistical treatment of the results in a large number of carefully selected patients and controls would decide. The same thing is true of nausea, vomiting and gas pains. The benefits of this treatment are stated confidently, however, and it was decided to try the method in this hospital.

METHOD OF ADMINISTRATION OF CARBON DIOXID

The apparatus and technic used were the same as that described by Henderson, Haggard and Coburn.[1] The gas was obtained from a tank, and led through a reducing valve to a mask similar to those used on a nitrous oxid apparatus. The patient breathed in and out of a tube in the mask, 2.5 cm. in diameter. A small glass tube, passed through another opening, led the carbon dioxid into the interior of the mask (Fig. 1). During inspiration the gas was mixed with air entering the large opening. During expiration it wasted with the expired air into the surrounding atmosphere.

No account can be kept by this method of the exact quantity of carbon dioxid inspired, but a short experience enables the operator to judge, from the color and breathing, how firmly the mask should be pressed over the patient's mouth and nose. It is necessary, in order to secure effects, that the concentration of carbon dioxid in the alveolar air be kept higher than normal. From 6 to 8 per cent. of the gas is recommended for inhalation. In actual operation, too much gas produces cyanosis; too little, no effect. By carefully allowing the patient's rate and depth of respiration to maintain a maximum, and at the same time observing that the color is good, it is easy to regulate the practical dose.

All the patients on whom the procedure was tried were returned from the operating room in good condition, with good color, warm skin, and a respiratory rate fairly regular, of from 30 to 35 a minute. The ether was administered by the drop method. Carbon dioxid was given for one-half hour, and the interval between discontinuation of the anesthetic in the operating room and the start of the carbon dioxid varied from ten to twenty minutes. The first effect was observed very quickly—that of increased rate and depth of respiration. The color became rosier; the pulse rate was generally increased, but the peripheral blood pressure as measured by a Tycos instrument, showed no constant change. The administration was interrupted in many cases by efforts on the part of the patient to vomit, and toward the end of the half hour, by tossing of the head, and purposeful movements of the upper extremities directed toward pulling away the mask. Several patients who had received only a small quantity of ether recovered partial consciousness and announced this fact by asking for air, even though their color was good and their breathing had been no more violent than others. Graphic records of the respiratory excursions are shown in Figures 2 and 3. They were obtained by a spring stethograph connected by air pressure to a tambour, the movements of which were recorded on a kymograph (Fig. 4).

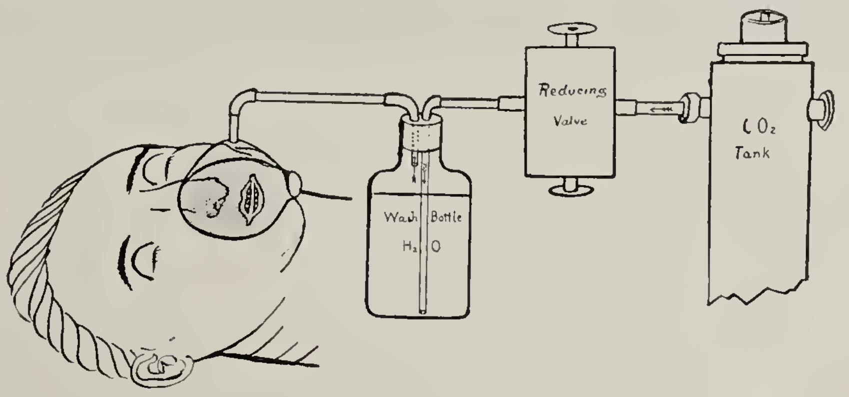

Fig. 1.—Apparatus for administering carbon dioxid.

COMMENT

The further history of these patients with respect to nausea, vomiting and gas pains was carefully kept. On these points, it is necessary that an opinion be given. This represents our judgment and the opinions of the deaconesses in charge of the wards. The latter is valuable, in that it represents the experience of many years, in the handling of operative patients in active wards. In our combined opinion, therefore, the administration of carbon dioxid did not materially hasten the recovery from the anesthetic, doing very little toward preventing vomiting and gas pains. We are convinced that nothing short of mathematical methods will discover the differences, if any exist. It is obvious that its benefits in these directions are not clear.

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*From the Department of Pathology of the Lankenau Hospital.

[1] Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920. Reference to other papers will be found in this article.

From the theoretical standpoint, there is great interest in the discussion of this procedure. Carbon dioxid should be considered not merely as a waste product to be eliminated, but as a substance having properties of definite physiologic importance. There are two distinct opinions in reference to the effect of carbonic acid on the respiratory center. The one states that the normal stimulant of the respiratory center is the hydrogen-ion concentration of the blood; the other, that this factor plus a specific influence possessed by carbon dioxid is the respiratory hormone.[2]

In other words, carbonic acid is regarded by some as a mere acid, but a very convenient one, on account, for example, of its ease of excretion. By others it is regarded as an acid, with an additional stimulatory property.[2] Some of the following arguments in reference to the administration of carbon dioxid after anesthesia require that these points of view be remembered. In addition, before proceeding further, it is necessary to recall a few facts relative to the acid-base regulatory mechanism of the body. The hydrogen-ion concentration of the blood is kept, in health, at a remarkably constant figure. The acids yielding this constant hydrogen-ion concentration are of two varieties: volatile, namely, carbon dioxid, and fixed. They are derived from metabolic activities. The carbonic acid is excreted through the lungs, the fixed acid radicals mostly through the kidneys, and at such rates that the balance of the acid and alkali is always kept constant. If, for some metabolic reason, an excess of acid is produced, there is less room for carbonic acid, which can be quickly ventilated off and kept at the compensated level by increased respiratory activity. Analyses of the blood will show a diminished amount of carbon dioxid. If, on the other hand, a lower level of blood carbonic acid is brought about by overventilation, the blood becomes more alkaline, and under these circumstances it would be reasonable to administer an acid like carbon dioxid. But experiments of Macleod and Knapp[3] indicate that there is a compensatory mechanism for increased alkalinity. They found that there is an increase of lactic acid in the blood in experimental alkalosis. There therefore seems to be a mechanism which adds acid to the blood when this fluid becomes too alkaline.

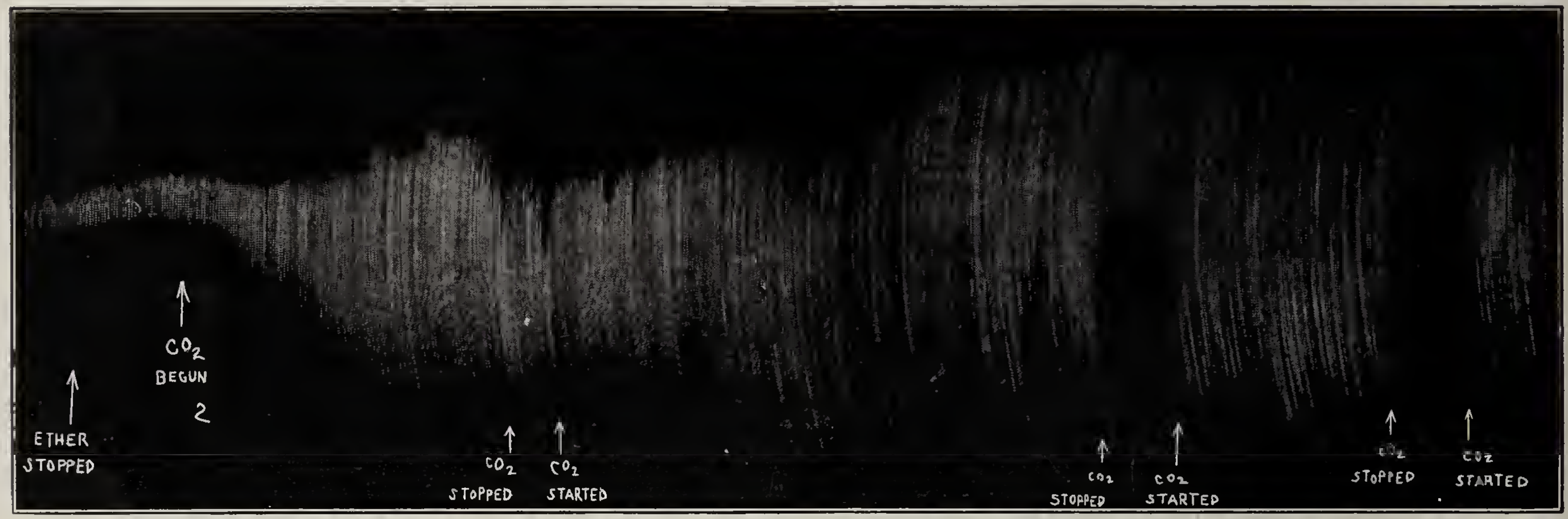

Fig. 2.—Increased respiratory activity.

The condition of diminished carbon dioxid, not due to the forcing out of this acid by another stronger one, has been termed "acapnia." The effects of this condition, among others, are a depression of the respiratory center, and a lowering of the hemoglobin dissociation curve. That is to say, less oxygen is liberated from a given volume of blood. The latter effect is very remarkable in its delicacy; a measurable change can be detected by a change in concentration of free carbonic acid of one part in one hundred million.[4] The depression of the respiratory center is very small in alkalosis, contrary to the stimulating effects of even small amounts of acid. This is brought out graphically in the carbon dioxid diagram of Haggard and Henderson.[5] Acids, including carbonic acid, have the power of increasing the "availability" of oxygen in oxyhemoglobin. There is no specific action manifested by carbon dioxid in this respect, however.[6] It may be argued that with less oxygen available, there can be less carbon dioxid produced, and consequently, a vicious circle may be established. The possibility, however, must never be overlooked that in conditions in which free oxidation is hindered, partial oxidation products, acid in nature, may be produced. There is abundant evidence that there is interference with oxidation in anesthesia.[7] Indeed, one of the well known theories as to the way in which an anesthetic produces anesthesia hinges on depression of oxidation.[8] The other theory refers it to a diminution of the permeability of cell membranes, which may also lead to incomplete oxidation.[9]

To return to the question of the specific activities of carbon dioxid, the proposition is immediately presented: If the total acids of the blood are the respiratory stimulant and the factor which makes oxygen available from oxyhemoglobin, why attach such importance to carbon dioxid as a mere acid? Since there is, however, still debate on whether carbon dioxid is more than an acid to the respiratory center, there is room for argument on the other side. The carbon dioxid diagram of Haggard and Henderson [5] is a most ingenious treatment of the subject. They reach the conclusion that the hydrogen-ion concentration of the blood is the important factor.

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[2] Scott, R. W.: The Significance of Undissociated Carbon Dioxid in Respiration, Am. J. Physiol. **47**: 43 (Sept.) 1918.

[3] Macleod, J. J. R., and Knapp, H. J.: The Influence of Alkali Administration on the Urinary Excretion of Lactic Acid, and Possible Significance of the Latter in Maintaining Neutrality in the Body, Am. J. Physiol. **47**: 189 (Nov.) 1918.

[4] Barcroft, J.: The Respiratory Function of the Blood, Cambridge, University Press, 1914, p. 53.

[5] Haggard, H. W., and Henderson, Yandell: Hemato-Respiratory Functions, J. Biol. Chem. **39**: 163 (Aug.) 1919.

[6] Barcroft, J.: The Respiratory Function of the Blood, p. 54.

[7] Alexander, F. G., and Czerna, S.: Einfluss der Narkose auf den Gaswechsel des Gehirns, Biochem. Ztschr. **53**: 100, 1913. Baer, J., and Myerstein, W.: Ueber den Einfluss pharmacologischer Agentien auf Oxydationsvorgänge im Organismus, Arch. f. exper. Path. u. Pharmakol. **63**: 441, 1910. Joannovics, G., and Pick, E. P.: Intravitale Oxydationshemmung in der Leber durch Narkotika, Arch. f. d. ges. Physiol. (Pflüger's) **140**: 327, 1911. Warburg, O.: Untersuchungen über die Oxydationsprozesse in Zellen, München. med. Wchnschr. **58**: 289, 1911.

[8] Verworn, M.: Narcosis, Bull. Johns Hopkins Hosp. **23**: 97, 1912.

[9] Lillie, R. S.: The Theory of Anesthesia, Biol. Bull. **30**: 311, 1916.

It remains to apply these arguments to anesthesia. The one definite fact acceptable to all observers is that the carbon dioxid carrying power of the blood is reduced by this procedure. It is the nature and the cause and the significance that are in doubt. Henderson says that the reduction is due to overventilation: too much carbon dioxid is removed by the increased respiratory rate and depth during anesthesia. Our standpoint is that the reduction is due to the entrance into the blood of other stronger acids, which turn out the carbon dioxid. Henderson says that the blood is more alkaline; we say that the hydrogen-ion concentration remains the same in all but a few, in whom, if anything, it tends to rise. Shall we give carbon dioxid or not? If the carbon dioxid is blown off, the organism should compensate in a manner similar to that indicated in the experiments of Macleod and Knapp. If carbon dioxid owes its properties only to its acid nature, it should make no difference to the respiratory center whether the acid ions are offered to it from carbonic acid or any other acid.

In 1918, work indicated that acids of at least one kind, namely, the acetone-diacetic acid group, are increased in the blood.[10] The technic by which these results were obtained has been justly criticized by Short,[11] who found, however, that these acids were increased, though later in the recovery time. He has also investigated the time interval, in two instances, of the well known ketone excretion in the urine. Neither blood nor urine increases corresponded to the maximum fall in the carbon dioxid of the plasma. The decreased permeability of cell membranes is to be considered a factor in this connection. The time element seems very important, but remembering that oxidation is hindered, and that one series of acids is increased, though later, it seems reasonable that other acids resulting from partial oxidation are also increased. Knowledge of the sum total of these, with their times, is necessary to close the subject.

An examination of experiments reported by Haggard and Henderson [12] shows that in an animal which has received an intravenous injection of hydrochloric acid in such amount that it would probably recover if left alone, the administration of carbon dioxid overstretches the compensatory power and the animal dies. It seems most logical that in anesthesia the diminished carbon dioxid follows the formation of incompletely oxidized substances, acid in nature, and, therefore, the administration of another acid, namely, carbon dioxid, is contraindicated. Alkali should be given.

The diminution of the carbon dioxid carrying capacity of the plasma as a result of anesthesia and operation varies from 5 to 15 c.c. or more. In the majority of cases, this does not reduce the carbon dioxid to below the generally accepted danger point, namely, 50 c.c. per hundred c.c. of plasma. In about 15 to 20 per cent. it will fall below this figure. There are a number of conditions that will predispose to this. First, it may be emphasized that those patients who show lower levels of carbon dioxid before operation will show a greater diminution after operation. Impaired kidney function, duration of anesthesia, preoperative preparation, i. e., starvation, partial or complete, for spreading peritonitis, hemorrhage, the possibility of postoperative shock, are all factors tending to reduce carbon dioxid more than usual. The administration of an alkali is then indicated to supply base, both for neutralization of excess acids, and to carry the ordinary carbon dioxid produced in the tissues. For this purpose, sodium bicarbonate answers the requirements. It might be remarked that, in addition to its alkaline properties, it has carbon dioxid in its molecule. Administration of this substance definitely increases the carbon dioxid level of the blood.

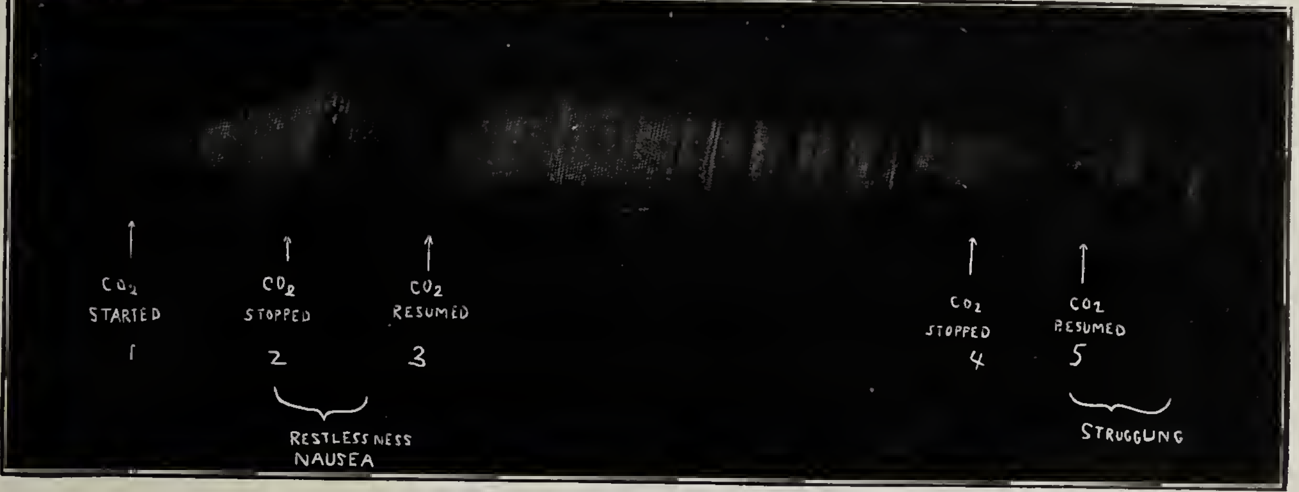

Fig. 3.—Increased respiratory activity.

TABLE 1.—RESULT OF ADMINISTERING CARBON DIOXID

Blood Pressure			Plasma CO_2			
CO_2 Begun	15 Min.	CO_2 Ended	Before	When CO_2 Stopped	At End of Half Hour	Gas Pains
130	130	130	51.0	48.0	Did not answer to spoken word; marked vomiting at 23 min.	+
120	110	120	50.3	53.4	No vomiting; moving at 20 min.	0
110	100	100	48.6	48.6	No vomiting; moving at 20 min.	+
110	110	105	47.4	44.7	Attempted to vomit in 18 min...	++
130	120	124	56.0	50.4	Regaining consciousness in 12 min.; asked for air in 30 min.	+
100	96	94	50.4	46.6	Restless and vomiting in 14 min.; noisy at 30 min.	0
105	108	108	45.7	45.7	Vomiting in 10 min.; noisy at 30 min.	0
105	105	105	43.1	44.1	No vomiting; moved at 30 min.	+

	Plasma CO_2		Dogs
Ether Time	Before	When CO_2 Stopped	At End of Half Hour
32	35.6	36.5	Dog under anesthetic; howling and moving in 14 min.; walked in one half hour
30	39.0	35.3	Struggling in 18 min.
22	37.3	35.3	CO_2 stopped and started 3 times to adjust kymograph; biting at 13 min.
43	35.6	38.4	Reacted to stimuli in 5 min.; completely out in 30 min.
64	39.3	32.8	Anesthesia light throughout; howling in 8 min.

Our findings after the administration of carbon dioxid are shown in Table 1. It did not uniformly increase this substance in the plasma. In fact, the plasma fell in more instances than it rose. Controls are shown in Table 1. Their plasma all decreased in carbon dioxid. Blood was collected just before the administration of the gas was begun, and just before it was stopped. The same increase of rate and depth of respiration was observed in animals, but no particular decrease in their recovery time. In the patients, the blood pressure in the radial artery was variedly increased, diminished or stationary. The question, however, is not blood pressure so much as increased blood volume returning to the right heart. It is probable that the vigorous respiratory effort during the inhalation of carbon dioxid brings this about by its pumping action. The color of all the patients became perceptibly rosier.

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[10] Reimann, S. P., and Bloom, G. H.: The Decreased Plasma Bicarbonate During Anesthesia and Its Cause, J. Biol. Chem. **36**: 211 (Oct.) 1918.

[11] Short, J. J.: The Formation of Acetone Bodies Following Ether Anesthesia and Their Relation to the Plasma Bicarbonate, J. Biol. Chem. **41**: 503 (April) 1920.

[12] Haggard and Henderson (Footnote 5, Experiment 14).

TABLE 2.—CONTROLS: NO CARBON DIOXID ADMINISTERED

Patients				Dogs	
Blood CO_2		Blood CO_2		Blood CO_2	
Before	After	Before	After	Before	After
56.0	52.3	56.0	56.0	49.0	48.0
54.1	52.3	48.3	44.2	39.2	31.2
51.4	48.6	51.2	48.6	46.1	43.2
53.2	51.4	49.1	46.3		

To return to the administration of sodium bicarbonate: It is a simple matter to determine whether this is indicated. If, before operation, the plasma of a patient shows a carbon dioxid carrying capacity of 58 c.c. or less, it should be given. From the preceding discussion, it is clear that an overdose is to be avoided. If, on the other hand, too little is given, it will not accomplish its purpose. Through the use of the formula devised by Palmer and Van Slyke,[13] accuracy in the dosage can be easily obtained. It may be thus employed: An estimation of the plasma carbon dioxid is made before operation, and if it is desired to increase this, alkali may be administered an hour before operation. The dose is calculated from the formula $G=\frac{BW}{38}$, in which G is the dose in grams of bicarbonate to be given; B, the desired increase in plasma carbon dioxid, and W the patient's weight in kilograms. Given by mouth when good gastric emptying exists, the maximum height of blood carbon dioxid will be reached in about one and a half hours to two hours after administration. It will gradually fall and reach somewhere near the previous level in another similar time. Intravenously, the maximum is reached just after the injection ceases, and its effects decrease in the form of an exponential curve to the neighborhood of the starting point in about two hours. The duration as well as the maximum effect will vary with a number of factors, but can be gaged quite practically. The dose may be divided over a period of several hours, with a corresponding decrease in the maximum at any time, but a lengthening of the effective smaller increase Administration by rectum also produces the increase of blood carbon dioxid, but, in our hands, short of the calculated one. Finally, if any doubt exists, another blood determination will answer the question.[14]

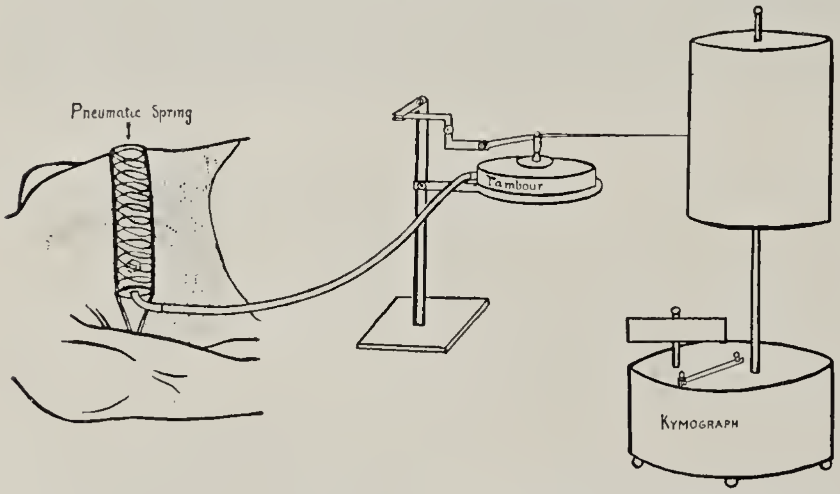

Fig. 4.—Method of obtaining graphic records of respiratory excursions.

SUMMARY AND CONCLUSIONS

This review concerns the administration of carbon dioxid after anesthesia. In view of the experiments and results reported, and the consideration of its therapeutic and theoretical bases contrasted with the administration of an alkali, the use of sodium bicarbonate in a practical way is indicated.

Sodium bicarbonate should be given to selected surgical patients. The use of carbon dioxid by inhalation is contraindicated.

Note.—Since this article was written, Carter[15] has published results which strengthen our arguments very materially, and give a decided blow to the practice of giving carbon dioxid after anesthesia.

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[13] Palmer, W. W., and Van Slyke, D. D.: Relationship Between Alkali Retention and Alkali Reserve in Normal Pathological Individuals, J. Biol. Chem. **32**: 499 (Dec.) 1917.

[14] Experiments on which these statements are based were reported at the meeting of the American Association of Pathologists and Bacteriologists, New York, April, 1920. The details are now in course of preparation for publication.

[15] Carter, W. S.: The Effect of Ether Anesthesia on the Alkali Reserve, Arch. Int. Med. **26**: 319 (Sept.) 1920.

THE ETIOLOGY OF COMMON WARTS

THEIR PRODUCTION IN THE SECOND GENERATION *

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Assuming that ordinary warts were of an infectious origin, and proceeding on the theory that the particular infectious agent was in the nature of a filtrable virus, Wile and Kingery,[1] almost two years ago, undertook the proof of these speculations. Their method of procedure in the first series of experiments was comparatively simple, and exactly like that employed in similar studies on the causative agent of molluscum contagiosum. Ordinary lesions of verruca vulgaris were removed by curettement and ground up in a mortar with a small amount of saline. The mash thus obtained was passed through the finest Berkefeld filter under negative pressure. The sterility of the resultant filtrate was tested and proved by the uniform negative results obtained when portions of it were added to various culture mediums. The remainder of the filtrate was then injected intracutaneously into several human subjects. Other than the requisite that they present no verrucous lesions, the subjects of these experiments were chosen indiscriminately. Following an incubation period varying from four to eight weeks, extremely small papular lesions made their appearance at the sites of the injections of the sterile filtrate. Daily observations of the developing lesions revealed the fact that they were subject to several clinical variations. Some of the lesions, after they had developed to a certain size, remained stationary for a time, and then underwent spontaneous involution. Some of the lesions gradually increased in size until they had attained the dimensions of a split pea, at which time they were removed for histologic study. The most striking feature in the development of these experimental lesions, however, was the marked rapidity of growth exhibited by certain of the lesions located at the sites of frequent trauma. In other words, the hyperkeratoses, developing at the sites of injections of the sterile filtrate, were virtually identical, both clinically and pathologically, with our present conception of ordinary warts (Figs. 1 and 2).

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* This article is abbreviated in The Journal by the omission of photomicrographs. The complete article will appear in the author's reprints.

[1] Wile, U. J., and Kingery, L. B.: The Etiology of Common Warts: Preliminary Report of an Experimental Study, J. A. M. A. **73**: 970 (Sept. 27) 1919.

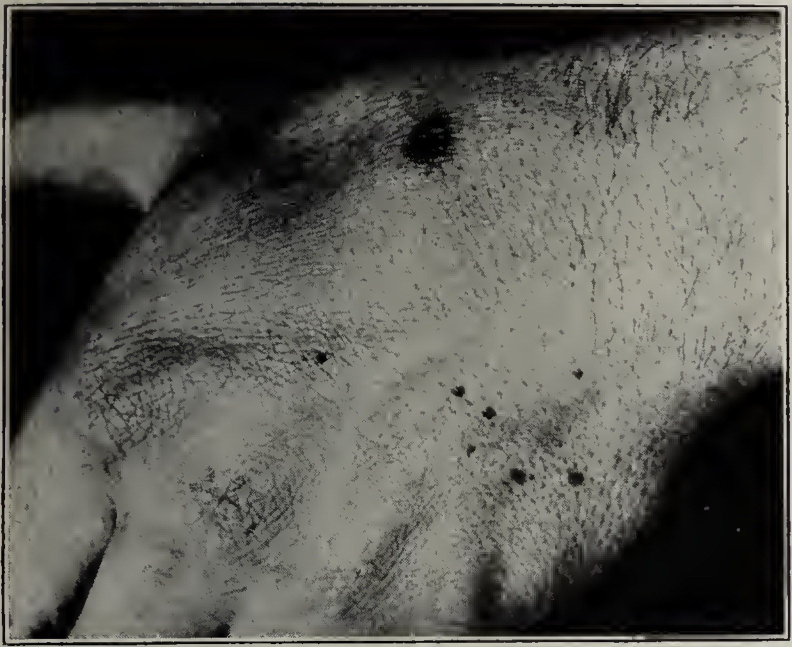

Fig. 1.—Small, flat warts of the first generation developing at sites of inoculation.

Encouraged by these results, which seem extremely suggestive of a filtrable causative agent in the production of verruca vulgaris, a second series of experiments was immediately undertaken with the view of producing these lesions in the second generation. Accordingly, an exactly similar technic was employed, using the lesions above described (Fig. 1) as the source of the material. The sterility of the filtrate was again proved, the injections were made as before, and the subjects of the experiments were kept under daily observation.

After an incubation period, this time of approximately six months, extremely minute papular lesions gradually made their appearance at the exact sites of the injections of the sterile filtrate. One or two of the developing lesions after a time disappeared spontaneously, yet the majority gradually increased in size until they approximated that of a split pea. At that time they presented a marked hyperkeratosis, a definitely verrucous surface, and were in every way clinically indistinguishable from ordinary verruca vulgaris (Fig. 3). Histologic examination at this time revealed a picture virtually identical with Unna's description of the changes occurring in these lesions. They exhibited varying degrees of hyperkeratosis, depending on the size of the growth. The rete malpighii presented a marked acanthosis with the usual branching and extension downward of the rete pegs. Here and there in this layer were present the peculiarly vacuolated cells, which Unna believed significant of beginning retrogression of the lesions. Finally, there was the mild reaction in the cutis, and vascularity of the interpapillary bodies. In other words, these localized hyperkeratoses carried into the second generation, as described above, followed a clinical course, and presented a histologic picture which corresponded without exception to our present conception of ordinary warts.

COMMENT

That localized epithelial changes, notably hyperkeratinization, do result from bacterial implantation or from the products of bacteria so implanted, is a fact of which we have ample clinical proof. As examples of this may be mentioned the localized hyperkeratoses occurring in tuberculosis verrucosa cutis, as a result of the tubercle bacillus; in keratosis blennorrhagica due to the gonococcus, and in the acuminate condyloma so frequently associated with infective excretions.

The similarity between the pathologic processes represented by the foregoing, and that occurring in ordinary verruca vulgaris, is at least suggestive of an analogous causative mechanism. Such a view is further substantiated by the numerous evidences of contagion exhibited by ordinary warts in their tendency to occur in crops, their transmission to contiguous surfaces by contact, and the frequent appearance of multiple "daughter warts" when a preexisting single lesion is traumatized. Finally, the infectious theory of the origin of these lesions has been advanced to a great extent by the laboratory experiments of Variot,[2] Jadassohn[3] and others, who have demonstrated the contagiousness of the lesions in various ways.

Opposing this view, however, is that which would explain their occurrence as the result of foreign body implantation, because bits of glass, steel, etc., are not infrequently encountered in verrucose lesions. That localized hyperkeratoses of a warty nature undoubtedly occur following such implantation, however, is in no way conclusive proof of the etiologic moment of the foreign body itself. Such a finding might lend itself equally well to the explanation that the trauma incident to the entrance of the foreign body served as a portal

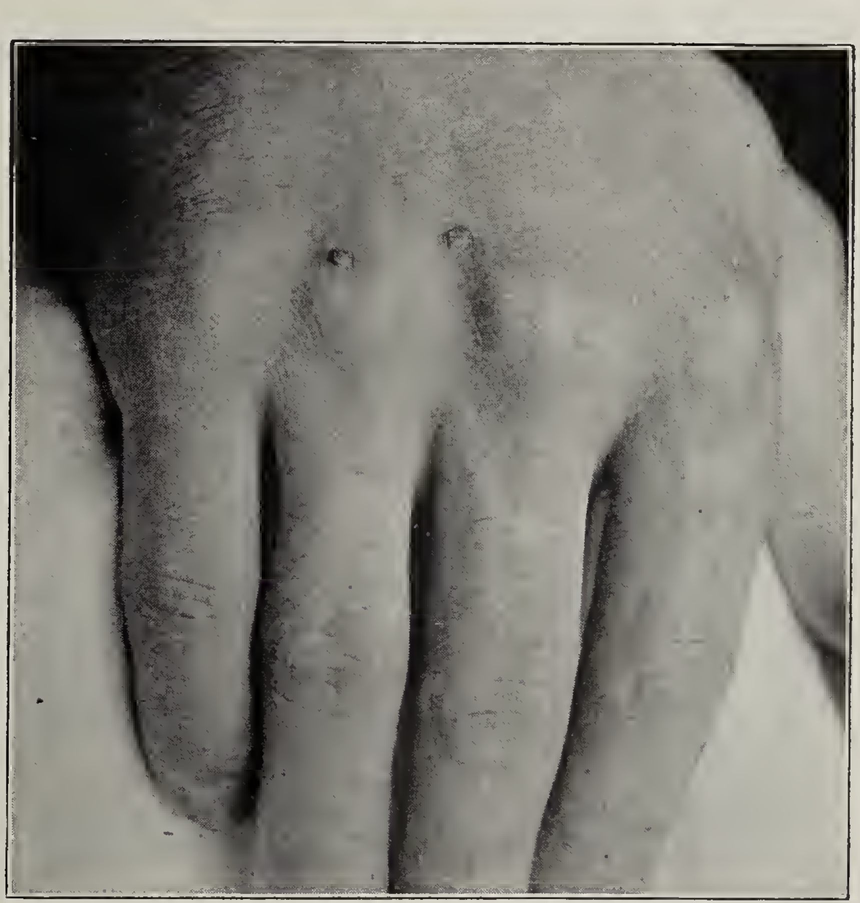

Fig. 3.—Second generation warts developing at sites of inoculation of sterile filtrate obtained from lesions shown in Figure 1.

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[2] Variot: J. de clin. et de thérap. inf. 94: 892, 1893.
[3] Jadassohn: Arch. f. Dermat. u. Syph. 1896.

of entrance for the infecting organism. Finally, it would rather seem, from the clinical and experimental evidences of contagion, and the experiments described herein, that in the production of ordinary warts there must be an infectious agent that is specific, that does not thrive on ordinary cultural mediums, and that is at the same time capable of passing through the finest filtering apparatus obtainable.

CONCLUSIONS

1. The demonstration of a filtrable virus for warts by Wile and Kingery is further substantiated by their production in the second generation.

2. The period of incubation from the time of inoculation to the development of well defined lesions is apparently much longer than pertains to other filtrable viruses.

ZINC CHLORID POISONING

REPORT OF OUTBREAK AMONG WORKERS IN A WOOD PRESERVING INDUSTRY

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The preservation of wood is a relatively new industry. The trade processes involved are undergoing frequent alterations, especially with reference to the chemicals employed. As a result, diseases incident to occupation in this industry are frequent. The subjoined report is a record of an outbreak of dermatoses arising in a wood preserving plant.

ESSENTIALS OF THE TRADE PROCESSES INVOLVED

The principal woods treated are railway ties of hard and soft wood. The principal chemicals used are: (1) tars and creosotes because of their ability to render the wood weather-proof and water-proof; (2) zinc chlorid, because of its action as a fungicide and a fire repellant. To insure penetration, wood treatment is carried out in air tight cylinders under pressure. This process, which is employed in this plant, is but one of a highly diversified series of processes, most of which are protected by patents. After cylinder treatment, treated ties are handled by hand in loading and stacking. Dermatoses were noted among all employees handling these ties.

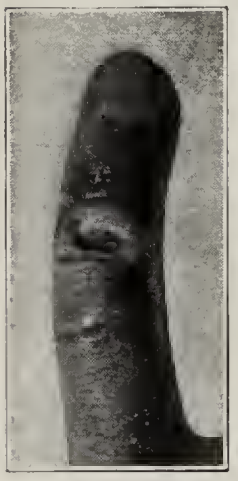

Fig. 1.—Typical lesion from zinc chlorid burn.

NATURE OF LESIONS

Seventeen patients were examined. Early it was evident that four types of skin lesion were being presented. The first three are well known, as incident to work in tar.

(*a*) *Tar Dermatitis.*—Dermatitis venenata, attributable in part to preparations used by employees in "cleaning up," such as benzene, light and heavy oils from coal tar distillation, and in part attributable to coal tar distillation products in the tar employed, was observed in only two cases.

(*b*) *Tar Acne.*—This condition was noted in varying degrees among all the employees examined. It is a common disease among all tar workers and is due to the accumulation of tar in hair follicles, especially those of the forearms.

(*c*) *Tar Cancer.*—In two cases, lesions were exhibited suggestive of tar workers' or "chimney sweep" cancer, which has been carefully described by Schamberg.[1] One of these lesions was situated on the scrotum, and the other on the forearm. The quick disappearance of these lesions under treatment makes one hesitate before making a diagnosis of tar cancer.

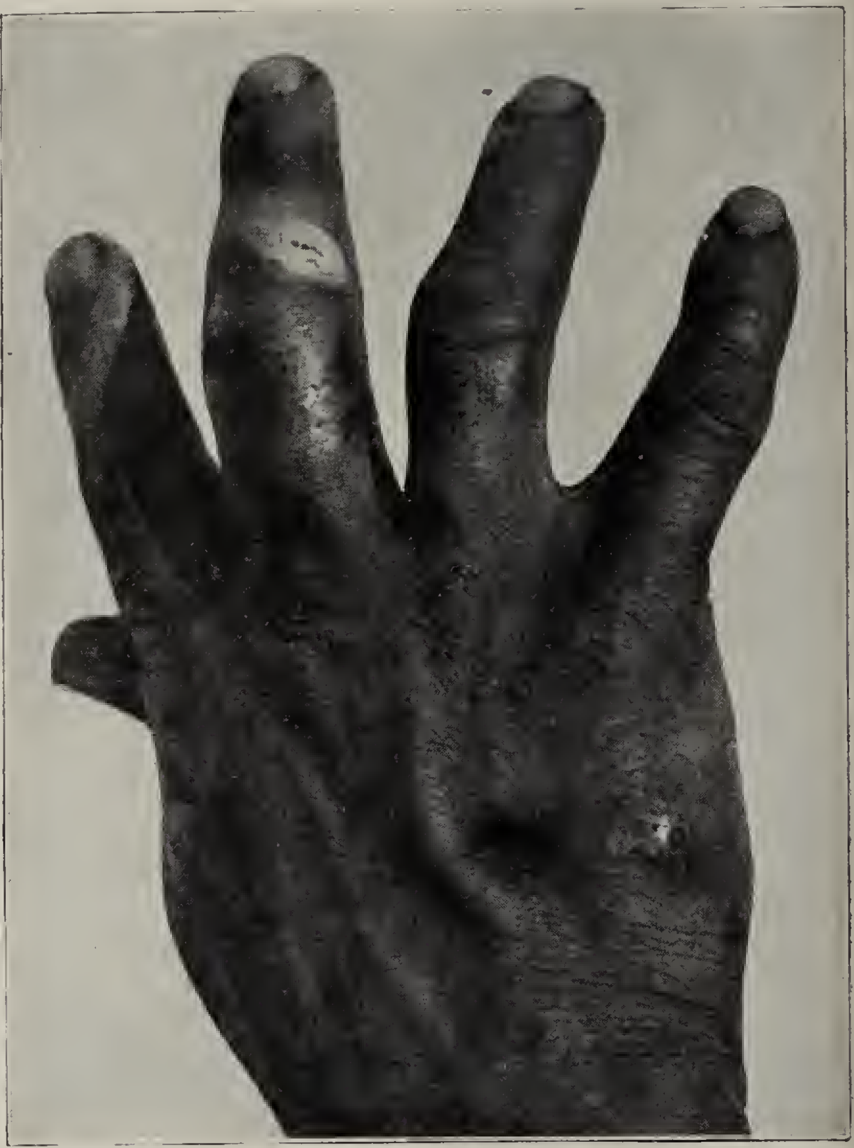

Fig. 2.—Typical zinc chlorid burn on second finger, of three weeks' duration. Dorsum of hand presents trivial zinc chlorid burns at sites of previous tar acne.

(*d*) *Zinc Chlorid Burns.*—In addition to the foregoing conditions, all patients presented multiple lesions of the fingers, hands, forearms and rarely of the legs and thighs. All patients gave a history of slight injury, such as abrasion, splinters, burns or crevices from chapping. The typical lesion was a small opening in the skin usually corresponding to the size and shape of the antecedent injury. The surrounding skin appeared normal, but on careful examination it was found to be readily removable. When the initial break in the skin was approximately 4 mm. in diameter, the subsequent impaired skin area was about 12 mm. in diameter. This proportion obtained roughly for all sizes of lesions. On removal of the impaired skin, the underlying tissues were found to be white and bloodless. In the center there was a cylinder of escharotic tissue, the depth of which depended on the duration of the lesion. There was no evidence of infection, and little or no swelling was noted. At times, some of these lesions were exquisitely painful, and others were wholly and continuously painless.

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[1] Schamberg, J. F.: Cancer in Tar Workers, J. Cutan. Dis. **28**: 644, 1910.

CAUSES OF LESIONS

In seeking to discover the cause of these lesions, it was determined that the strength of the zinc chlorid solution in treatment fluids was so dilute as to be incapable of producing skin lesions. The pertinent observation was, however, made that after the ties were removed from the cylinder they were permitted to remain in the open air, sometimes for several hours. During this period evaporation of the zinc chlorid solution occurred so that the ties when handled in loading were sometimes smeared with treating fluid in which the zinc chlorid approximated saturation. From this and from laboratory evidences, a diagnosis of zinc chlorid burn was made.

Additional factors in the causation of these lesions are: (1) Antecedent injury to the skin appears to be necessary. (2) After initiation of the lesion, repeated exposure to the zinc chlorid solution is a factor in the severity and progress of the lesion. (3) The irritation from the tar fraction of the treating solution is a factor in the severity and progress of the zinc chlorid burn.

TREATMENT

It was commonly recognized among workers that no "sore" would get well so long as the "core" remained in the wound. In all cases, this escharotic tissue was removed and the craters filled with sodium bicarbonate alone or in combination with petrolatum. This treatment was carried out on the assumption that thereby zinc carbonate would be formed, which is believed to be without harmful properties. Whatever the precise action, this treatment was effective, especially when it was possible temporarily to take the workers off their jobs.

PREVENTION

At no time were the constitutional effects of zinc detected. This is reasonable, inasmuch as no zinc fumes or dusts were involved in the trade processes. Prevention involved eliminating contact between the bodies of the workers and the treating solution. All leather garments were found to be unpractical because of the shrinking action of zinc chlorid on this material. Rubber gloves and aprons proved to be unpractical in that they were not sufficiently durable to withstand the hard wear. Also rubber gloves are cold and expensive. Several types of so-called acid-proof and water-proof canvas garments were tried out. The overall was found to be impervious to water and acid zinc chlorid solution, and was not injured by the solution. The corresponding type of gauntlets regularly proved to be unsuitable because they were subjected to a greater and more constant contact with the treating fluid. Protection for the hands was obtained through the use of flexible "linoleated" canvas gauntlets. Such gauntlets were impervious to all fractions of the treating fluid, were comfortable, durable, and inexpensive. The use of these protecting garments, together with the prompt treatment of all trivial injuries to the hands and forearms, has caused zinc chlorid burns to disappear from the plant.

214 West Seventh Street.

TUMORS OF THE OVARY IN CHILDREN

REPORT OF A LARGE OVARIAN CYST IN AN INFANT SEVEN MONTHS OF AGE *

WILLIAM A. DOWNES, M.D.
NEW YORK

The report of a single case of ovarian cyst in an infant is presented partly to call attention to an unusual condition, but especially for the purpose of making a plea for earlier operative interference in the surgical diseases of infants and children.

The literature contains reports of a large number of tumors of the ovary in children, including simple cysts, dermoids, sarcomas and carcinomas; but only two instances have been previously recorded in which the condition was operated on in the first year of life. That the two cases hitherto reported in young infants as well as the author's case were simple cysts and were first noted at birth or shortly afterward suggests that this type of growth may reach considerable size in the fetus, and that the earlier in life these tumors make their appearance, the better the chances are that the growth is benign rather than malignant.

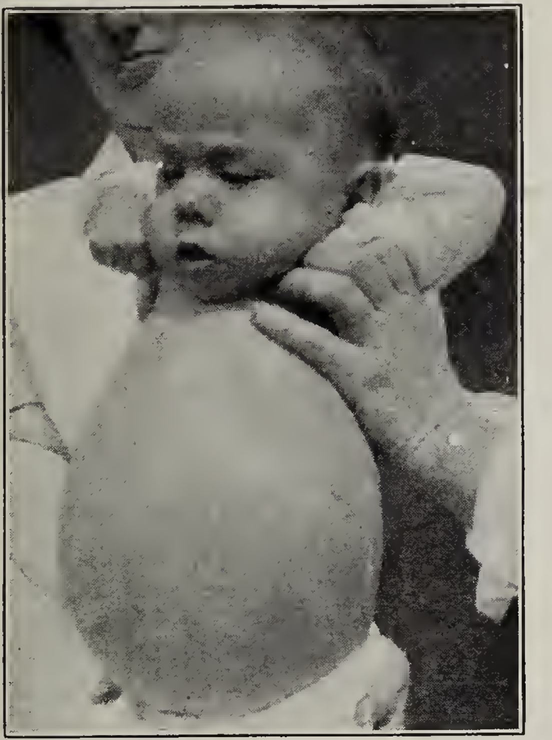

Fig. 1.—Appearance of patient, aged 7 months, with ovarian cyst.

In a summary of the sixty cases of ovarian tumors occurring in children 10 years of age and younger reported up to 1904, Weil[1] states that twenty-one, or 35 per cent., were dermoids; nineteen, or 31.6 per cent., cysts, single or multilocular; fifteen, or 25 per cent., sarcomas, and the remainder carcinomas or papillomas. Twenty-six cases in children under the age of 10 have been recorded since Weil's report was made. Two were simple cysts, eight dermoids, and sixteen malignant—either carcinoma or sarcoma. The youngest patient in whom malignancy is recorded was 1 year and 8 months of age and dermoid, 2 years. In studying the statistics of the sixty cases reported prior to 1904, it will be seen that more than 66 per cent. are classed as benign and 32 per cent. as malignant, whereas of the twenty-six cases recorded since that date, 62 per cent. are classed as malignant and 38 per cent. benign. The probable explanation for the apparent discrepancy in these findings is found in the fact that a more careful and thorough microscopic examination was made in the later series.

In 1906, Donhauser[2] of the Bender Laboratory called attention to the importance of making a careful histologic study of all so-called simple cysts of the ovary with the view of deciding the question of malignancy. A comparison of the pathologic findings in the early and late series of cases quoted above proves the value of this author's suggestion. Furthermore, it is clearly shown that any tumor of the ovary, cystic or solid, should be removed as soon as possible after its

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* Read before the Southern Surgical Association, Hot Springs, Va., Dec. 16, 1920.

[1] Weil, H. I.: Bull. Johns Hopkins Hosp. **16**: 102, 1905.

[2] Donhauser, J. L.: Albany M. Ann. **27**: 20, 1906.

discovery, as there is nothing in the early clinical history of most of the cases to indicate whether the condition is benign or malignant. As naturally expected, a swelling in the lower abdomen is as a rule the first sign or symptom to call attention to the fact that the infant is suffering from an ovarian tumor. This may be observed at birth or soon thereafter. However, in many of the recorded cases, acute abdominal pain due to twisting of the pedicle was the first symptom noted. The history of a number of cases states that a previously healthy child begins to run down and show constitutional symptoms before the presence of a growth is made out. This generally suggests malignancy. Other symptoms are those due to the presence of the mass in the abdomen, and vary according to the size and consistency of the tumor. Owing to the fact that the uterus and its appendages are practically abdominal organs in early infancy, pressure symptoms on the bladder and rectum are seldom encountered.

In the case of solid growths, especially if accompanied by adhesions, there may be disturbance of the bowels, pressure on the ureters or bladder, and ascites. The growth may reach such proportions as to interfere mechanically with respiration and the general comfort of the patient. On the other hand, it is surprising how little the simple cystic tumors may interfere with nutrition. The fact that the infant takes its feedings well and seems to thrive in spite of the presence of a large cystic tumor greatly favors the absence of malignancy. In older children, the early appearance of menstruation or an irregularity in it has been noted. Of the complications of ovarian tumors, torsion of the pedicle is by far the most common. This accident is most likely to occur in the growths of moderate size, and is recognized by a sudden onset of acute abdominal pain which may be accompanied with rapid increase in the size of the tumor. Suppuration due to infection through the blood stream or lymphatics or as a result of aspiration has been observed. Rupture of the cystic growths has also been reported.

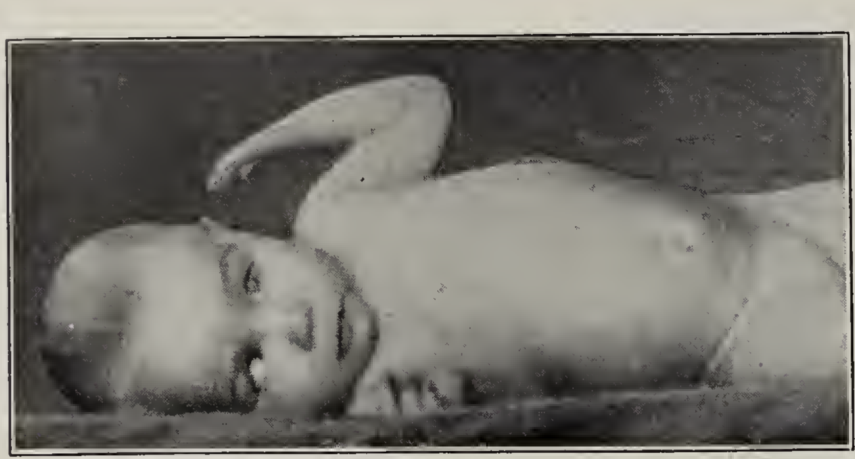

Fig. 2.—Appearance of patient, aged 10 months, after operation.

The diagnosis of ovarian tumors in infants offers several difficulties. In the first place, the condition is so unusual that the examiner may not give due consideration to the possibility of the existence of such a disease. These growths are abdominal rather than pelvic, and are usually attached by a long pedicle. For this reason they are easily mistaken for kidney tumors, mesenteric cysts, etc. If, however, the mass occupies the midhypogastric region, and rectal examination suggests the presence of a pedicle giving a cordlike feel to the finger, the diagnosis may be easily made. In the case of large cystic tumors occupying almost the entire abdominal cavity, a general consideration of the patient will be of great value. The appetite may be good, bowels and kidneys function normally, and the infant seem to be suffering merely from the mechanical presence of the large amount of encysted fluid. Roentgen-ray examination by means of a barium meal or enema is of great diagnostic value in determining the relation of the intestine to the growth. The question of an exact anteoperative diagnosis is, however, of little consequence as compared to the importance of early removal, and for this reason valuable time should not be wasted before resorting to an exploratory incision.

It is superfluous to state that the treatment of ovarian tumors or, for that matter, any abdominal tumor in an infant, is surgical. The case may be brought too late to permit a cure either on account of the poor condition of the child or the histologic structure of the growth; but this does not alter the fact that surgery at the proper time offers the only hope of cure in such cases. The feeling that young infants do not stand major surgical operations well is still far too prevalent. Such is not the case. If these patients are given an equal chance with an adult, that is, early and correct diagnosis, and are properly safeguarded from undue exposure and loss of blood during operation, they will make an even better and more rapid postoperative convalescence than older individuals. No thoughtful, properly trained physician or surgeon in this day would think of prescribing a cathartic for an adult giving symptoms of an acute abdominal condition before a careful study is made of the case. The same thing cannot always be said of the treatment accorded infants, partly because of the inability to define their symptoms, but largely because the same degree of care is not exercised in making the diagnosis, especially at the very beginning of the disease. When the patient comes to operation and the result is not satisfactory the explanation is that infants do not stand operations well. In the case here reported, a swelling of the abdomen was noted at birth which steadily increased in size, but it was not until the seventh month that a surgeon was consulted.

REPORT OF CASE

History.—G. P., born Feb. 13, 1920, admitted to the Babies' Hospital, September 24, had had an enlargement of the abdomen since birth. She was a full term infant, with normal delivery, weighing 9½ pounds. During the first three months the baby suffered from colic and occasional loose stools with mucus. She took feedings well and did not vomit. The general condition continued good and the infant seemed well in every way except for the increasing enlargement of the abdomen. The abdominal distention was thought to be due to Hirschsprung's disease until roentgen-ray examination demonstrated a normal intestinal tract.

Examination.—On admission to the hospital, the patient was well developed and well nourished. She was bright, not fretful, and apparently comfortable in spite of the enormously distended abdomen. The chest measured 15 inches; the abdomen, 24 inches; length, 25 inches. The weight was 17 pounds. The abdomen was symmetrically enlarged. A definite fluid wave and fluctuation were easily made out. Dulness extended over the entire abdomen and into the flanks. On rectal examination a pedicle could be felt anteriorly and to the left. A diagnosis of ovarian cyst was made.

Operation and Result.—September 24, a lower right rectus incision was made. There was no free fluid in the peritoneal cavity. There was a large, moderately thick-walled cyst. A trocar was introduced and 2.5 liters of clear, straw-colored fluid withdrawn. A pedicle, the size of the little finger, springing from the left cornu of the uterus was ligated with No.1 plain catgut. The right tube and ovary were normal. The abdomen was closed in the usual way. Convalescence was uninterrupted. The patient was discharged from the hospital, Oct. 7, 1920, cured.

A pathologic examination by Dr. Martha Wollstein revealed a simple ovarian cyst. There was no evidence of malignancy. Dec. 3, 1920, the mother reported that the baby appeared normal in every way and was gaining rapidly in weight.

424 Park Avenue.

Clinical Notes, Suggestions, and New Instruments

TWO SUGGESTIONS IN ABDOMINAL OPERATIVE TECHNIC

PERITONEALIZATION BY SUSPENSORY LIGAMENT OF LIVER AFTER CHOLECYSTOSTOMY OR CHOLEDOCHOSTOMY; UTILIZATION OF ROUND LIGAMENT OF UTERUS WITH CREMASTER IN REPAIR OF FEMORAL HERNIA

P. G. Skillern, Jr., M.D., Philadelphia
Associate Professor of Surgery, University of Pennsylvania Graduate School

These suggestions in abdominal operative technic are, as far as I am aware, original.

1. *Peritonealization by Suspensory Ligament.*—The sketch (Fig. 1), together with the inset, shows at a glance the method of sealing the site of drainage in choledochostomy. In this patient—a woman aged 47—the common bile duct was dilated to the size of a man's thumb, and contained six stones each the size of the thumb nail. These stones were removed through an incision in the common duct, and the gallbladder was then removed. A rubber drainage tube one-fourth inch in caliber was inserted into the common duct, which was closed up to the tube. It then occurred to me to bring the tube out through a hole made in the suspensory ligament just to the left of the round ligament. This was done, and the suspensory ligament was held in juxtaposition with the common bile duct by a catgut suture. Five days after operation, while the patient was being transferred to another floor, the tube slipped out of the bile duct. Thirteen days after operation, bile no longer escaped from the fistula.

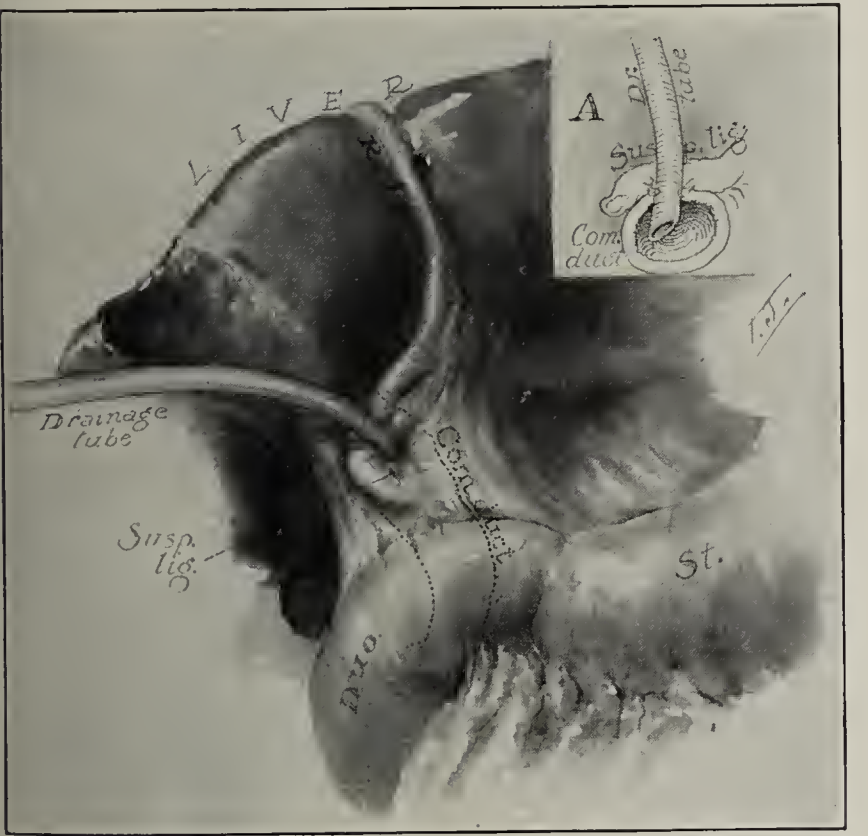

Fig. 1.—Author's method of peritonealization by suspensory ligament of liver after choledochostomy (also for cholecystostomy). *A,* effectual sealing obtained by this method.

The anterior lamina of the gastrohepatic omentum does not lend itself to facile closure after having been divided for exposure of the bile ducts and cystic artery; furthermore, it is very thin near its right, free edge. The suspensory ligament, on the other hand, with its two layers of peritoneum sandwiching subserosa fat and with its free border reinforced by the strong round ligament, forms an ample and ideal sealing medium. Witness the closure of the large (one-quarter inch) ostium in this case is sixteen days. Furthermore, the suspensory ligament, by means of its anterior parietal attachment, when thus utilized protects the left upper abdomen from the spread of infection. Thus the bile duct fistula becomes closed not alone by proliferation of the mucosa epithelium, but also by peritonealization on the part of the suspensory ligament.

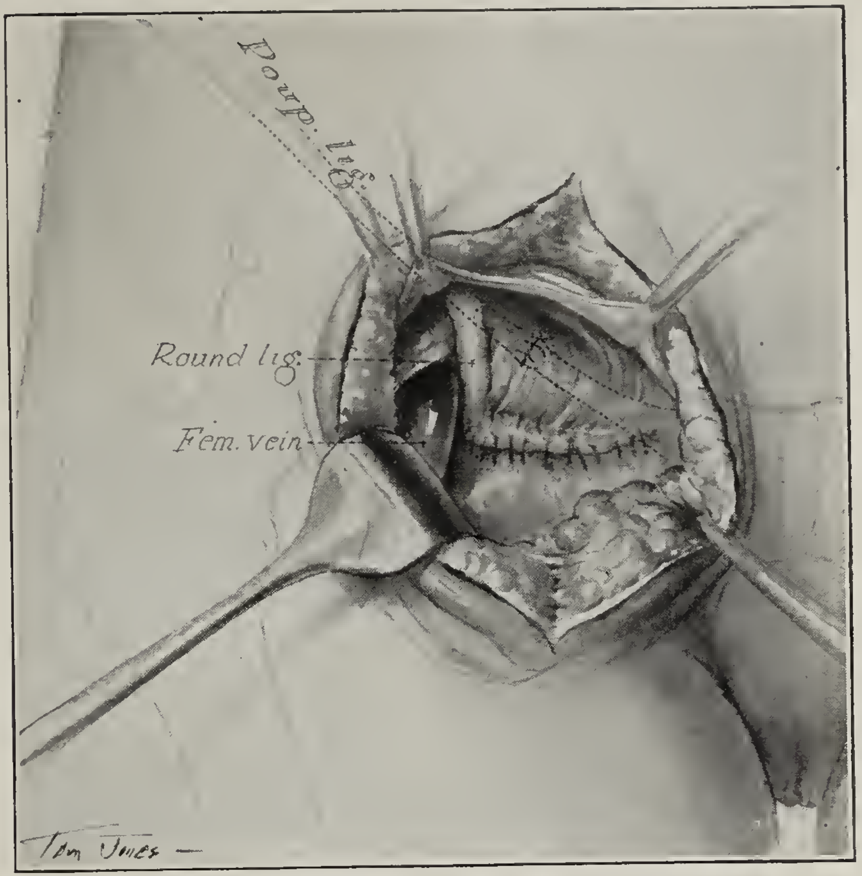

Fig. 2.—Author's method of repair of large femoral hernia when it is necessary to divide Poupart's ligament. Note suture of free border of round ligament of uterus with still-attached cremaster muscle and fascia to pectineus fascia.

I applied this method in a cholecystostomy performed the day this article was written. In this case the round ligament was sutured to the gallbladder to the right of the ostium, with the result that the suspensory ligament formed a perfect cap for the fundus of the gallbladder, in the center of which the ostium was made: this seems to be much better than contacting the fundus with the anterior parietal peritoneum, and should prevent adhesion formation. The method of jejunostomy as performed by Dr. C. H. Mayo, in which the great omentum is sandwiched between the bowel at the site of the ostium and the anterior parietal peritoneum, is based on the same principle. The rectus incision must fall to the right of the parietal attachment of the suspensory ligament.

2. *Utilization of Round Ligament with Cremaster in Repair of Femoral Hernia.*—The sketch (Fig. 2) shows how an incarcerated femoral hernia containing cecum and omentum in a woman, aged 60, was dealt with. In the right groin there was an "irreducible" swelling the size of two adult fists. Under local anesthesia the hernia was approached by the inguinal route of Ruggi, to which there was added a descending vertical incision through skin and fat to isolate the hernial sac. When the sac was opened, much turbid serum escaped. The incarcerated portion of the omentum was ligated, and the stump was pushed up into the peritoneal cavity. The wall of the cecum was so thick from edematous infiltration, however, that it was impossible to reduce it without preliminary division of Poupart's ligament. The cecum could now be readily reduced. But there remained a large wide-open passageway between the abdomen and the thigh. Closure of this passageway could not be effected by mere suture of the divided ends of Poupart's ligament. Poupart's ligament undivided is a different structure from what it is

when it is divided: in the former instance it is tense and strong; in the latter, flabby and weak. In casting about for a structure that would satisfactorily close this large passageway, I hit upon the round ligament, from which, fortunately, the cremaster muscle and fascia had not been separated. The femoral vein being retracted laterally, the free border of the round ligament was sutured to the underlying pectineus fascia, from the vein almost to the pubic bone, interrupted sutures of No. 2 chromic gut being used. Over this the divided ends of Poupart's ligament were sutured, and the superficial tissues were approximated. The patient was up and about at the end of two weeks, and the barrier was then holding very well. In this connection we cannot help calling to mind the importance attached by Dr. Halsted to the cremaster muscle and fascia in his method of inguinal herniorrhaphy.

241 South Thirteenth Street.

DISLOCATION OF THE SEMILUNAR BONE: REPORT OF CASE IN WHICH REDUCTION WAS SUCCESSFUL

William W. Golden, M.D., Elkins, W. Va.

E. D., a man, aged 37, was thrown out of an automobile as it left the road and went down a bank while rounding a curve at a rapid speed. I saw the patient within a few hours after the accident occurred. He was suffering agonizing pain in the entire left upper extremity, with greatest intensity in the region of the left shoulder and at the wrist. An examination of the shoulder by roentgenogram and otherwise proved the absence of any injury there. The wrist was swollen and exquisitely tender, and presented a small swelling on its anterior aspect. A roentgenogram revealed a complete dislocation of the semilunar bone. The bone abandoned entirely its carpal associates and landed on the anterior aspect of the lower end of the radius. In doing that it made a revolution of about 225 degrees, its posterior end making nearly all of the excursion, with the anterior one acting as the fulcrum, as shown in Figure 1. The first attempt at reduction brought the bone nearly into normal position as far as its relation with the radius was concerned, but failed to reestablish its normal relation with the os magnum. To accomplish this a second attempt was necessary. Figure 2, from roentgenograms made about nine months after the accident, discloses the same condition as a roentgenogram taken immediately after reduction, namely, a virtually complete restoration of normal relations of the carpal bones to one another and to the radius. Immediately after reduction, the severe pain in the upper extremity was entirely relieved. Some soreness at the wrist persisted for a while, and for a longer time there persisted some numbness of the fingers supplied by the median nerve. It is evident that the bone in its false position did some damage to the median nerve by stretching it. The nerve symptoms gradually disappeared. The function of the wrist kept improving under heat and passive motion. At present, ten months after the injury, function is perfect. The size and contour of the wrist when viewed by itself seem perfectly normal, but when compared with the wrist of the opposite side a slight increase is noticeable. The patient was unable to tell just in what position his wrist was when the injury occurred.

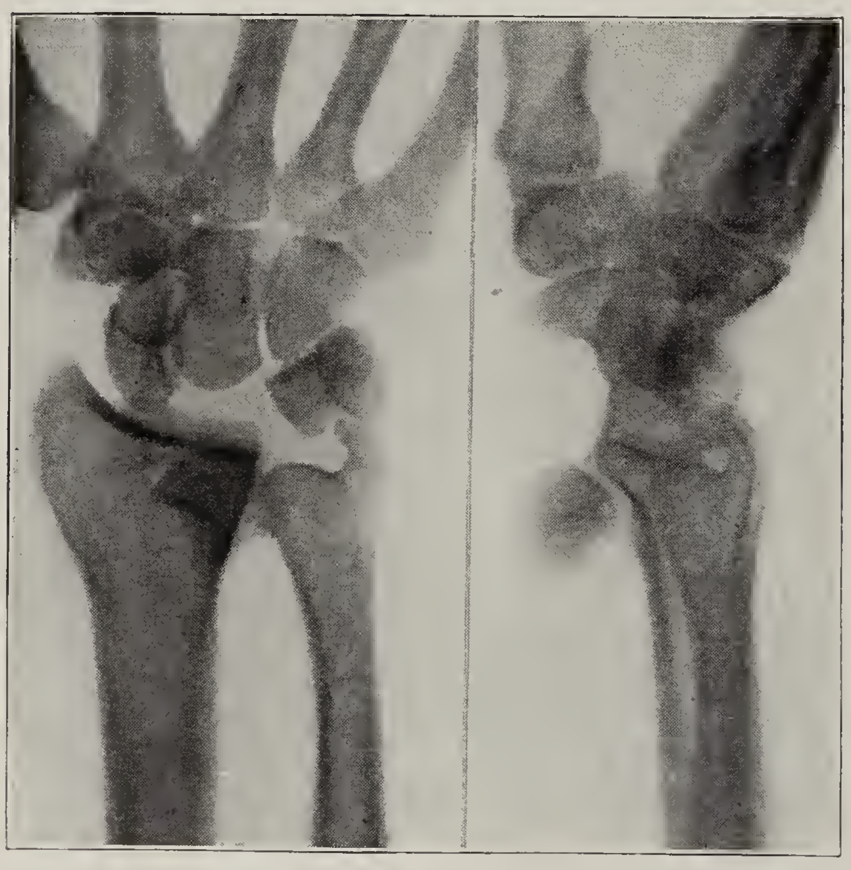

Fig. 1.—Anteroposterior and lateral views of dislocated semilunar bone.

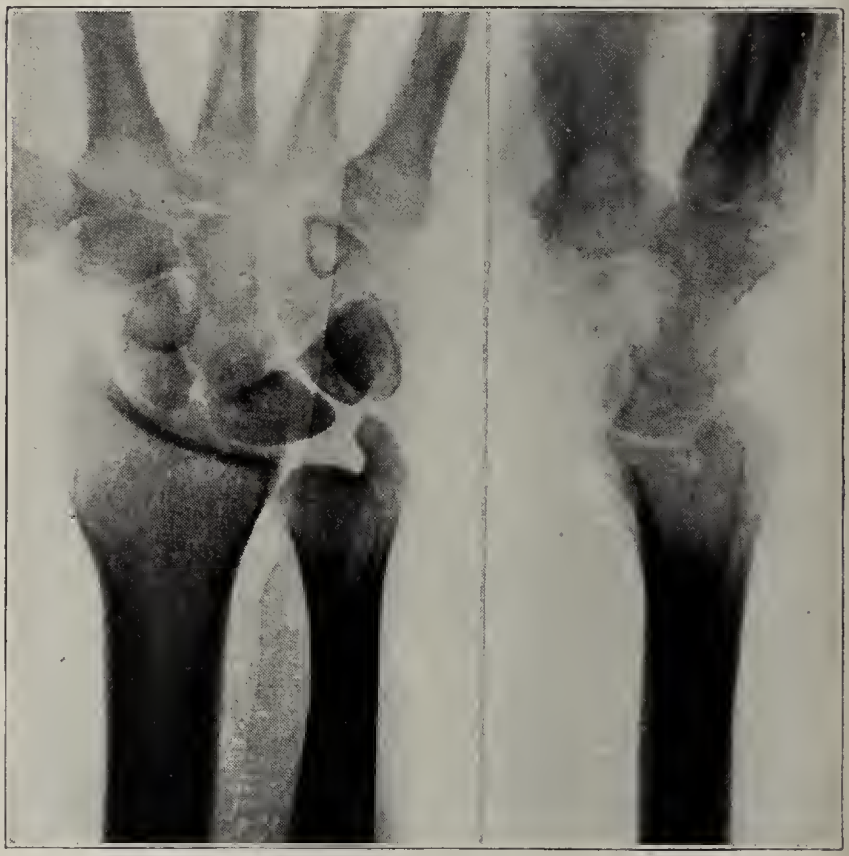

Fig. 2.—Condition nine months after the accident.

I report this case partly because of its rarity and because the usual procedure in such cases is to remove the bone.

PAPILLARY EPITHELIOMA OF BLADDER. METASTATIC IN KIDNEY *

F. Herbert Haessler, M.D., West Philadelphia, Pa.

In The Journal, Oct. 30, 1920, P. E. McCown [1] reported a case of epithelioma of the kidney, and presented abstracts of forty-six previously published case reports. There seems to be little doubt that in the cases in this series, in which neoplasms were present in both kidney pelvis and urinary bladder, the primary location of the mass was in the kidney.

I think it worth while to report the following case in order to emphasize the fact that it is possible for similar tumors to occur in the kidney and bladder in which there is good reason for assuming that the bladder mass is the primary growth.

REPORT OF CASE

Clinical History.—The patient was a man, aged 77, mentally deranged. Though careful notes were made of all facts objectively observable, the available data when correlated with the necropsy findings are not of sufficient value to justify reporting them in detail. There was profuse hematuria on several occasions in the five days preceding death.

Necropsy.—The essential deviations from normal were: extradural hemorrhage, acute lobular pneumonitis, cirrhosis of liver, arteriosclerotic nephrosis, neoplasm of kidney, and papilloma of urinary bladder.

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* From the Pathological Laboratory of the Pennsylvania Hospital, Department for Mental and Nervous Diseases.

[1] McCown, P. E.: Papillomatous Epithelioma of the Kidney Pelvis, J. A. M. A. **75**: 1191 (Oct. 30) 1920.

When the left kidney was removed, a cyst was incised and about 150 c.c. of very turbid light red fluid was freed. The kidney was somewhat smaller than the right, weighed 130 gm., and consisted of a small amount of kidney tissue surrounding four cystic cavities from 3 to 5 cm. in diameter. Embedded in the parenchyma were several masses of soft, white, fleshy tissue. The kidney pelvis and ureter were somewhat dilated, but the linings were smooth and glistening.

The parenchyma of the left kidney was destroyed by two factors: (1) a severe chronic inflammatory reaction with connective tissue replacement of the tubules and round cell infiltration, and (2) infiltration by a tumor. The tumor occupied the greater part of the kidney volume, extending from the pelvis toward the cortex. The structure of the tumor varied with the amount of accompanying stroma. Where this was profuse it had a glandular appearance and resembled a scirrhous carcinoma of the breast. In certain areas the tumor was more cellular and open, and there the cells were arranged about a central fine strand of fibroblasts, being placed radially in several irregular layers. In these regions the tumor was indistinguishable from the bladder tumor to be described. The cells were everywhere much the same, showed numerous mitotic figures, and had moderate sized oval and irregular nuclei whose staining varied from moderate to very deep. There was a small zone of protoplasm about the nucleus. The tumor would seem to be a metastasis by way of the lymphatics of the ureter from the bladder tumor.

The bladder tumor was a fairly typical, not very vascular papillary carcinoma of the bladder. The villi were closely packed, and had numerous irregularly layered cell strata. Mitotic figures were abundant and especially clear. The cells varied more as to size of nuclei and amount of protoplasm than did those of the kidney tumor, but certain areas were very similar. There was no particular invasion of the bladder wall.

The ureter between the two neoplasms was normal; hence the two growths were not causally connected by direct extension. It is improbable that a tumor cell carried in the urine would become attached to the bladder wall and begin to grow there. Metastasis through the lymphatics is a more probable explanation. Eisendrath and Schultz[2] have shown that lymphatics pass from the bladder to the kidney pelvis in the ureteral wall, and that it is a frequent route of infection of the renal pelvis. Therefore the assumption seems justified that in this case the neoplasm was primary in the bladder wall and not in the kidney.

BILATERAL FORWARD DISLOCATION OF THE FIFTH CERVICAL VERTEBRA WITH REDUCTION BY MANIPULATION

Mitchell Langworthy, M.D., Spokane, Wash.

Aug. 5, 1920, C. O., aged 28, a truck driver, was injured in an automobile accident. He was found pinned underneath an overturned truck with his head and neck bent forward. He was not unconscious when helped out, but became so for a few minutes while he was being moved. He thought that this had something to do with movement of his head, and instructed the helpers to keep his head straight and immovable while they were carrying him to the hospital. Examination there disclosed considerable interference with respiration, which was greatly improved by traction on the neck. The patient was in severe shock.

Four hours after injury, he had recovered sufficiently to answer questions, at which time I was called in consultation. Roentgenograms of the cervical spine had been taken, and the lateral view revealed a bilateral forward dislocation of the fifth cervical vertebra on the sixth, with a slight impaction of the body of the fifth. Anteroposterior views, although excellent stereoscopic plates, revealed nothing that would have been definite enough to permit a diagnosis without the lateral view. The symptoms present were priapism; numbness and tingling in the right hand and forearm and over the entire left lower limb, and frequent coughing with some fresh blood in the sputum. The knee jerks seemed normal. There was no motor paralysis and no gross eye findings. Respiration was still difficult.

Attempt at reduction by manipulation was suggested and agreed to. Five and a half hours after the injury the patient was anesthetized with ether. When well relaxed, he was slid upward on the table, so that I could hold his head in my hands, free of any other support. The method of Walton was followed, which attempts to slip the articular facet, first of one side and then of the other side, back into position on the facets of the vertebra below. To reduce the right side, the neck was flexed to the left and then rotated to the right. This was accomplished by approximating the head to the left shoulder and then rotating the chin toward the right shoulder. The same movements were then carried out for reduction of the left side. As these were finished, a distinct chug was heard and felt in the neck. This was more like a dull bump than a snap or click. Immediately afterward, the movements of the neck were free in all directions. It was felt that reduction had been accomplished, and this was verified a little later by roentgenograms. He was put back to bed with the head, neck and shoulders supported by large, heavy sandbags.

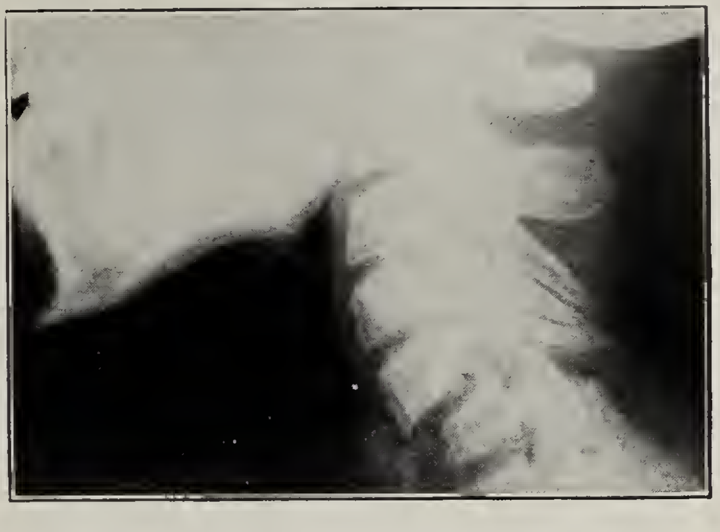

Fig. 1.—Bilateral forward dislocation of fifth cervical vertebra on the sixth, with slight impaction of the body of the fifth.

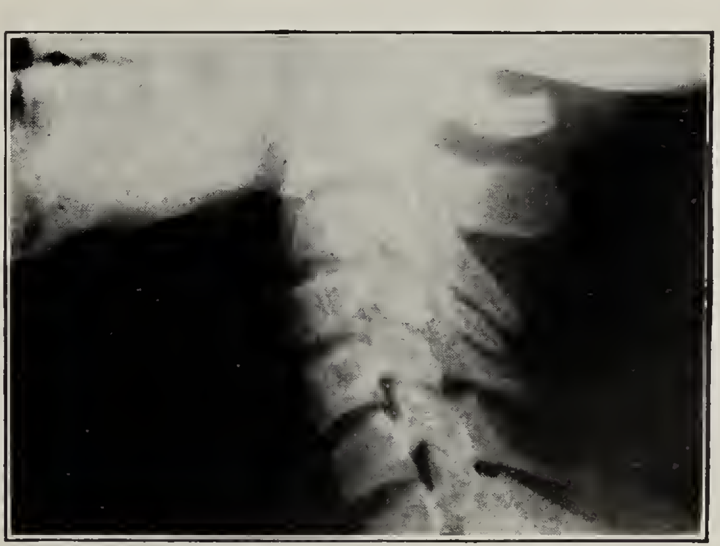

Fig. 2.—Appearance of vertebrae after reduction by manipulation.

The next day the priapism disappeared and the numbness and tingling began to decrease. On the fourth day the patient's condition was so much improved that, with a plaster cast, which supported the weight of the head on the shoulders and protected the neck, he was allowed to sit up. On the seventh day he was allowed to walk a little. The cough was much improved, and the numbness and tingling had almost disappeared. On the fourteenth day, he was discharged from the hospital, walking well, with no discomfort, although still somewhat weak. His strength improved rapidly, and at the end of the sixth week the plaster support was removed.

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[2] Eisendrath, D. N., and Schultz, O. T.: J. M. Res. 35:295 (Jan.) 1917.

Several examinations since, the last being ten weeks after the injury, have revealed no symptoms at all, except some soreness and stiffness in the region of the ligamentum nuchae and trapezius muscle at the base of the neck. This was probably due to the stretching and laceration of these structures which must have occurred at the time of the injury. This condition is improving. Movements of the neck are normal in extent, although still somewhat weak. In every other way, the patient is perfectly well.

Paulsen Building.

RESTORATION OF THE CHEEK AND TEMPORAL REGION BY PEDICLED AND SLIDING GRAFTS OF SKIN AND MUSCLE

REPORT OF AN ILLUSTRATIVE CASE

Jay D. Whitham, M.D., New York

History.—The treatment of cutaneous angiomas or "port-wine" birth-marks by the roentgen ray is not satisfactory, and the case reported here will illustrate in an extreme degree how dangerous it may be to attempt this form of therapy. The case has especial interest as the roentgen-ray treatment was given by an eminent roentgenologist who is a teacher of this subject in one of our medical colleges. The method used to rebuild the maxillary sinus is believed to be original.

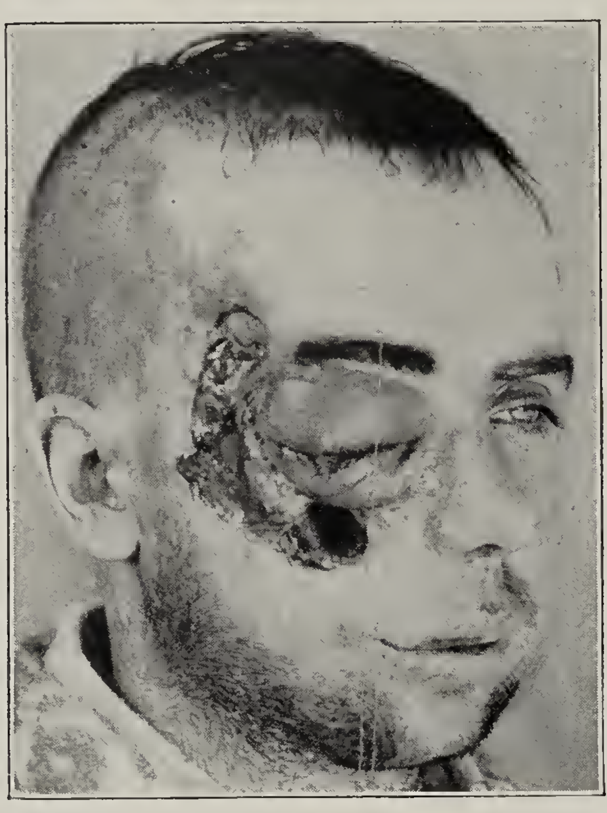

Fig. 1.—Condition of patient, April 16, 1919: especially to be noted are the orbital cellulitis, the opening into the mouth and nose, and the large sequestrum in the malar and temporal regions which was removed at a later date.

REPORT OF CASE

W. E. E., a man, aged 23 years, whose mother died of dropsy at the age of 40, and whose family history otherwise was negative, had had the diseases of childhood, including measles, chickenpox and mumps. He stated that he had smallpox in 1911, and that he fractured his left forearm when a small boy. Venereal infection was denied. He was told by his parents that at birth he had a "port wine" birth-mark, covering almost the entire right side of his face. Nothing was ever done to remove this blemish until December, 1917. At that time, he stated, he feared the birth-mark would disqualify him for military service, and to insure his acceptance in the army, he applied for treatment to his physician, who referred him to a roentgenologist. The patient stated that he was given about eighteen roentgen-ray exposures, each of from five to ten minutes' duration. These were given in series of three consecutive days, with rest periods between. About March 15, 1918, two weeks after his last roentgen-ray exposure, a blister began to form all over the birth-mark, which later ruptured and exuded serum. Part of this blister had healed when he was inducted into the army, May 25, 1918. A few days later, ulceration and sloughing began to occur, affecting at first the skin and soft tissues of his cheek, and soon spreading to the temporal region and deeper structures. By September, the soft tissues of the cheek had sloughed off, leaving a large opening into his mouth and nose through the maxillary sinus.

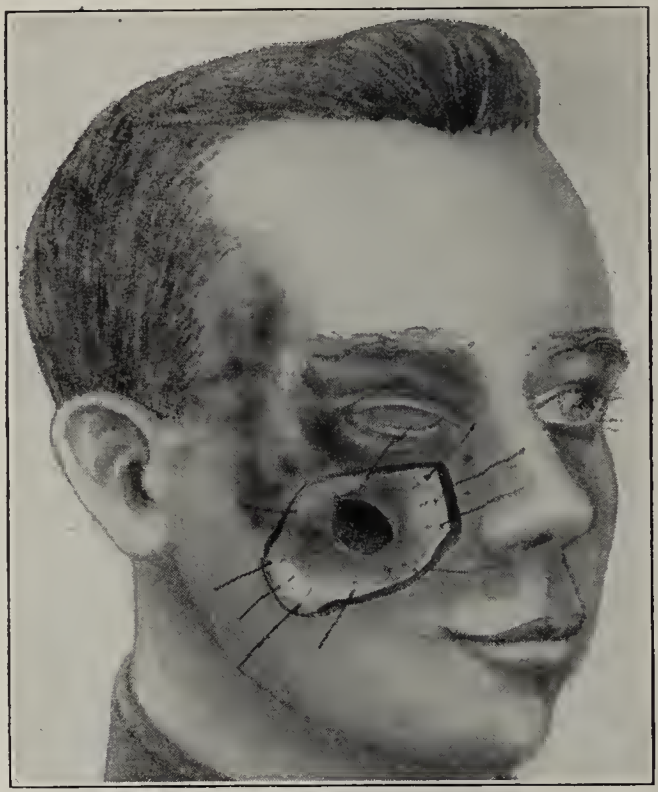

Fig. 2.—Operation. Feb. 19, 1920, under procain anesthesia: flaps of skin cut to form a lining for the maxillary sinus.

Feb. 16, 1919, these notes were made: "Patient weighs 160 pounds (normal weight, 180 pounds). The right malar bone and a large part of the right superior maxilla are denuded and necrotic, with a very bad odor. The undestroyed portions of the right masseter and buccinator muscles are exposed. He has an intense right orbital cellulitis."

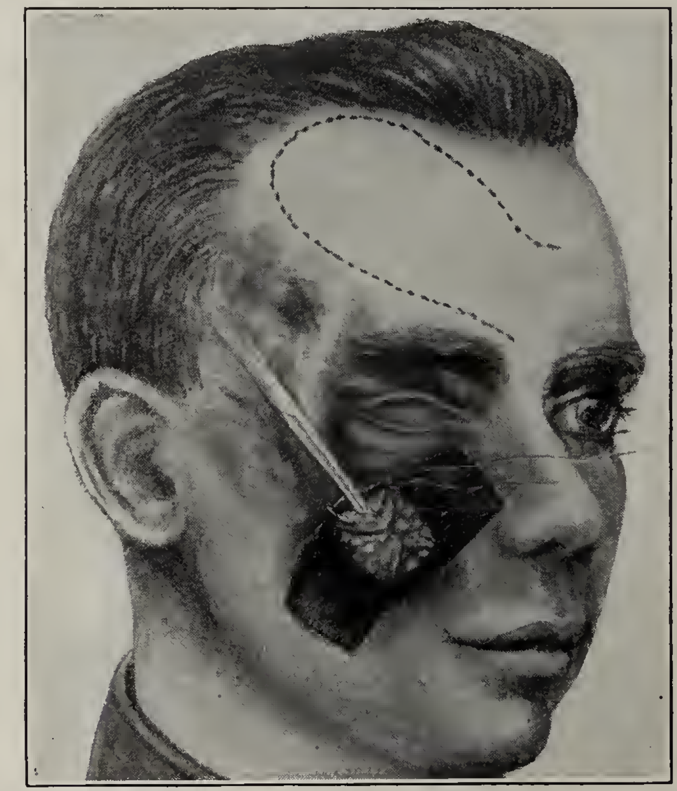

Fig. 3.—Operation, Feb. 19, 1920,: skin flaps brought together and sutured with silk; forehead flap outlined.

March 28, the right eye was enucleated, as the bulb was virtually destroyed. At the same time, the right malar bone and a portion of the right superior maxilla were removed as sequestrums (Fig. 1).

May 28, an extensive destruction of the squamous portion of the temporal bone and overlying soft tissue was present.

Sloughing tissue and necrotic bone was removed down to the inner plate of the temporal bone. The temporal region remained open, discharging foul-smelling pus for several months; but after the removal of several small sequestrums, it began to granulate over, so that by Nov. 10, 1919, the bone and soft tissues were covered over with epithelium, except for an ulcerated patch about one-half square inch, just below the outer angle of the orbit.

Sept. 29, 1919, the patient had a typical attack of jacksonian epilepsy, involving the side of the body opposite the lesion. This attack was of fifteen minutes duration, and was followed by profound sleep. He became very cyanotic during the attack, and death seemed imminent. This attack was repeated about three months later, but was less severe.

By Feb. 19, 1920, the wounds were clean, and the patient, having spent several weeks on a farm, was in excellent general physical condition. Previous to that date, a wax model of the face had been made, and the operation contemplated was rehearsed, exact patterns of flap needed being cut from thin sheets of tin. The object of the first operation was to provide a covering for the maxillary sinus and to cover over the hideous loss of tissue of the cheek.

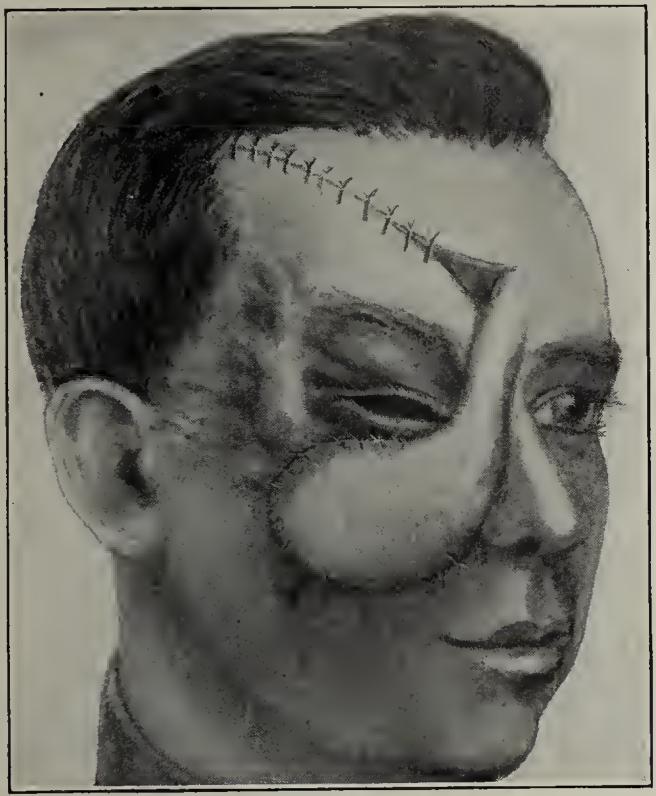

Fig. 4.—Operation, Feb. 19, 1920: forehead flap brought down and secured in place with interrupted skin sutures.

Operations and Result.—February 19, under procain anesthesia, a skin lining for the outer wall of the maxillary sinus was made by the turning together of two flaps—one from the cheek below the opening, and the other from the side of the nose (Fig. 2). These were sutured together with interrupted silk stitches (Fig. 3). This step I believe to be essential to the success of the operation. A large, pear-shaped flap including tissues down to the pericranium was then cut from the right forehead, having a thick pedicle, including all the tissue between the eyebrows. This was brought down and sutured without tension, over the turned-in flaps. Interrupted skin sutures were used. Small rubber tissue drains were placed in each lower angle of the wound. A little nitrous oxid gas was then given. The scalp was extensively undercut in the right parietal region, and the forehead wound closed by button tension sutures of silkworm gut (Fig. 4).

The wounds healed quickly, as shown in Figure 5, from a photograph taken a month later.

April 5, the second operation was performed. This was designed to restore the soft tissues over the temporal region, to cover the exposed dura in this region with healthy skin and muscle, and to effect a cosmetic result. The wound in this location was carefully freshened, and at that time it was noted that in several places the squamous plate was entirely wanting. Two horizontal parallel incisions were made in the scalp, commencing above the right ear and extending back to the region of the external occipital protuberance. The incisions were 2½ inches apart. The flap, thus outlined, was cut to include the remnants of the temporal muscle, was brought forward by sliding, and sutured into the defect by interrupted silkworm-gut stitches. The defect was thus covered with healthy scalp, and a portion of the temporal muscle. The scars resulting were for the most part in the hairy portions of the scalp, and therefore not so conspicuous (Fig. 5).

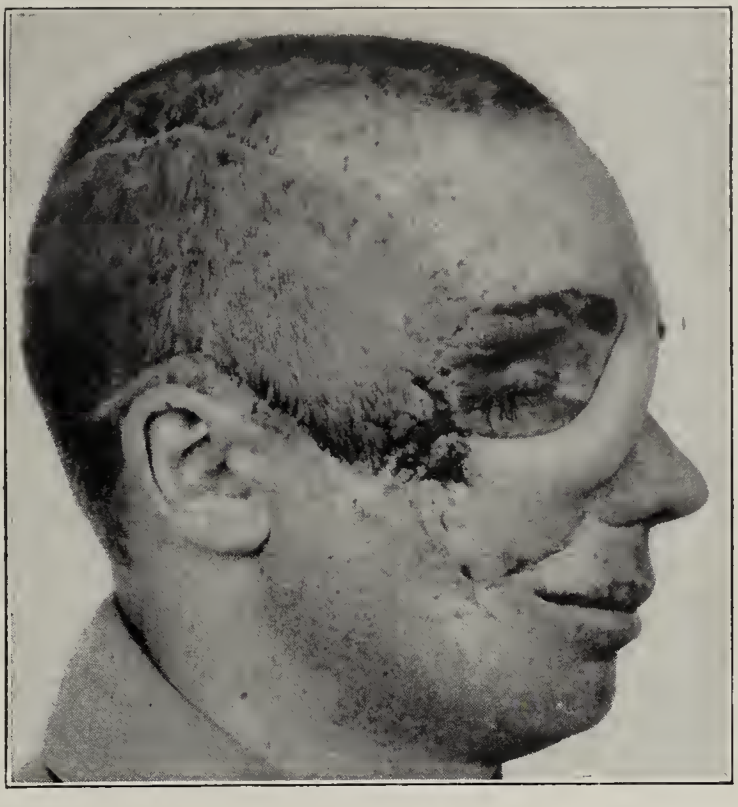

Fig. 5.—Ten days after the operation of April 5, 1920, which was performed under ether anesthesia. The method of sliding forward the flap of skin and temporal muscle to cover the exposed dura is shown.

A month later the pedicle of the forehead flap was returned. At a future date, still further improvement can be obtained by scar excisions and skin grafting, to correct the ectropion present in the lower eyelid.

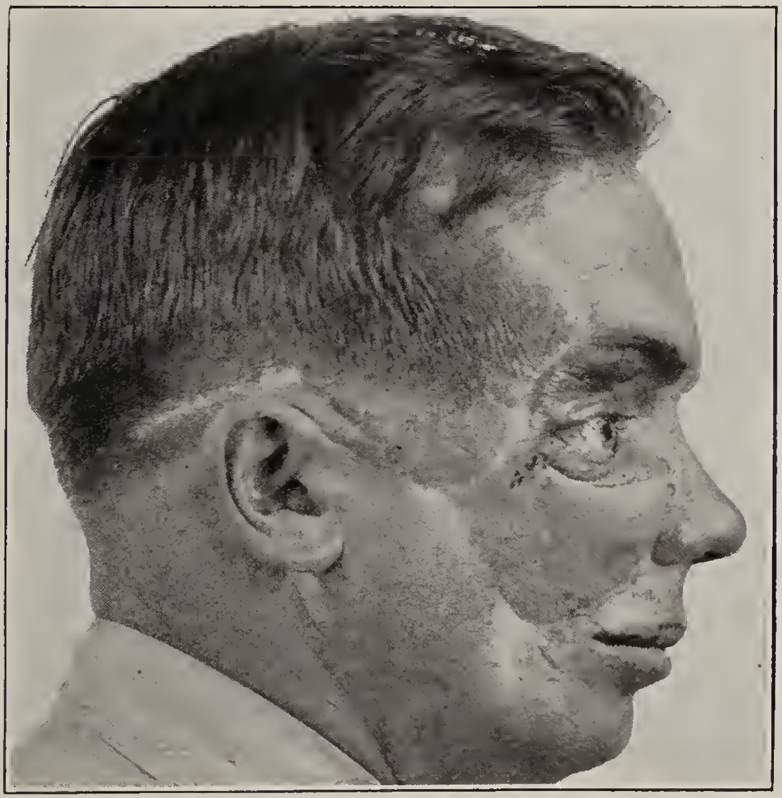

Fig. 6.—Condition after healing of wounds and return of pedicle to forehead. The patient is wearing an artificial eye.

By May 1, 1920, the wound had healed (Fig. 6). The patient has had no recurrence of his convulsions, has gained 25 pounds in weight, and is now in perfect health.

570 Park Avenue.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

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SATURDAY, FEBRUARY 12, 1921

THE TRANSFORMATION OF ACUTE INTO CHRONIC INFECTIONS

How and why do chronic infections occur? In the terms of prevailing theories of immunity it is easy to understand the occurrence of acute fatal infections which overcome the resistance of the host, the parasite then growing virtually unimpeded until the victim succumbs. Likewise, the infections which arouse the immunologic processes of the host until they destroy the invader are easily comprehended. But less satisfactorily explained is the fact that many infections pass from an acute to a chronic stage, the parasites continuing to thrive on a small scale, not only persisting locally but also spreading through the blood and lymph to establish new foci, sometimes without any evident reason whatever. Although in the explanation of chronic infection we invoke a theory of immunity of the parasite against the host, balancing itself against the resistance of the host to the parasite, it will probably be generally agreed that this theorization is recognized to prevail merely for lack of a better solution of the problem, which is one of the greatest importance. Some recent experimental investigations by Morgenroth which throw new light on the subject of chronic infections will therefore probably arouse new interest in this field of research.[1]

These experiments concern the phenomenon of superinfection, that is, the reinfection by a new inoculation of the same organism with which the individual is already infected. As clinical investigators long since learned in the case of syphilis, the infected subject behaves differently from the normal individual, as shown by the difficulty or impossibility of producing a new primary lesion in a syphilitic, even on direct intentional inoculation with syphilitic virus. Robert Koch put the problem on an experimental basis by his observation that a guinea-pig that has been infected for some time with tuberculosis does not develop the usual local tuberculous lesion when reinoculated with a suitable dose of tubercle bacilli. Instead of the development of a local nodule at the site of inoculation after an incubation period of several days, followed by infection of the adjacent lymph glands, as is characteristic of first infections in the guinea-pig, the reinoculation causes a prompt acute inflammatory reaction which heals completely, without either local or glandular tuberculous lesions following. This fundamental observation has been the starting point of many subsequent investigations on the principles of immunity in tuberculosis, and one important development has been the demonstration that if the guinea-pig recovers from a tuberculous infection it again becomes susceptible to reinoculation as in a normal animal; that is, the resistance to reinfection depends on the existence of active infection, and does not long survive the subsidence of the infection. This corresponds perfectly to the clinical observation that persons who have recovered from syphilis may again acquire a new infection with the typical primary lesion. Apparently the same principle applies in numerous other diseases that pursue a chronic course, such as malaria. Of course, the degree of immunity in these cases is not unlimited, and an adequate dose may lead to reinfection.

In animals or persons thus protected against a reinfection, what happens to the newly introduced organisms? Are they overwhelmed and destroyed by virtue of the existing immunity, which is unable, however, to overcome the parasites already living in the host, or do they enter the host and at once take on the same properties as the resident parasites, whereby they also produce chronic infections without a first acute stage? Heretofore the identity of the reinfecting organisms with those of the primary infection has made it impossible to follow the two infections and to learn what happens to each group of organisms, and it is in this respect that Morgenroth has produced new evidence. He finds that mice may be so infected with specially prepared strains of hemolytic streptococci that a condition of chronic sepsis results, the animals remaining alive but harboring the cocci for long periods of time before succumbing to their infection. If such infected mice are given a dose of streptococci of greater virulence, which suffices to kill normal mice in from eighteen to twenty-four hours, they survive with apparently little harm if proper dosages have been used. This capacity to resist an otherwise fatal reinfection begins to manifest itself within six hours of the first infection, and is fully developed in twenty-four hours, disappearing if the animals happen to recover from the first infection. The resistance is manifested not only against the same strain of streptococci that was used in the first infection, but also sometimes against other strains that possess marked differences from the first, which fact has made it possible to follow the career of both strains after the reinfection. It was found that the second strain is not entirely destroyed by the immunity of the host, but that both strains persist in small numbers throughout the subsequent course of the chronic infection; that is, the virulent organisms used in the reinfection have acquired at once the same character as the organisms of the chronic infection, their virulence having apparently been depressed. Morgenroth says: "The defensive forces that here intervene are different from those hitherto known, in that they do not lead to the death of the micro-organisms, but merely to a depression of their virulence. We therefore designate this new sort of immunity as 'depression immunity.'" It can have nothing to do with anaphylaxis, since it is present within less than twenty-four hours of the first injection, and disappears shortly after spontaneous remission of the preinfection. The lack of bactericidal phenomena distinguishes it from the usual forms of defense against acute primary infections, or against infection of immunized animals. Since this "depression immunity" is demonstrable so soon after the first infection has been set up, it seems probable that it is responsible for the production of the chronic infection itself, and that every acute infection which does not kill rapidly but develops a chronic course, such as subacute endocarditis or chronic anthrax and glanders, is a manifestation of this phenomenon. An explanation of this immunity reaction is scarcely ventured by Morgenroth, but it seems entirely possible to encompass it in the hypothesis of mutual immunization of host and parasite, if we assume that a small fraction of the reinjection cocci possess the same degree of resistance to the host which enabled the cocci first injected to secure a permanent foothold. Nevertheless, a line of study which has been stimulating and fruitful in tuberculosis research is now extended to the more rapidly acting organisms, which should result in much increase of our understanding of the ways in which chronic infections arise in man, and how they are controlled and overcome.

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[1] Morgenroth, J.; Biberstein, H., and Schnitzer, R.: Die Depressionsimmunität, Deutsch. med. Wchnschr. **46**: 337 (March 25) 1920.

BLACKWATER FEVER

Although what is known as blackwater fever has been described for a century or more and was mentioned by French medical officers on the West Coast of Africa as early as 1820, its causation is not yet definitely ascertained. To most readers the name will naturally suggest a disease of tropical or subtropical countries, but it has also been observed in many regions that would scarcely answer this description. Blackwater fever has as its most prominent symptom the elimination of hemoglobin in the urine; hence the designation hemoglobinuric fever. A widespread view attributes its occurrence to malaria. This has much to commend it. Several writers have no hesitation in asserting that there is no record of any carefully studied case of blackwater fever in a person who has not previously suffered from malaria, and generally much malaria. Stephens,[1] for example, who has investigated the subject extensively points out that if blackwater fever were a disease *sui generis* the parallelism with malaria would be difficult to explain. The hemoglobinuric symptoms are less pronounced or wanting in those who protect themselves from malaria by quinin medication or careful personal prophylaxis. Nevertheless, it is true that malaria has been found concurrent with or propinquitous to diseases like kala-azar and trypanosomiasis, which have independent etiology.

In a recent careful study of a hundred cases of blackwater fever in the Balkans, Dudgeon[2] of St. Thomas' Hospital, London, obtained a malarial history in every instance. The significance of this is accentuated by the further fact that in nearly half of these patients examined for malarial parasites, organisms were found, namely, *Plasmodium vivax* and *Plasmodium falciparum*. Seyfarth,[3] too, found them in the blood in nine out of ten cases. An invariable find is scarcely to be expected when one recalls that the demonstration of malarial parasites in the blood depends almost entirely on the period when the examination is made.

Besides malaria, quinin also has been held responsible for the hemoglobinuric fever, which has, in fact, been described as quinin poisoning. On consideration of the countless thousands who take this curative alkaloid, it seems surprising that the manifestation of harm from it should be confined to relatively few persons who may have chanced to contract malaria. Dudgeon has offered further derogatory evidence in that quinin administered by any method during an attack of blackwater fever failed to increase its severity or to influence the progress of the disease apart from its effects on the malaria. Even when administered to animals rendered anemic, quinin did not call forth a hemoglobinemia. The amount of quinin recovered from the urine during periods of hemoglobinuria was not unlike that present in cases of malaria. The theory of a toxic idiosyncrasy to quinin apart from malarial conditions thus finds little support. The search for spirochetes as a possible etiologic agent in blackwater fever also had entirely negative outcome. Nor could a relation between this disease and syphilis be demonstrated, although such a possibility has been suggested.[4]

In view of the rôle of pigments in the conspicuous symptoms of blackwater fever, it is noteworthy that true jaundice, due to the presence of bile pigment in the blood plasma, occurred in a large percentage of Dudgeon's cases that ended fatally. Although there was no evidence of an increased fragility of the red blood cells, hemoglobinemia, varying from a deep red coloration of the plasma to a faint tingeing, occurred in the acute stages of the disease. Injections of sterilized urine obtained during the hemoglobinuric period from patients exhibiting blackwater fever failed to produce any ill effects in animals, and thus negate the presence of any notably toxic excretory constituent. Furthermore, Dudgeon could not secure indications that blackwater fever is in any way related to anaphylaxis. The mystery of its origin still remains, while its association with malarial factors has become more emphatic than ever before.

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[1] Stephens, J. W. W.: Blackwater Fever, in Osler and McCrae: Modern Medicine **2**.

[2] Dudgeon, L. S.: Blackwater Fever, J. Hyg. **19**: 208 (Oct.) 1920.

[3] Seyfarth: Arch. f. Schiffs- u. Tropen-Hyg. **22**: 128, 1918.

[4] Napier: Is Syphilis a Factor in Blackwater Fever? Indian Med. Gaz. **48**: 389 (Oct.) 1913.

THE ALLEGED HARM FROM PROTEIN IN THE DIET IN CERTAIN DISORDERS

Every physician must realize that tradition plays a significant part in the formulation of rules for treatment in those cases in which specific therapeutic procedures are not clearly indicated on the basis of well established facts. Hence, various dicta have become popular even among the lay public. Thus, one reads the advertisements that "an apple a day keeps the doctor away," and hears the admonition to "feed a cold and starve a fever." Not long ago the harm which a generalization of the last sort can bring about by thwarting the saner indications of scientific study was referred to in The Journal.[1] The slender evidence on which some of the reiterated statements of medical literature hang often becomes apparent when the basis for the helpful truth which they are supposed to proclaim is sought. All too often the thread of supposition breaks from the strain of its inherent inaccuracy.

An illustration of this is furnished by the common "diet rules" applicable to the management of arteriosclerosis, and particularly the symptom of increased blood pressure. The medical consensus of today would doubtless be represented by the advice to "keep the diet low in protein." One writer with a large "following" of readers has no hesitation in proclaiming that the diet "must be low protein" in character, and that "very little animal food should be taken." More specific directions limit the nitrogenous intake to about 65 gm. of protein a day. The corollary of such a prescription and proscription obviously is that a diet rich in proteins has an unfavorable influence on blood pressure. Mosenthal,[2] however, has made a study of the effects of dietaries high and low, respectively, in protein on patients in the medical clinic of the Johns Hopkins Hospital. From his observations it would appear to be exceptional for a low protein diet to diminish the blood pressure or a high protein diet to raise it. Mosenthal has called attention again to Benedict's [3] observations that, by underfeeding, the blood pressure of healthy young men could be distinctly reduced. A subcaloric diet may therefore have some beneficial effect in the therapy of hypertension. But underfeeding is by no means synonymous with low protein diet. Furthermore, in Benedict's men secondary anemias developed—a fact not to be overlooked in a critical analysis of food factors. We are probably safe in following Mosenthal's experimentally founded conviction that in most instances a low protein diet continued for a period of a few weeks is without effect on the blood pressure of patients with hypertension.

Another of the dietary dicta springing from vague generalizations pertains to the effect of high protein diet in cases of nephritis. How often one hears the statement that a regimen rich in protein is harmful in chronic renal disease, and, if persisted in, leads to an increase in the albuminuria. The implication that the protein ingested is excreted as such involves the improbable assumption that it is absorbed unchanged, and the deduction that the protein in the nephritic urine is the foreign or ingested protein. The latter conclusion has repeatedly been denied on the basis of experimental studies. Wordley [4] has demonstrated that variations in the amount of protein in the diet have no effect on the amount of albuminous matter excreted in the urine; in fact, he states that such increases in the diet do not increase albuminuria. Of course, the urea content of the blood may respond to changes in the protein intake. That, however, is another matter. Unfounded dicta are objectionable; they may contain a germ of important truth, but they are equally liable to hand down the unwisdom of demonstrably erroneous statement.

Current Comment

"GROUP PRACTICE"—A MENACE OR A BLESSING

A most important innovation, commonly described as "Group Practice," has appeared in this country during the last two or three years. It was referred to incidentally by Dr. Billings in his discussion of "The Future of Private Medical Practice," in The Journal last week (February 5). This week we publish a plea for group medicine by Dr. Leonard, who is connected with a recently organized group (the Academy of Clinical Medicine) in Duluth. Groups under various names, such as clinics, academies, etc., are being organized over night, as it were; here, there and yonder, in towns of 10,000 or 15,000, as well as in the larger cities. The development of modern medicine, and especially of scientific laboratory diagnosis, may make necessary some such cooperative plan as these groups are intended to provide. Equipment, laboratory, roentgen ray and the like, which the average practitioner is not able to provide or to utilize satisfactorily, may thus be cooperatively provided. But what of the outcome of this new development? What of the physicians outside the group? Some evidently are seeing the advantages and are forming other groups—perhaps in some instances forced to do so in self-defense! Will not this mean group against group? May it not be one more step toward the complete elimination of the general practitioner—of the family adviser—of him who heretofore has reflected to the public the altruistic motives of the medical profession? Does it mean that the family physician is being replaced by a corporation? Will commercialism or professional altruism control the management of these corporations, or groups if they are not incorporated? In thinking over this matter it is important to look ahead and see what influence this new development may have on the public. How will the average layman view it? Will he not prefer state medicine? We are asking, not answering, the questions—presenting but not attempting to solve the problem; for if we mistake not, it will prove to be a serious one.

---

[1] Neglected Possibilities of Dietotherapy, editorial, J. A. M. A. **75**: 1572 (Dec. 4) 1920.

[2] Mosenthal, H. O.: The Influence of Protein Food on Increased Blood Pressure, Am. J. M. Sc. **160**: 808 (Dec.) 1920.

[3] Benedict, F. G., et al.: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1919.

[4] Wordley, E.: The Effect of High Protein Diet on Albuminuria and Blood Urea in Cases of Nephritis, Quart. J. Med. **14**: 88 (Oct.) 1920.

ORIENTAL UNIVERSITY—REVOKE ITS CHARTER

Our Paris correspondent this week reports that the Oriental University of Washington, D. C., is offering medical and dental degrees for sale in France. Only a few weeks ago similar reports were received from Switzerland. Repeatedly, publicity has been given showing the low type, if not the fraudulent character, of this institution. Its medical diplomas are not recognized by any state licensing board, so far as we know. Nevertheless, it is still being permitted openly to disgrace American education in the eyes of the world. The responsibility for this institution rests with Virginia, from which state it obtained its charter. It is high time that this charter should be revoked. Will Virginia continue to foster this burlesque on education, which is disgracing American educational institutions abroad?

THE MICRO-ORGANISMS OF GAS GANGRENE

The demonstration by Bull that it is possible to produce a serum antitoxic to the poison elaborated by *Bacillus welchii* justly gave hopes of advance in the treatment of cases of human gas gangrene, a disease conspicuous as a cause of death early in the European war. The Welch bacillus, however, is not the only organism that may be concerned in gas gangrene. Combinations of such bacteria, including varieties that are themselves not highly harmful, have proved to exhibit unexpectedly marked pathogenicity. The question has therefore arisen as to the specificity of the antitoxic serums now available. In a report last year to the British Medical Research Committee from the Wellcome Physiological Research Laboratories, Henry and Lacey[1] have substantiated the fact that the antitoxin promoted by Bull affords complete protection to laboratory animals, not only against infection by any strain of *B. welchii,* but also against a combination of this organism with *B. sporogenes.* It does not protect against *Vibrion septique* and *B. oedematiens,* for which correspondingly specific antitoxic serums have also been produced. By the use of mixtures of specific serums in an animal infected with more than one of the organisms producing gas gangrene, it is possible to destroy a number of the latter in correspondence with the serums used. Consequently, as the British investigators point out, it has become possible to use the immunized laboratory animal as a sort of filtering mechanism which will retain or hold up certain anaerobes by inhibiting their growth in the animal, and will at the same time allow the growth and subsequent passage into the blood stream of any other anaerobe against which no specific protection has been induced. In this way an extremely valuable diagnostic method for determining the pathogenic anaerobes present in a mixed culture is secured. When animals were inoculated with the pathogenic cultures from fifty cases of acute gas gangrene, Henry and Lacey found that a mixture of *B. welchii* and *V. septique* antitoxins protected in a large number of the trials. In a few there was failure, and from them the bacteriologists identified *B. oedematiens, B. fallax,* a combination of *B. welchii* with a strain of *B. histolyticus,* and two strains of unidentified anaerobes. The prominent micro-organisms associated with human gas gangrene are thus perhaps identified better than before, and the flora of its wounds is more clearly established.

BENEFICIAL ASPECTS OF MILITARY APPRENTICESHIP

Whatever one's attitude may be toward the question of universal or compulsory military service, the physical benefit that accrued to many persons unexpectedly placed in uniform during the recent war cannot be gainsaid. Aside from the innumerable, often unanticipated advantages that arose from calling attention to remediable bodily defects as the result of a careful medical examination of a large group of our population, the engagement in the service was helpful in other ways. The outdoor life with suitably regulated exercise, and above all the adequate system of feeding, led to gains in body weight and vigor that were surprising to all concerned. In thousands of instances as much as twenty pounds' increment in size was recorded under properly controlled supervision. The unfortunate ravages of as yet little understood epidemics of influenza and pneumonia tended to obscure the good that resulted to so many American young men from their changed mode of life. Their seeming vigor was repeatedly the subject of favorable comment. A peculiarly noteworthy illustration of what the regimen represented by military service may insure from the standpoint of personal hygiene has been reported by Rothacker[1] of Jena. A careful examination of a group of sedentary workers drafted into the reserve, and therefore no longer to be designated as youthful men, was made at the beginning of their camp training and at the end of ten weeks in 1916 when they were ready for field service. The improved appearance and physique, the replacement of the pallor of indoor work by the rosy complexion of the outdoor life, might be anticipated. The anemic type had been replaced by a more normal person. The tendency of the hematopoietic organs to respond to the altered conditions of living expressed itself in a gain in erythrocytes and in hemoglobin in the blood. The leukocytes count also showed improvement. In days of peace we may well take to heart the lesson of such enforced experiences.

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[1] Henry, H., and Lacey, Margaret: On the Anaerobes Responsible for Gas Gangrene in Man, J. Path. & Bacteriol. **23**: 281 (June) 1920.

[1] Rothacker, A.: Wirkung des Militärdienstes auf Stubenarbeiter, unter besonderer Berücksichtigung des Blutbefundes, Ztschr. f. klin. Med. **89**: 387, 1920.

They constitute an indisputable demonstration of what properly directed rigorous outdoor life can do to restore the anemic type of sedentary indoor toiler to a more normal condition of health, even when the stimulus of youth has passed.

Association News

THE DEDICATION OF THE BUILDING OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

A significant event for physicians of the District of Columbia was the dedication of its new building, by the Medical Society of the District, January 12. The large audience included visiting and local physicians, their families and friends, many of whom had contributed to the building fund. The program was impressive. After calling the society to order, its president, Dr. H. C. Macatee, introduced the Rev. Charles Wood, D.D., who pronounced an invocation. Dr. Charles W. Richardson, a member of the board of trustees of the society and also of the building committee, was next introduced, and after delivering a short address, he presided at the meeting. A dedicatory address was read by a former president, Dr. William Gerry Morgan. The presentation of the key of the building to the society by Dr. Richardson; its acceptance by the president; an address by Dr. E. Y. Davidson, chairman of the building committee, and the benediction pronounced by Dr. Wood concluded the exercises. The program was introduced, interspersed and closed with music. At the close of these formal exercises the officers of the society received, and the building was inspected by, those in attendance.

NEW HOME OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

In his address, which should be of special interest to other societies contemplating the construction of permanent homes, Dr. Richardson said that during the greater part of the 103 years of its history the society had practically no assets. During the last four years, however, a new policy had been developed and as a result the holdings of the society, largely invested in its home, are over $80,000. The society previously had made three attempts to secure a building of its own. This, the fourth endeavor, marked the progress of its successful labors.

The ground was broken on April 5, 1920, by Dr. Francis R. Hagner, who at the time was president of the society; the cornerstone was laid on May 6, and finally the completed building becomes the center for the society's activities. A committee of women, interested in the society's effort, cooperated with the building committee in providing and arranging the interior decorations.

Dr. William Gerry Morgan, in his remarks stated that the funds which made it possible to build had been raised during the two years just past. In addition to the moneys collected, there has been invested in the building $50,000 of borrowed money secured by a mortgage. He adds that the members of the society desire that this debt shall be paid in the near future. The value of such an ideal as securing and maintaining its headquarters in promoting the solidarity of the organization is shown by the increased interest in the organization which the members are taking since the building project has been undertaken. He then reviewed the service both of the Medical Society of the District of Columbia and also of the medical profession at large, which has been rendered to the public. His address was brought to its conclusion with a statement of the tasks yet to be carried to successful conclusion and an appeal to both physicians and the public for the appreciation of the work and the responsibilities for service of the medical profession.

As will be noted the building is Italian Romanesque and is in keeping with the architectural type of the federal buildings. It is constructed of Indiana limestone and is pronounced to be one of the most artistic structures in Washington. The entrance hall is large and commodious and on each side there is a large room, 18 by 25 feet. The foyer is flanked by well-equipped dressing and toilet rooms and leads into an auditorium arranged to seat about five hundred. On the second floor is a room for the society's library, and on either side of the landing of the stairway are serving quarters. There are also two commodious committee rooms.

The building is a credit to the Medical Society of the District of Columbia. Considering the number of physicians in the district it indicates what a comparatively small number may accomplish when the will to do exists. How many constituent associations or component societies with a membership of 560 have a permanent home?

THE BOSTON SESSION

Preliminary Program for Social Events

The Local Committee on Arrangements for the coming annual session of the Association to be held in Boston, June 6-10, announces the following tentative program of social events:

The American Golfing Association is arranging a tournament for the days preceding the Scientific Assembly. A series of clinics is being prepared to be given on Monday and Tuesday of the week of the annual session at the various hospitals in Boston. The Massachusetts Medical Society is planning a reception and a ball in honor of the President of the Association. Social events for the ladies that are under consideration are an afternoon tea at the Medical School and visits to points of local interest near Boston. Another social event, which is being planned, is an excursion to Plymouth on the Saturday following the section meetings. This will have an especial interest since the Pilgrim Tercentenary Celebration is to take place this summer.

As previously announced, the Local Committee on Arrange-nents will gladly cooperate in assisting those who may wish o arrange for reunions of physicians who, during the World War, served at the same post or with the same command.

ANNUAL MEETING OF BOARD OF TRUSTEES

Election of Editors of Special Journals and Members of the Council on Pharmacy and Chemistry

At the meeting of the Board of Trustees held at the head-quarters of the Association, Friday, February 5, the follow-ng Fellows were reelected for terms of six years to positions on the editorial boards of the special journals published by he Association as indicated:

Richard C. Cabot, Boston, *Archives of Internal Medicine;*
John Howland, Baltimore, *American Journal of Diseases of Children;*
Samuel T. Orton, Iowa City, Iowa, *Archives of Neurology and Psychiatry;*
Martin F. Engman, St. Louis, *Archives of Dermatology and Syphilology.*
E. S. Judd, Rochester, Minn., was elected to the editorial board of the *Archives of Surgery,* succeeding Dr. William Mayo, who resigned.

The Board of Trustees reelected the following members of he Council on Pharmacy and Chemistry: L. G. Rowntree, Rochester, Minn.; Torald Sollmann, Cleveland, and Lafayette B. Mendel, New Haven; and for a term ending in February, 924, to fill a vacancy occasioned by the resignation of Prof. Henry Kraemer, Dr. Charles W. Edmunds, Professor of Therapeutics and Materia Medica, University of Michigan, Ann Arbor.

Miscellany

PHYSICIANS AND THE INCOME TAX

As usually happens at this time of year, The Journal has eceived many letters from physicians asking for informa-ion regarding the income tax law and the proper manner of illing out income tax returns. Each year The Journal has ndeavored to advise its readers on these points (see Journal A. M. A., Vol. 74, No. 2, Jan. 10, 1920, page 126). The eneral provisions of the law are, of course, the same for hysicians as for others. Every citizen of the United States, o matter where he may reside, and every person residing in he United States, whether a citizen or not, or whether mar-ied or single, must file a return if his net income for 1920 mounts to $1,000. Internal revenue officials say that fre-uently blanks sent to supposedly taxable persons are returned rossed, "no taxable income." This is not acceptable evi-ence of exemption. If one's net income is below the exempt mount, the burden of proof of this fact is on the citizen and s carefully prepared sworn returns should be made as in he case of a taxable income. In addition to the $1,000 xemption for single persons and $2,000 for married, $200 may be deducted for each child under 18 or for any person ver 18 incapable of self-support because mentally or hysically defective who is receiving his chief support from he head of the house. These amounts may be deducted from he net income. Those having a net income of under $5,000 hould fill out Form 1040 a. Those whose income is $5,000 r over should fill out Form 1040.

It is when the doctor begins to ask, "What is my net ncome for 1920" that trouble begins. Physicians are likely o regard gross receipts as constituting their professional ncome. Doctors exchanging experiences will say, "I had a ood year last year. I took in over $12,000," or "I did better han that. I booked nearly $15,000." But gross receipts are not income for a doctor any more than for a department store. Another difficulty lies in the fact that few physicians separate their professional expenses from their personal expenses. As a result, most physicians have probably paid taxes on larger amounts than the law requires through lack of understanding of the law or through failure to keep sufficiently accurate accounts to enable them to determine exactly what were their incomes and what were their expenses.

Leaving out of account any profits from the sale or rental of houses and lands, income from stocks, bonds, etc., and considering only the income derived from professional work, three things must be kept in mind: (1) a doctor's gross professional income for the year is the sum of all the money he has received during that year for professional work, regardless of when the services were rendered; (2) all expenses necessary to carry on one's practice (investment excepted) are deductible; (3) one's net professional income is the difference between one's gross receipts for professional services and one's expenses connected with professional work. This is the amount, less personal deductions, on which income must be paid.

FINDING THE NET INCOME

It is necessary, then, for a physician to ask himself two questions: (1) What was the total amount I received last year for professional work, and (2) what expense was connected with that work?

1. Gross income is the sum of all amounts actually received; not business done, but cash actually received. Old accounts collected for previous services, no matter how far back, or money collected on notes taken for services rendered in previous years but falling due during the past year would also be included. If the doctor keeps his books properly, his cash account, showing all money received, whether spent, banked or invested, should show his gross income for the year.

2. Professional expenses are the necessary expenses of carrying on one's practice or in purchasing articles which will be consumed in one's professional work. This would include office rent and maintenance, such as heating, lighting, cleaning, office telephone, salaries of stenographers or attendants, and the cost of any drugs and dressings used in treating patients. If a physician maintains an office apart from his house, he cannot deduct any part of his house rent or expenses as a business expense, even if he occasionally sees patients at his house. But if the only office which he maintains is in his house, then he may deduct a proportionate amount of the house rent and the cost of maintenance as a professional expense. If he owns his own home and uses it for professional purposes, however, he cannot charge himself office rent. Office furniture and permanent equipment are investments but are subject to depreciation.

WHAT MAY BE DEDUCTED

Whatever form of transportation a physician uses, the cost of maintaining such transportation is a deductible expense. The original cost, however, is an investment and not an expense. So that if a doctor buys an automobile, he cannot charge off the cost of the car as an expense; he can charge off the entire cost of operating the car, so far as he uses it for business purposes. This includes gasoline, oil, tires, repairs, garage expense, chauffeur's wages, insurance, etc. In addition, he can charge off depreciation on the car itself amounting to the original cost of the car to him divided by the number of years of life of the car—not the number of years he can use it, but the number of years it can be used for any purpose. If the automobile is used for both professional and personal purposes, then both operating expenses and depreciation must be prorated.

The cost of all dressings, drugs and appliances for immediate consumption in the treatment of patients may be deducted. But instruments, office furniture and articles for permanent use are not expenses but investments and may not be deducted. Medical journals are an expense. Money paid out as subscriptions for these may be deducted. But books are an investment and so are not subject to deduction. But they do wear out or become obsolete. Some books, such as textbooks on anatomy, etc., are good for a life time, others are worthless in a few years. A good general average is perhaps twenty years. So that one twentieth of the cost of books, not only of the ones bought during the year but also of those in the library, may be reasonably deducted as depreciation in one's library. Property bought before March 1, 1913, must be estimated at the value at that time and not at its original value. Dues in medical societies of a strictly professional nature are a legitimate expense, but dues for social organizations not professional in character, may not be deducted. Expenses incurred in attending medical society meetings are legitimate expenses. Heretofore, under the rulings of the Commissioner of Internal Revenue, only railroad fare and Pullman charges were allowed. Treasury Decision 3101, approved Dec. 16, 1920, provides that on business trips, expenses for meals and lodgings in excess of the amount one would have to pay at home for living expenses during the same period, that is, the difference between what one has to pay for meals and room away from home, and what the same accommodations would cost at home, may be deducted as legitimate expenses. This rule would apply only to lengthy absences, as on trips occupying only a few days the amount would be too small to be worth considering.

If a physician uses horses instead of an automobile, the cost of maintenance may be deducted, provided the horses are used entirely for professional purposes; otherwise, the proportionate amount. Maintenance would include feed, care, rent of stable, wages of driver or hostler, repairs on carriages, sleighs, etc. Depreciation to the proper amount can also be charged.

Physicians maintaining laboratories can deduct salaries paid to laboratory assistants, cost of chemicals and breakable apparatus, etc. Permanent apparatus is an investment and cannot be charged as an expense, but is subject to depreciation. Roentgen tubes and plates which are constantly breaking and being replaced come under the same head as drugs and bandages. As they say in the Army, "They are expendable property." In the case of oculists furnishing glasses for patients, there should be two distinct charges recorded on the doctor's books, one for professional services in examining the eyes and one for the glasses as merchandise. When this is done the cost of the glasses to the doctor may be deducted. Contributions and dues to churches and other philanthropic, benevolent, religious and humane organizations, up to 15 per cent. of the total income, may be deducted, but dues to clubs and social organizations are not business expenses and cannot be deducted.

It will be seen from the foregoing that it pays physicians to keep accurate accounts, not only of all receipts, but also of all expenditures. The more carefully this is done, the easier it will be for the doctor to separate business and personal expenses and to determine just how much it is costing him to carry on his practice and what is his actual professional income.

The Journal will be glad to answer any questions relative to the subject.

Passage of Oxygen Through the Lung.—The controversy which has raged for so long as to the question of whether the alveolar membrane of the lung acts as a passive structure in the passage of oxygen through it, or whether it has a more vital property, seems to be settled now. Barcroft's experiment, in which he lived for six days in a glass chamber, gradually exhausting the store of oxygen during this time, is now familiar history. In this experiment it was shown that when the tension of oxygen was decreased in the alveolar air to an amount corresponding to some 18,000 feet there was no evidence that the blood was charged with oxygen at any higher pressure than the alveolar air. The subject in question had the blood taken from an artery. It was quite blue. Though Haldane still would be in favor of the possibility of a secretory process, it seems fairly clear that the amount of oxygen passing into the blood is conditioned by known laws of physics and chemistry and that no special extra factor is necessary to explain the mechanism. The matter, of course, is of consequence in connection with the question of maintenance of high altitudes in flying.—*Med Science* **3**:337 (January) 1921.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Annual License Fees for Physicians.—The city council of Anniston proposes to adopt a sliding license scale of physicians whereby an annual fee would be fixed on the basis of the earnings of the preceding year. Lawyers and dentists would likewise be included under the proposed measure.

Typhoid in Farley District.—Ten cases of typhoid fever among schoolchildren of Farley district have been reported to the Madison County Health Department. The infection has been attributed to pollution of the water which is distributed in barrels to schools having no natural source of water supply.

Quarantine for Venereal Diseases Legal.—The court of appeals has handed down a decision upholding the right of the municipal health authorities of Birmingham to confine and examine women suspected of being infected with venereal diseases. The decision reversed the action of the lower court which had ordered that several infected women be discharged from the custody of the health department at the detention hospital.

ARKANSAS

Malaria Campaign.—In cooperation with the office of the state health department, representatives of the Rockefeller Foundation are making arrangements for a complete malarial survey of several towns within the state, for the purpose of determining the best available measures for stamping out malaria.

Helena Community Survey.—In the course of the health crusade in Phillips County a community survey will be made by pupils of the high school of Helena. The two largest classes will be assigned to the actual field work in connection with their courses in practical civics. The city will be districted and groups of students will be assigned to make the survey. The investigations will include the study of housing, sewage disposal, water supply, general health and sanitation, organized charity, and juvenile and adult delinquency.

CALIFORNIA

Physician Arrested.—Dr. Herbert E. Long, San Francisco, is reported to have been given a suspended sentence of ninety days after having been found guilty on charges of drinking in a public place, assult and battery, and disturbing the peace.

Indicted by Federal Grand Jury.—It is reported that Dr. Waldo Richardson, former surgeon at the Marine Hospital, San Francisco, and his wife, Mrs. O. B. Richardson, have been indicted by the federal grand jury on the charge of sending literature and instruments relative to birth control to women students at the University of California. It is said that the government has evidence that the Richardsons planned to send similar circulars and letters to students at Leland Stanford University.

Semicentennial Celebration.—The Los Angeles County Medical Association celebrated the fiftieth anniversary of its foundation, January 31, by a banquet in the grand ballroom of the Ambassador Hotel, at which Drs. Walter Lindley, Joseph Kurtz and J. P. Widney, charter members of the society, were the guests of honor. Dr. William T. McArthur acted as toastmaster, and Drs. Walter V. Brem, Harlan Shoemaker and Joseph Kurtz delivered addresses detailing the history and progress of the society.

CONNECTICUT

New Officers.—At the annual meeting of the New Haven City Medical Society, January 19, the following were elected officers for the ensuing year: president, Dr. Raynham Townsend; vice president, Dr. John E. Lane; recording secretary, Dr. Arthur R. Weed; financial secretary, Dr. Samuel J. Goldberg, and treasurer, Dr. Frank H. Wheeler.

Public Health Council.—Plans are under way for the organization of a public health council in Waterbury, under the leadership of the city health officer and representatives of organized charities and the chamber of commerce. The council will have executive representatives from all health organizations now operating within the city, and it is designed to promote greater cooperation in health work, to prevent overlapping of practical details, and to provide a clearing house for health information.

ILLINOIS

New State Directors.—Dr. Isaac D. Rawlings, for twenty-two years principal assistant chief of medical inspection of the Chicago Health Department, has been appointed State Director of Public Health, to succeed Dr. C. St. Clair Drake. ——Mr. W. H. H. Miller, Champaign, has been appointed by Governor Small as Director of the Department of Registration and Education, in place of Mr. Francis W. Shepardson.

Illegal Practitioner Arrested.—The Department of Registration and Education recently arrested two individuals for practicing medicine in East St. Louis without licenses. One of these, Felix Hightower, said he was formerly employed as a bricklayer and hodcarrier but that "there's more money being a medicine pedler than in carrying a hod." He was found guilty and committed to jail for thirty days. The other, John A. Porter, St. Louis, was fined $25 and costs. The department also arrested Mrs. Julia Harris, East Carondelet, who pleaded guilty to the charge of practicing midwifery without a license and was fined $25 and costs.

Chicago

New Hospital Opened.—The Misericordia Hospital, Forty-Seventh Street and Western Avenue, which will serve as a training school for Loyola University, was dedicated, February 2. The hospital was erected at a cost of $180,000 and will have 100 free beds supported by funds of the Associated Catholic Charities. Dr. Walter G. McGuire will be chief of staff.

INDIANA

Tuberculosis Association Elects.—At the annual meeting of the Indiana Tuberculosis Association, held at Indianapolis, January 27-28, under the presidency of Dr. Gardner C. Johnson, Evansville, the following officers were elected for the ensuing year: president, Dr. Eric Crull, Fort Wayne; vice presidents, Dr. Alfred Henry and Dean Stanley B. Coulter, and secretary, Mrs. T. A. Olney, South Bend.

James Whitcomb Riley Hospital.—Plans for a children's state hospital in memory of James Whitcomb Riley took definite shape at a meeting at the Claypool Hotel, Indianapolis, February 2. It is proposed to ask the legislature for an appropriation of $250,000 for the construction of a children's hospital building, with a maintenance and equipment fund of $150,000 a year for two years, after which the maintenance fund would be reduced to $50.000 a year. These amounts would probably be augmented by private bequests which would assure the maintenance and operation of the institution. The hospital would probably be situated near the Robert W. Long Hospital in Indianapolis.

KENTUCKY

Ward for Colored Children.—The Eleanor Tarrant Little Ward of the Red Cross Colored Hospital on Shelby Street, which was designed to care for colored children in Louisville, was recently opened for the reception of patients.

Health Council for Kenton County.—A committee including Dr. Arthur T. McCormack, Louisville, secretary of the state board of health, and Dr. John Risk Meek, chairman of the Kenton County Health Council, recently appeared before the city commissioner of Covington and urged that municipal authorities join with the county and state authorities in the formation of a health council for Kenton County. It was recommended that a joint board be formed and that a full-time city and county health officer be appointed with authority over all health matters in the county.

MASSACHUSETTS

Personal.—Dr. John L. Morse, following twenty-five years' service, has resigned his position as professor of pediatrics in Harvard University Medical School.——Dr. William L. Connery, Springfield, has been appointed dispensary physician of Westfield.

Public Health Week.—During public health week, observed by the city of Boston during the week of February 6-12, the importance of health was emphasized by lectures, conferences and exhibits held in the Mechanics Building under the auspices of the state and city health departments, Boston City Federation, the Red Cross and a number of other organizations. The week was initiated by the observance of public health Sunday on which day a health message was delivered from the pulpits of virtually all denominations. Special attention was devoted to the health of children, including infants, children of pre-school age, schoolchildren and the adolescent.

MINNESOTA

Health Poster Display.—The Hennepin County Tuberculosis Association has assembled a collection of colored posters on health topics for display in the libraries and other public places of Minneapolis. It is planned to hold the health exhibition at each branch library throughout the city for one week.

Personal.—Dr. William J. Mayo, Rochester, has tendered his resignation as vice president of the board of regents of the University of Minnesota. Dr. Mayo will retain his membership on the board.——Dr. Solon Marx White, Minneapolis, professor of medicine at the University of Minnesota, has been appointed chief of the department of medicine to succeed Dr. Leonard G. Rowntree, now associated with the Mayo Clinic.

MONTANA

Industrial Farm for Drug Addicts.—The establishment of an industrial farm for drug habitués, and stringent legislation to check the illegal sale of drugs are recommended by the legislative committee of the Montana State Medical Association as measures necessary to curb the use of habit-forming drugs.

Osteopaths Seek Recognition as Physicians.—According to reports, the osteopaths are seeking amendments to the law regulating the practice of osteopathy in Montana, which would define them as "osteopathic physicians" and permit them to perform minor operations and to administer local anesthetics.

NEW YORK

Bills to Aid Mental Defectives.—Senator Nathan Straus, Jr., has introduced bills in the legislature providing that the examination of a mentally defective child may be made either by two qualified physicians or by a competent physician and a psychologist, and that a magistrate may commit a child either before or after trial to a hospital or "other suitable place" for a period not to exceed ten days for observation and examination as to its mentality. The bills have the endorsement of the Department of Public Welfare of New York City.

Bill Protecting Animals.—The following bill has just been introduced in the New York senate:

Section 1. Section one hundred and eighty-five of the penal law is hereby amended to read as follows:

§ 185. Overdriving, torturing and injuring animals; failure to provide proper sustenance. A person who overdrives, overloads, tortures or cruelly beats or unjustifiably injuries, maims, mutilates or kills any animal, whether wild or tame, and whether belonging to himself or to another, or deprives any animal of necessary sustenance, food or drink, or neglects or refuses to furnish it such sustenance or drink, or causes, procures or permits any animals to be overdriven, overloaded, tortured, cruelly beaten, or unjustifiably injured, maimed, mutilated or killed, or to be deprived of necessary food, or drink, or who wilfully sets on foot, instigates, engages in, or in any way furthers any act of cruelty to any animal, or any act tending to produce such cruelty is guilty of a misdemeanor. Nothing herein contained shall be construed to prohibit or interfere with any properly conducted scientific experiments or investigations which experiments shall be performed only under the authority of the faculty of some regularly incorporated medical college or university of this state, *but such experiments or investigations shall not be made upon a living dog.*

§ 2. This act shall take effect immediately.

New York City

City Hospital for Bronx.—At a hearing held in City Hall, January 21, the Board of Estimate and Apportionment recommended the application of the Bronx County Medical Society to erect a municipal hospital in the Borough of the Bronx. The board referred the selection of the site and the manner of financing this new hospital to the committee of finance and budget.

Typhus Suspects on Italian Liner.—Four typhus suspects were discovered on the steamship *President Wilson* which arrived from Italian ports, February 1. The patients were sent to the Long Island College Hospital but later were returned to the vessel. One of the patients was said to have a positive case of typhus, another a possible case and the other two were classed as suspects. None of the 1,400 passengers on the *President Wilson* will be allowed to land until the danger is past.

Health Supervision Aids Industry.—The National Industrial Conference Board has just completed a study of the results of physical examinations in thirty-four large industrial plants. In some of these plants physical examination of employees was begun in 1910, while in twenty-three such examinations were not instituted until 1914 or later. It is claimed that the physical examinations have resulted in increased efficiency, fewer accidents, a reduction of absence from work, lower labor turnover, elimination of tuberculosis and other contagious diseases, and a better adaptation of workers to their work.

NORTH CAROLINA

Clinic Taken Over by City.—The city of Charlotte has taken over the venereal disease clinic, formerly conducted as a private clinic, and has placed it under the supervision of the city health department. The health department plans to continue it as a general clinic in charge of a trained clinician, devoting his full time to the work.

New Board of Medical Examiners.—The personnel of the state board of medical examiners, recently appointed by the North Carolina State Medical Association, is as follows: Dr. Lester A. Crowell, Lincolnton, president; Dr. Lucius N. Glen, Gastonia; Dr. William M. Jones, Greensboro; Dr. William P. Holt, Duke; Dr. Clarence A. Shore, Raleigh; Dr. John G. Murphy, Wilmington, and Dr. Kemp P. B. Bonner, Morehead City, secretary.

NORTH DAKOTA

County Health Officer.—Dr. Homer A. Davis, Dickinson, has been appointed health officer of Stark County.

OHIO

Quarantine for Epidemic Encephalitis.—Lethargic encephalitis has been placed on the list of quarantine diseases in Cleveland by order of Health Director Rockwood.

Society Member Honored.—Dr. Read L. Bell, Springfield, was the guest of honor at the annual banquet of the Clark County Medical Society, held at the Hotel Shawnee, January 19. Dr. Bell has been a member of the society since 1878.

Physician's License Revoked.—It is reported that the state medical board, January 15, revoked the license of Dr. Lee Browning Warren, Lorain, on the charge that he had opened an office in Youngstown and had permitted a clerk to treat patients in his name. Dr. Warren has filed a petition in the common pleas court of Elyria to restrain the board from revoking his license.

OREGON

New Teaching Hospitals in Oregon.—A new county hospital is in course of construction on the campus of the University of Oregon Medical School. Efforts are also being made to secure a new general hospital with departments for crippled children and for psychiatry. When completed these will serve as important adjuncts to the teaching facilities of the medical school.

PENNSYLVANIA

Society Honors Members.—The Beaver County Medical Society held a banquet at the Welcome Club, Rochester, January 20, in honor of Dr. G. Y. Boal, Cooperstown. Dr. Boal is the oldest member of the society, and previous to his retirement a few years ago, had been engaged in active practice for more than fifty years.

Typhoid Carrier Discovered.—An investigation by the state department of health, following a recent development of twelve cases of typhoid fever in one community in central Pennsylvania, resulted in the discovery of a woman who was a chronic carrier of typhoid fever. The twelve cases developed among those who had attended a church dinner and had partaken of chicken salad prepared by the woman. The investigation later disclosed that she was responsible for at least thirty cases during recent years. The department, which has withheld the name of the community, will keep the woman under surveillance.

Physicians to Consult with Health Department.—In response to a resolution passed by the Pennsylvania State Medical Society at its last annual session, the state department of health has called the physicians of the state in consultation for the purpose of discussing methods of handling public health problems. Communications on scientific subjects will be prepared once a month by the department and forwarded to every medical society in Pennsylvania that these papers may be read and discussed at its meetings and that criticisms or suggestions may be returned to the commissioner of health. By this innovation the department hopes to secure the effective cooperation of an informed medical profession.

Chiropractors Seek Special Licensing Board.—Representative James A. Dunn of Philadelphia has introduced into the lower house of the state legislature a bill for the creation of a licensing board for chiropractic practitioners, to be called the Pennsylvania State Board of Chiropractic Examiners. It is reported that, far from sanctioning any new special boards, the department of public instruction is preparing a bill whose object is to wipe out all the special medical boards that have been created and to combine them under one central authority which shall have the power to examine and license all practitioners of the healing art. This bill will have the indorsement of the state administration, the state health department and the state medical society.

SOUTH CAROLINA

Mass Meeting in Interest of Health.—For the purpose of stimulating interest in public health, a mass meeting, sponsored by the civic organizations of the city, was held at Artillery Hall, Charleston, January 21. Dr. C. V. Aiken, U. S. P. H. S., and Dr. James A. Hayne, state health officer, were the principal speakers.

Hospital News.—The board of directors of Columbia Hospital, Columbia, has offered to transfer the institution to the city council of Columbia and representatives of Richland county. The offer, which was made at a conference between Dr. William Weston, president of the hospital association and members of the city council, was the outcome of a discussion regarding the institution's financial needs. The sum of $20,000 is necessary for the completion of the nurses' home, now in process of construction, and $30,000 is required to settle outstanding accounts.——The Spartanburg County Hospital, erected at an approximate cost of $350,000, is nearing completion.——The Steedley Hospital, Spartanburg, has been sold to the Young Women's Christian Association, which will use the building as its home and headquarters.

SOUTH DAKOTA

New Health Officer.—Dr. J. H. Swafford has been appointed health officer of the city of Aberdeen and Brown County.

Preliminary Examination for All Practitioners.—A bill, requiring that all persons who desire to practice medicine, surgery, osteopathy or "any form of the healing art" must pass a preliminary state examination, has been introduced by the health committee of the senate.

TEXAS

Negro Tuberculosis Sanatorium.—The state senate has passed the Bledsoe bill appropriating $300,000 for the establishment of a sanatorium for negro tuberculosis patients.

County Health Program Curtailed.—The commissioners of Jefferson County have voted to suspend the program of full-time county health work now under direction of Dr. Henry S. Capps, and the operations of the venereal disease clinic, under direction of Dr. Clarence A. Penman. The action was taken because of the claimed necessity of economizing in county expenditures.

UTAH

New Hospital for Ogden.—A new hospital, to be known as St. Mary's, will be built at Harrison Avenue and Twenty-Seventh Street, Ogden, at an approximate cost of $350,000. The institution will have accommodations for about 140 patients.

Public Health Lectures.—Dr. Caroline Hedger, medical director of the Elizabeth McCormick Memorial Fund of Chicago, delivered a course of lectures on the subject of children's health at the Social Hall Theater, Salt Lake City, January 24-31. The lectures, which were open to the public, were largely attended by public health workers and members of allied organizations and by parents of schoolchildren. The arrangements were made by the child welfare bureau of the Civic Center with the cooperation of other interested organizations.

VIRGINIA

County Society Reorganized.—The Tri-County Medical Society, which was chartered in 1915 but ceased its activities during the World War, was reorganized at a recent meeting held at Fredericksburg. Dr. William A. Harris, Spotsylvania, was elected president, and Dr. Charles Mason Smith, Fredericksburg, secretary.

Levy Memorial Hospital.—The Phillip Levy Memorial annex to the Norfolk Protestant Hospital was formally dedicated, January 12. The new institution, which will serve as a maternity pavilion, was erected at an approximate cost of $96,000, the gift of Mrs. Phillip Levy, widow of the late Phillip Levy. The annex will have accommodations for twenty-eight maternity patients and will provide at least five free beds.

CANADA

Public Health News.—Nineteen medical inspectors and seven constables have been appointed by the Superior Board of Health of the province of Quebec in an effort to prevent the spread of smallpox from Hull and Ottawa.

Sudden Deaths from Arsenic Preparations.—An inquest into the cause of the fatal accidents resulting from the injection of an arsenic product, as reported in The Journal, January 29, p. 321, discloses that the fatalities resulted from the administration of a concentrated unneutralized solution of arsphenamin, under the impression that neo-arsphenamin was being employed.

Canadian Research Council.—At the next meeting of the Canadian Research Council, to be held in Ottawa, February 19, an interim appointment of chairman will be made to succeed Dr. A. B. Macallum, who resigned to accept the chair of biochemistry in McGill University, Montreal. The appointment of a permanent chairman will depend on the action of the federal government.

GENERAL

Dr. Frank Billings Named Congress President.—At a meeting of the executive committee of the Congress of American Physicians and Surgeons, January 29, Dr. Frank Billings, Chicago, was elected president of the next congress, which is scheduled to meet in Washington, D. C., May 2-3, 1922.

Bequests and Donations.—The following bequests and donations have recently been announced:

Montefiore Home, $4,000; Mt. Sinai Hospital, $1,000; Home for the Aged and Infirm Hebrews, Hebrew Benevolent and Orphan Asylum, and Sanitarium for Hebrew Children, New York, each $500, by the will of Mrs. Matilda Rich.

Anderson (S. C.) County Hospital, a trust fund of $25,000, by the will of Col. Joseph Newton Brown.

Visiting Nurse Association, Chicago, $25,000, by the will of Mrs. Cyrus Hall McCormick.

English Edition of Japanese Journal.—*Nippon no Ikai* has announced the publication of a new enlarged English edition, to be known as the *Japan Medical World*. The magazine will be published monthly, the first number appearing in January, and will contain original articles, current Japanese medical literature and medical news. The English columns which have been included in the Japanese edition during the last three years will now be discontinued.

International Ophthalmologic Congress.—Under the auspices of the American Ophthalmological Society, the Ophthalmic Section of the American Medical Association, and the Academy of Ophthalmology and Oto-Laryngology, an International Congress of Ophthalmology will be held in Washington, D. C., April 18-22, 1922. The officers of the temporary organization are as follows: president, Dr. George E. de Schweinitz, Philadelphia; vice president, Dr. Edward Jackson, Denver; secretary and treasurer, Dr. Luther C. Peter, Philadelphia; chairman of committee on organization, Dr. Edward C. Ellett, Memphis, Tenn.; on scientific progress, Dr. Edward Jackson, Denver; on finances, Dr. Lee M. Francis, Buffalo; on arrangements, Dr. William H. Wilmer, Washington, D. C., and on membership and credentials, Dr. Walter R. Parker, Detroit.

Death of Dr. William T. Sedgwick.—The death of Prof. William T. Sedgwick of the Massachusetts Institute of Technology, Boston, January 25, terminated a career of almost forty-five years spent in the interest of public health. Professor Sedgwick was born at West Hartford, Conn., in 1855, was graduated by the Sheffield Scientific School in 1877, received the Ph.D. degree from Johns Hopkins University in 1881, and the honorary degree of Doctor of Science from Yale in 1909. He was instructor in physiologic chemistry in the Sheffield Scientific School, 1878-1879, fellow and associate in biology in Johns Hopkins in 1879, and since 1883 assistant professor, then associate professor and finally professor of biology and public health in the Massachusetts Institute of Technology. He participated actively in many public health activities, serving as biologist of the Massachusetts State Board of Health from 1888 to 1896, curator of Lowell Institute, Boston, 1897, chairman of the Pauper Institutions Trustees, 1897-1899, and Institutions Registrar of the City of Boston, 1899-1900. He had been a member of the Advisory Board of the Hygienic Laboratory of the U. S. Public Health Service since 1902. He was affiliated with practically all important American organizations for public health and civic reform, serving as vice president of the Boston Society of Municipal Officers, 1898-1900, and as president of the Boston Civil Service Reform Association in 1900, of the Massachusetts Civil Service Reform Association in 1901, of the Society of American Bacteriologists in 1900, of the Society of Naturalists in 1901, and of the American Public Health Association in 1914. He was a fellow of the American Academy of Arts and Sciences and vice president of the American Association for the Advancement of Science. He had also been for many years a member of the State Department of Health of Massachusetts. He was the author of a text on "General Biology," on "The Principles of Sanitary Science," and on "The Human Mechanism"; also joint author of "A Short History of Science" and of "The Life and Letters of William Barton Rogers." In April, 1920, he left for England to serve as a member of the faculties of the British Universities of Cambridge and Leeds at which time he was elected a fellow of the Royal Institute of Public Health. Through the death of Professor Sedgwick the United States loses a leader in medical science, a biologist whose prime interests lay in the prevention rather than in the cure of disease. In his last lecture delivered at the centennial celebration of the Medical College of the University of Cincinnati, he closed by saying: "Modern medicine must provide a training for the practice of the public health no less rigorous than that for the practice of medicine; for the public health is the health of the people, and, as the Latin phrase puts it: *Salus populi suprema lex*."

LATIN AMERICA

Personal.—Dr. Francisco Peredo M. has been appointed Mexican consul in Chicago.——Dr. F. Peña Trejo, formerly of the Hookworm Service of El Salvador, has been appointed consul of that country to St. Louis.——Dr. Angel de la Garza Brito, bacteriologist of the Biological Laboratories of Mexico, has been in this country visiting Chicago, St. Louis, Philadelphia and New York.

Anniversary of a Cuban Dispensary.—The November number of *Vida Nueva* is practically devoted to the twentieth anniversary of the foundation of the "Dispensario Tamayo." This institution was created July 10, 1900, when Major-Gen. Leonard Wood was governor of Cuba and Dr. Diego Tamayo secretary of state, to furnish medical and surgical relief to indigent patients. Dr. Israel Castellanos says this dispensary is the "postgraduate school" of young Cuban physicians. Since its foundation the annual number of patients has been from 6,000 to 9,000.

Latin American Training School.—The Training School of Santo Tomas Hospital is the only one of its kind in Latin America. The hospital to which it is attached is the oldest one south of the United States, founded in 1696, shortly after old Panama had been sacked and burned by the pirate Morgan, and the new city had been established in its present location. Some of the buildings of this original hospital still stand and are at present being used as chapel and administration buildings. Few records can be found of the early operations of the hospital until 1865, when it was renovated and reestablished by the Bishop of Panama.

FOREIGN

Jubilee of the Royal Belgian Academy.—The Académie Royale de Belgique is planning to celebrate next year the hundred and fiftieth anniversary of its foundation by Maria Theresa.

Prizes Awarded by the Spanish Academy of Medicine.—Notwithstanding the number of prizes offered by the Academia de Medicina at Madrid, only four seem to have been awarded, according to the notice in the *Siglo Médico*. Two were given for works on neurasthenia, and the two Rubio prizes were conferred on Dr. Gonzalo Rodríguez Lafora for a work on mentally abnormal children, and on Dr. E. Suñer y Ordóñez for his work on "Diseases of Children."

Alleged Cancer Cures.—The *Nederlandsch Tijdschrift* remarks that the "daily papers have again assumed the responsibility of misleading persons with cancer by giving them the vain hope of recovery from a new method of treatment, and thus deterring them from applying for the only effectual means of treatment yet known. They report that Rollin of Hamburg has discovered a new remedy which has been endorsed by prominent physicians. The *Deutsche medizinische Wochenschrift* has published a protest against this newspaper sensation, saying that Rollin's report of his work was sent to the *Wochenschrift* for publication but on investigation it was declined."

Bubonic Plague at Paris.—The latest issue of the *Bulletins de la Société des hôpitaux* contains six reports on cases of bubonic plague treated at several hospitals. The rapidly fatal septicemia was not recognized at first as necropsy was not allowed, but a case with a slower course finally allowed the formation of the buboes, and confirmed that there has been a mild epidemic of bubonic plague in the heart of Paris between May and October, but it seems now to be virtually terminated. The communication presenting these facts was read *en comité secret*, Oct. 15, 1920, and the *Bulletins* containing these reports and the report of the annual meeting of the society, December 31, reached this office, Feb. 8, 1921.

Deaths in Other Countries

Dr. **S. Giovannini**, one of the leading dermatologists of Italy, member of the medical faculty of the University of Turin, aged 69.——Dr. **M. Oro**, instructor in dermatology at the University of Naples, aged 57.——Dr. **W. Landgraf**, a prominent laryngologist of Berlin, aged 71.

Government Services

Additional Appropriations for Care of War Victims

The Senate on February 8 adopted the amendment recommended by its Committee on Appropriations, authorizing $6,100,000 for the enlargement and improvement of hospitals now being operated by the U. S. Public Health Service at Boston, New York, Perryville, Md., Norfolk, Va., Whipple Barracks, Ariz., Chicago, Lake City, Fla., Atlanta and Louisville. It also appropriated $12,500,000 for five new hospitals for the treatment of tuberculous and neuropsychiatric patients. One of these new hospitals is to be located in the central Atlantic states, one near the Great Lakes, one in the Southwest, one near the Rocky Mountains and one in southern California. To locate and secure sites for these hospitals, there is created a commission consisting of two members from each house, the Surgeon-General of the U. S. Public Health Service, the Supervising Architect of the Treasury and the president of the board of managers of the National Home for Disabled Volunteer Soldiers. Senator Robinson of Arkansas introduced an amendment authorizing an additional appropriation of $12,500,000, saying that at least $35,000,000 was needed and that the amount recommended by the committee was only half enough; his amendment was defeated by a vote of 29 to 25. The bill also authorized the Secretary of the Treasury to take over Fort Mackenzie, Wyo., and Fort Walla Walla, Wash., for hospital purposes. After passage by the Senate the bill will go to conference, but it is practically certain that the House will agree to the Senate amendments.

Interdepartmental Social Hygiene Board

The Senate Committee on Appropriations reported favorably on the Sundry Civil Bill, February 4. Among the amendments introduced by the committee is one providing $340,000 for the Interdepartmental Social Hygiene Board. As previously stated in The Journal, the board asked for an appropriation of $2,246,924. The House committee struck out the entire amount on the ground that this board was created as a war measure and that the need for it had disappeared. The Senate amendment provides $40,000 for the expenses of the board and $300,000 for "assisting the states in protecting the military and naval forces of the United States against venereal disease." It is provided, however, that "no part of the amount shall be expended in assisting reformatories, detention homes, hospitals or similar institutions in the maintenance of venereally infected persons." The bill will probably pass the Senate in its present form and will then go to conference where the differences between the Senate and House will be adjusted before final passage.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 18, 1920.

The Effects of Medical Education

In an address delivered at the Victoria Infirmary, Glasgow, Sir James Mackenzie returned to his favorite theme. He considered that before the introduction of the laboratory methods of the present day investigation of the patient's symptoms was being perfected. Then this method, which brought to light the great wealth of knowledge of clinical medicine, was suddenly dropped and replaced by the mechanical methods of the laboratory. No doubt our knowledge of a few diseases had thus become more exact; but these concerned only a small portion of the sick in the country, and if we turned to the practice of medicine in the field of the general practitioner, little improvement could be seen in the last forty years. Indeed, there was a loss in their training to use their unaided senses. The conception of medicine which was dominant today actually hampered research. The physician, the surgeon and the general practitioner were more or less at cross purposes. No one recognized the limits of his own sphere or the part his colleague should play. On the one hand, the physician and the surgeon were at a loss when to seek the aid of the bacteriologist, asking him, when it was too late, to solve unsolvable problems. The bacteriologist, impatient at this obtuseness, took on himself the duties of the practitioner, with results too often little to his credit. The result was to render research haphazard and practice ineffective. The idea that laboratory methods were superior to clinical methods had diverted attention from the study of symptoms, and this part of medicine, so essential to practice and research, had actually been checked in its progress. Every general practitioner started his career confident that his teaching and experience had furnished him with competent knowledge for the pursuit of his profession. Before he was long in practice he discovered that he could not recognize the ailments of a great majority of his patients. They presented aspects never presented to him in his hospital training. They looked on this lack of knowledge as personal, not doubting that experienced physicians had long ago solved the problems which baffled them. Only after years did they realize that the knowledge necessary for intelligent practice did not exist. A recent inquiry at St. Andrew's Institute for Clinical Research (described in a previous letter to The Journal) showed that after putting aside trivial complaints and minor injuries, in only a small number could a diagnosis be made with fair certainty, and in the vast majority it was impossible to state with any degree of accuracy the nature of the patient's complaint. The cases in which the disease could be diagnosed were in the main advanced disease, like consumption, cancer, rheumatoid arthritis, diabetes, apoplexy and chronic Bright's disease. Among the large number whose ailments could not be diagnosed, many were trivial and temporary, but others, though seeming so, were the beginning of diseases which ultimately lead to permanent ill health and death. To all intents and purposes, the teaching of the student was limited to diseases after they damaged the body and produced manifest symptoms. The hospitals where he was trained were filled with patients in the later stages of disease. The only place where he could see the type of disease which would affect the great majority of his patients was in the outpatient department. This was always in charge of the youngest and least experienced members of the staff. If it were borne in mind that the early stages of disease were the most difficult to detect but the most hopeful for cure, common sense would have said that here is the place for the most experienced physician. Another point overlooked was that the earlier the disease is detected, the easier to perceive the circumstances which favored its occurrence. It was true that the clinical methods which had been employed were somewhat crude, and it was difficult to see how they could be improved. Experienced physicians had gone so far as to say that the kind of knowledge capable of being revealed by the unaided senses was exhausted, and under this mistake had turned to the laboratory worker for help. But so far from being exhausted, the methods of using this knowledge had never been fully understood, and the fact that crude methods revealed so much led to the expectation that by refinement and improvement, with collaboration from the laboratory worker, a great addition would be made to medical knowledge. One valuable set of symptoms revealed by the trained senses could not be detected by mechanical methods. The symptoms at the onset of an illness were mainly subjective—exhaustion, pain, loss of appetite — and could never be detected by any laboratory process.

Taking as an example the work which has made him famous, Sir James Mackenzie said that early in his career he had to give an opinion as to the fitness of persons for life insurance and for working at trades. Some presented heart signs, such as murmurs and irregularities. He thought the matter was a simple one—an abnormal sign being a reason not only for treatment and for rejecting a man for life insurance, but also for forbidding strenuous work. But as years went on he found that people he deemed unfit led strenuous lives with no bad results. He then realized his want of knowledge and searched the books for enlightenment, but to his astonishment could get no help. He then put to himself the question, What are the signs of heart failure? He had to confess that, except in certain forms in which dropsy and dyspnea occurred, he had no idea. Again he turned to the textbooks —clinical, pathologic and physiologic—for a description of the signs of heart failure, and could find none. He then investigated the subject for himself. Among other things he found that the first signs of heart failure were not to be detected in the heart itself, but in the impaired function of organs remote from the heart.

Medical Reciprocity with Belgium Revoked

During the war, one of the many ways in which this country came to the assistance of Belgium was to admit freely to the Medical Register Belgian physicians driven out of their country by the German occupation. They were thus given all the privileges of British physicians, and a large number availed themselves of this hospitality and settled down to practice in England. At the same time, Belgium granted to British physicians the right to practice in its territory. This privilege has now been withdrawn. The British government has therefore withdrawn the privilege granted to Belgian physicians, but without prejudice to the rights of those whose names have been already entered on the Register.

PARIS

(From Our Regular Correspondent)

Jan. 14, 1921.

Partiality Shown by the Grim Reaper, Death

Under this expressive title, M. Hersch, professor of statistics in the University of Geneva, has just published an interesting work based on the statistics of the city of Paris during the three normal years 1911, 1912 and 1913. Hersch divides the twenty wards of Paris into four distinct groups. Group 1 comprises the eighth, ninth and sixteenth wards, which contain the homes of the rich; Group 2 is made of the first, sixth, seventh and seventeenth wards, in which are found the homes of those who are in fairly comfortable circumstances; Group 3 contains Wards 2, 3, 4, 5, 10, 11, 12, 14, 15 and 18, where the poorer classes are housed, and Group 4 is made up of Wards 13, 19 and 20, where abject poverty is the normal condition.

The annual mortality rate per thousand of population in Group 1 (the wards of the rich) was 11.0; in Group 2 (people in moderate circumstances), 13.0; in Group 3 (the wards of the poor), 16.9, and in Group 4 (where poverty reigns), 22.4. The average mortality for the whole city was 16.5. From this statement it will be seen that Group 4, comprising the poorest wards, has a mortality rate that is twice as high as that of Group 1, in which are the homes of the rich.

The percentage of mortality among children of the various groups was:

	Legitimate Children	Illegitimate Children	All Children
Group 1	4.5	7.3	5.1
Group 2	6.2	9.3	6.9
Group 3	9.5	14.7	10.7
Group 4	14.1	18.2	15.1

The child mortality rate is therefore three times as high in Group 4 as in Group 1. The mortality rate of legitimate children is more than three times as high in Group 4 as in Group 1. The mortality rate of illegitimate children in Group 4 is four times as high as that of legitimate children in Group 1.

The annual mortality rate from tuberculosis per 10,000 of population in the various groups was: Group 1, 14.8; Group 2, 26.8; Group 3, 43.1, and Group 4, 58.6. The average rate for the whole city was 39.4. Almost one fourth (23.9 per cent.) of the deaths in Paris are caused by tuberculosis. There are four times as many victims among the very poor as compared with the rich class.

Relations with German Men of Learning

The French Committee of the Second International Congress of Comparative Pathology to be held in Rome in 1921 recently adopted the following resolution:

> Whereas, French scientists will not be able to accept the invitation to participate in a congress which German scientists have been invited to attend, until the latter shall have proclaimed, by a public act, that they repudiate all connection with the government and the military leaders of Germany in 1914 as regards the antisocial acts committed by these during the war, therefore, be it unanimously
>
> *Resolved,* That French scientists are under obligations to refrain from attending the Second International Congress of Comparative Pathology if the subjects of the central powers are invited to be present, which decision is in conformity with that arrived at in London, in October, 1918, on the initiative of the Royal Society, and at Brussels, in July, 1919, where a ratification of the decision by the delegates of the academies of the various allied nations was recorded.

Rabies in Paris

Since the war the number of cases of rabies has increased each year in France, and particularly in Paris and in the department of the Seine (The Journal, Aug. 27, 1920, p. 827). M. H. Martel, general inspector of the veterinary services of the city of Paris, recently reported to the Council of Public Health that the number of cases of rabies had greatly diminished in the last few weeks. During the first three months of 1920, there had been 144 cases; in the second three months, 108; in the third, 47; and in the fourth quarter, up to December 1, there had been only 25 cases in Paris and its suburbs. The epidemic of rabies seems, therefore, to be on the decline. The record of cases for the past four years is: in 1916, 62 cases; in 1917, 56; in 1918, 411; in 1919, 715, and in 1920, 424. If the capture of stray dogs is kept up at the present rate (an average of 2,500 every three months), the rabies will quickly disappear from the capital and the surrounding country.

Diplomas for Sale

The "Oriental University" of Washington, D. C., through the intermediation of its representative in France, has made an unexpected offer to our dental surgeons; namely, to supply any one interested with the diploma of "doctor of dental surgery (D.D.S.)," stipulating only that the applicant shall furnish a thesis of forty typewritten pages, composed in one of the principal European languages, together with a draft for $140. A diploma of "Doctor of Medicine (M.D.)" is also offered, but these come a little higher, costing $165. The circular of information bears the title: "Promotions de Doctorat par la méthode légale d'équivalence, par correspondance (doctor diploma secured by the legal method of reciprocity by correspondence)."

Personal

At one of its recent sessions, the Academy of Medicine took up the election of a corporate member in the section of operative medicine to fill the vacancy caused by the death of Prof. Felix Guyon. Dr. Pierre Delbet, professor of clinical surgery in the University of Paris, was chosen.

MEXICO CITY

(From Our Regular Correspondent)

Jan. 30, 1921.

Mexican Child Congress

The first Mexican congress on child welfare, already referred to in The Journal, presented several remarkable features. Among the resolutions adopted were one advocating the establishment of juvenile courts, another recommending the adoption of legislation for the sterilization of criminals and other defectives, and a recommendation that the immigration law be amended in order to promote the immigration of persons belonging to the white race.

Yellow Fever

At the end of the year there was not a single case of yellow fever in Mexico. This may be logically attributed to the decrease of the temperature during that month and the energetic campaign conducted against the epidemic. From June 8, when the disease was first reported, to December 28, cases were reported as follows:

YELLOW FEVER

State of Vera Cruz:	Cases	Deaths
City of Vera Cruz	202	87
Tuxpan	187	97
Papantla	261	30
Other towns	35	21
Total for the State of Vera Cruz	485	235
State of Yucatán:	Cases	Deaths
Progreso	5	3
Other towns	8	5
Total for State of Yucatán	13	8
State of Tamaulipas:	Cases	Deaths
Tampico	5	4
State of Campeche:	Cases	Deaths
Campeche City	1	1
Territory of Quintana Roo	1	1
Total for the whole country	505	249

Public Health Activities

The department of public health has had to control the plague epidemic, which appeared last April in Vera Cruz and disappeared in June. During the last two months, five cases have been reported in the towns called Ceritos and Carbonera. After such success the department is devoting now all its efforts, aside from its plans for campaigns against malaria and hookworm disease, to the preventive campaign which will be undertaken now in order to prevent the reappearance of yellow fever this spring. The cooperation of the Rockefeller Foundation was requested in this work, and the foundation immediately sent a commission, consisting of Dr. Theodore C. Lyster, chairman, and Drs. Bert W. Caldwell and M. E. Connor. After their arrival and in accordance with President Obregon's orders, there was formed an international commission, which will have charge of the campaign against yellow fever, continuing at its task until the disease is finally eradicated. Because of Dr. Lyster's scientific accomplishments, he was appointed president of the commission, in which he will represent personally Dr. Malda, head of the Mexican department of public health. Dr. B. Vasconcelos will act as vice president, and the other members will be Drs. Enrique Osornio, head of the sanitary service of the war department, Dr. F. Castillo Nájera, and Drs. Connor, Caldwell and E. J. Vaughn. As Dr. Lyster's data indicate that the endemic focus of yellow fever is in Yucatán, he has departed for that state to investigate conditions there; as he also thinks the brilliant success obtained at Guayaquil was largely due to the use of larvicide fish, Dr. Caldwell has left for Vera Cruz and Tuxpan and Dr. Connor for Mérida, where they will use fish on a large scale for the destruction of mosquitoes, without giving up, however, the other measures so far employed apparently with good results and also used successfully in Cuba, Panama, Brazil and other countries. At Tampico, which, although in continuous communication with Tuxpan, has been practically free from the disease, no special work will for the time being be done by the international commission, both for the foregoing reason and also because for a long time there have been there breeding places for larvicide fish. Besides the good results that are expected from the work of this commission, it also marks the beginning of a new epoch in international relations between our two countries, and it is one more step toward cementing the bonds which unite them.

MADRID

(From Our Regular Correspondent)

Jan. 5, 1921.

New Building for the School of Medicine

The king, accompanied by the secretary of education, Dr. S. Recasens, dean of the school of medicine, and Dr. Florestán Aguilar, dean of the school of odontology, inspected carefully the site for the new school of medicine and the clinical hospital, which will be connected with it. The matter is one in which the king is greatly interested. The first appropriation of 600,000 pesetas (about $81,000) will permit the beginning of the excavation and foundation work. The ground measures 82,000 square meters and occupies a high place with a wonderful view from the Guadarrama Mountains to Madrid itself. It is hoped that when the medical school changes its quarters, it will also change its present spirit and will gain new courage to defend itself against impositions of ministers, so far as the granting of chairs is concerned.

Lung Surgery

Dr. Pierre Duval, professor of surgery of the School of Medicine of Paris, so well known through his brilliant success in thousands of operations, delivered a lecture before the National Academy of Medicine of Madrid. He explained with French clarity the present status of lung surgery as a result of the war. It is well known that before the war, surgeons were always afraid of causing pneumothorax. In order to prevent this they limited the operative field, and adhesions were produced that limited it still more. French surgeons—although, as Duval admitted, American physiologists had preceded them—convinced themselves that pneumothorax was not, as often stated, fatal and that it could be induced without danger to the patient since the blood pressure, which hardly rose a couple of units according to Potain's sphygmomanometer, went back at once to its former figures. Pneumothorax is therefore purposely induced, allowing air to come in very slowly. The lung retracts, and after the resection of one rib extensively—Duval thinks the resection of several ribs should be given up—such a wide field is obtained that Duval has been able to bring out in succession the three lobes of a lung, examine them carefully, and operate on them as indicated. Pieces of lung have been resected and sutured afterward, regardless of the extension of the resection. There have been some cases in which a whole lobe has been removed and the patient recovered. In some cases the bronchi of a lobe have been caught in the suture, but the patient has gone back to his usual routine in a few days. After the portion resected has been sutured, the pleura is sutured to isolate it from the lung parenchyma, some grams of antiperfringens serum are placed in the pleural cavity, and the wound is closed without any drainage. In a few days the air causing the pneumothorax is taken out and the patient is discharged.

Duval remarked that the mortality in lung wounds before this technic was nearly 80 per cent., owing to primary hemorrhages, secondary hemorrhages and infection, pleurisy and bronchopneumonia. After the application of these principles, the mortality has been reduced to 6 per cent.

The conference, which was unusually well attended, was received with much approval and applause. Duval has made an excellent impression here, on account both of his surgical ability and of his modesty. To show his appreciation of the many demonstrations on his behalf, he has held clinics in the Hospital General, the Hospital del Niño Jesús and at the Instituto Rubio.

BERLIN

(From Our Regular Correspondent)

Jan. 10, 1921.

Recent Experimental Investigations on Syphilis

Before the Berlin Medical Society, Geheimrat von Wassermann reported recently the results of his latest experimental investigations on syphilis. He had conceived of the serum reaction in syphilis as a special type of the so-called deviation of complement, as introduced into blood diagnosis by Bordet and Gengou, which permits the diagnosis of most infectious diseases if the causative agent of the disease (antigen) is brought in contact with the blood serum of the patient or suspected subject (antibody) under given conditions. In the case of diseases whose causative agents are known or easily isolated, other simpler methods are found more practical. But that is not true of syphilis; for while, to be sure, the causative agent of syphilis has been isolated by Schaudinn and by Hoffmann (1905), this has been accomplished in only extremely rare cases, and for the most part only in the initial stages of the disease. But in view of the chronic and often capricious course taken by syphilis, it is especially desirable to be able to diagnose unequivocally the late stages and manifold developments of the disease. Heretofore, this has been possible only by means of the Wassermann test and similar serologic procedures. Herein likewise lies the great practical importance of the Wassermann test. Now Wassermann, and not only he but also all other observers, believed originally that the Wassermann reaction did not take place unless the spirochetes of syphilis, or syphilitic organs containing large numbers of the causative agent, were used as antigens; the spirochetes being hard to cultivate, watery or alchoholic extracts from syphilitic organs were used in performing the Wassermann test. Very soon, however, it became evident that extracts of syphilitic organs were not at all essential, as the reaction is brought about just as readily when alcoholic extracts of the heart or liver of guinea-pigs, rabbits, cattle, etc., are used; that is to say, a substance having nothing to do with syphilis. Thus, the theoretical foundation of the reaction was shaken. Since then, much controversy has been waged in regard to the correct interpretation of the reaction, without affecting in any way the practical value of the Wassermann test. Even though it could not be demonstrated how the reaction came about, it was found that a positive reaction was securable in 90 per cent. of all cases of syphilis, this being true not only in frank cases but also in those in which a medical diagnosis presented the greatest difficulties; thus, its practical value was still maintained.

It is at this point that the recent investigations of Wassermann strike in and have served to clear up the vexatious question. His investigations were interrupted by the war, but were taken up again after its close. In these investigations Wassermann started with the simple idea that the blood serums of syphilitics that behave constantly different from the blood serums of healthy subjects must necessarily contain some substance not found in the latter. He did not enter into the chemicophysical aspects of the problem, which of late have become very popular in biology, though without producing any tangible results. By means of carefully planned experiments Wassermann has been able to demonstrate in the serum of syphilitics a substance that, in the presence of the so-called complement, enters into a reversible combination with the extract used in the Wassermann test. The extract does not consist of the disease-producing spirochetes or other protein material, but of alcohol-soluble, fatlike substances (lipoids), which are derived from just ordinary animal organs. In other words, this substance that now for the first time has been isolated from the serum of syphilitics is produced by the lipoid substance which must be present in large quantities in the blood of the patients. Thus, Wassermann was able to prove a point heretofore unknown to students of immunology; namely, that not only protein substances but also lipoids may produce genuine antibodies; and secondly, he was able thereby to explain why the antibodies that the Wassermann reaction showed to be present in syphilitics were not directed against spirochetes but against definite lipoid substances that, under the influence of these causative agents, undergo a rapid increase in the human body. The syphilitic suffers from an inversion (Umstellung) of lipoid metabolism, which explains why the Wassermann reaction is positive not only with extracts from the organs of all stillborn syphilitic children, but also with all organ extracts containing lipoid-like substances.

In the course of his remarks, Wassermann also gave expression to some of his views on the therapeutic aspects of syphilis. He called attention to the circumstance that one remedy that has been used for centuries against syphilis, namely, mercury, is effective mainly because it acts on the cells that have been changed by the poison of the disease process and also on the inversion of lipoid metabolism. In this respect, it constitutes, as it were, an antithesis to the arsenic preparations of Ehrlich, which exert a spirillicidal effect. The combination of mercury and arsenic therefore constitutes a treatment for syphilis that rests on a solid etiologic foundation and is in accordance with the common line of practice.

Death of Leopold Landau

Prof. Leopold Landau died suddenly, Dec. 28, 1920, following a stroke of apoplexy, at the age of 72 years. In 1872 he became assistant under Spiegelberg in the Universitätsklinik für Geburtshilfe und Frauenheilkunde at the University of Breslau. In 1874 he became privat-docent in his chosen specialty. In 1876 he removed to Berlin, where he shortly afterward became ordinarius and in 1906 "Geheimer Medizinalrat." Landau's private clinic in Philipp Street was for many decades regarded as a model institution, and was sought out by many physicians and students not only of this country but also of foreign lands. The department of pathologic anatomy, which he established in connection, stood also in high favor. Landau was a man of many ideas and possessed a remarkable knowledge of operative technic, the fruit of which was numerous operative methods. He wrote a large number of scientific works. We may mention more particularly his works on inflammatory processes in the female pelvis and their operative treatment by way of the vagina, the coincidence of pregnancy with uterine tumors, the surgical removal of the uterus, the treatment of fistulas of the vagina, floating kidney, and operation in gonorrhea of the upper genital tract. At the same time, he devoted no small part of his time and energy to the securing of legislation favorable to the medical profession. In 1894 the Berlin Medical Society elected him a member of the board of directors, and up to the end of 1919 he served as acting president. The erection of the Langenbeck-Virchow building, the headquarters of the Berlin Medical Society and of the German Surgical Association, is an outgrowth of his initiative. In recognition of his services the Berlin Medical Society in 1918 made him an honorary member. For many years Landau took a prominent place in Berlin community life. Since 1901 he had been city councilman, in which capacity he had exerted great influence in questions pertaining to the municipal public health service. It was mainly due to his agitation that the department for infectious diseases was added to the Friedrichshain Hospital and the department for venereal diseases to the Rudolf Virchow Hospital. He was also active in securing the municipal "Medizinalamt."

BUDAPEST

(From Our Regular Correspondent)

Jan. 22, 1921.

The Effect of the War on Sanitary Knowledge

In a lecture delivered before the Nagyvarad Medical Society in December, Dr. Popovici said that the war had contributed greatly to the spread of sanitary knowledge. The Austro-Hungarian army consisted in part of men up to 55 years of age, many among them illiterate, who had never before sought medical aid but had dosed themselves with herbs—as recommended by the village smith or barber, or by old women. When presenting themselves for service they were compelled to undergo a physical examination. If they complained of some malady while on duty they were sent to military hospitals where they were subjected to special examinations by oculists, roentgenologists and other experts. Sputum, urine and blood analyses were made in the laboratories. When they entered on their military service the men were first inoculated against typhoid fever, smallpox and other contagious diseases. In the course of these examinations some became aware that a certain hoarseness which had been attributed to a cold was really due to syphilis, and they received ample proof that on proper treatment the hoarseness and the swollen cervical and inguinal glands disappeared. They also learned that decayed teeth can be saved by proper dental treatment and that the absence of serviceable teeth leads to digestive troubles, which can be avoided by prosthetic appliances. Knowing that illness involved temporary absence from active service, they were quick to present themselves for medical inspection. This taught them that early medical aid often wards off a long illness and that the advice of a physician is of more value than the kilogram of herbs recommended by an old woman or by a quack.

These soldiers, while home on furlough, naturally imparted to their neighbors their newly acquired knowledge about the prevention and treatment of disease. Relatives suffering from a chronic disease were advised to go to town and have themselves examined with the curious rays by which the doctor can see their innermost organs, "even their blood vessels." Persons suspected of having syphilis were told to seek a laboratory where the proper blood test could be carried out. In consequence of the spread of these ideas in the mountain villages, peasants who formerly never applied for medical advice now call on the roentgenologists for chest and other examinations, and many are presenting themselves for inoculation against typhoid fever, especially in cases in which a fatality from typhoid has been reported among the neighbors. Such precautions were unknown before the war. As a matter of fact, the village doctor had to be very eloquent to persuade the peasants to have the children vaccinated against smallpox; now they have this done voluntarily. Thus the cause of hygiene has made great strides through the war, by the dissemination of ideas brought home by the men who served in the army, and as almost every man had some contact with military service, these ideas have penetrated into almost every household.

Sickness as the Greatest Luxury

The prices of drugs in Hungary have risen so exorbitantly that sudden illness represents a real financial catastrophe to a family of the middle class, while for a government official or a clerk with a fixed income, medical attention for serious disease is an unpurchasable luxury. In the last two months the price of drugs has increased 100 per cent., and this month a further rise of 100 per cent. may be expected. This factor has many pitiable consequences on the public welfare. People who once belonged to the upper classes cannot call a physician because they are now unable to pay for the costly drugs. For instance, an old official of the law court, who has an advanced case of arteriosclerosis, would have to pay from 150 to 200 crowns weekly for his iodin and hexamethylenamin requirements. As his monthly pay amounts to only 2,500 crowns (equivalent to $500 at normal exchange) it is evident that he cannot divert 800 crowns a month from his family, and for this reason he neglects all treatment. The chief cause of the exorbitant prices is found in the extremely low exchange value of the Hungarian currency. While one dollar was worth 5 crowns before the war it is now worth 500 crowns, that is, the crown has dropped as low as 1 per cent. of its normal exchange value. And as all the countries of eastern Europe use imported drugs, the druggist must pay in foreign currency which is at an extremely high premium. Even the German rate stands at 9 crowns to the mark. The German chemical manufacturers are continually raising the prices. About the middle of September a kilogram of potassium iodid cost 300 marks; today the same quantity costs 512 marks, and meanwhile the value of the mark has risen. The price of quinin has increased from 8,000 crowns to 15,000 crowns, and of acetylsalicylic acid from 17 crowns to 48 crowns. The iodin and bromin salts are the most expensive. Certain drugs are very scarce, as for instance, arsphenamin, which is being smuggled into Russia in vast quantities. Arsphenamin can be imported only from Germany, and it is probable that even there the manufacture has greatly decreased.

If the prevailing conditions continue, medical practice will shrink to such an extent that physicians will have to seek other fields to make their livelihood.

Marriages

Clarence James Buckley, Akron, Ohio, to Miss Mabel Ernestine Knapp of Lodi, Ohio, October 8.

Walton Martin to Mrs. Charlotte Hunnewell Sorchan, both of New York, January 28.

Charles R. Fox to Miss Helen M. Behringer, both of Northampton, Pa., recently.

Waltman Walters to Miss Pheobe Mayo, both of Rochester, Minn., February 5.

Harold Franklin Taylor, Burlington, Vt., to Miss Jane Ashland, December 28.

Deaths

Hugh A. McCallum, London, Ont.; Western University, London, Ont., 1886; University of Toronto, Ont., 1887; L. R. C. P., London, 1900; dean of the faculty of medicine, and professor of medicine in Western University, London, Ont.; president of the Canadian Medical Association in 1914; an honorary member of the Summit County (Ohio) Medical Association; died, January 25, from pneumonia.

George Douglass Hayes ⊕ Tracy City, Tenn.; University of Tennessee, Nashville, 1889; aged 52; superintendent of the Cumberland Mountain Sanitarium; local surgeon of the North Carolina and St. Louis Railroad; secretary of the Grundy County Medical Society; died, January 19, from pneumonia.

Hampson Hubert Biedler ⊕ Baltimore, Md.; University of Maryland, Baltimore, 1876; aged 66; at one time professor of diseases of women and of surgery in the Baltimore Medical College; dean and professor of surgery in the Baltimore University from 1897 to 1905; died, January 23, from paralysis.

George Thomas Stevens ⊕ New York; Castleton (Vt.) Medical College, 1857; aged 88; a veteran of the Civil War; at one time professor of physiology and diseases of the eye in Union University; author of a treatise on "Functional Diseases of the Nervous System"; died, January 30.

James H. Brownfield, Fairmont, W. Va.; Jefferson Medical College, Philadelphia, 1878; aged 84; a charter member of the West Virginia State Medical Association; surgeon of the Fourteenth West Virginia Infantry during the Civil War; at one time mayor of Fairmont; died, January 19.

Jeremiah Donovan ⊕ Milwaukee, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 55; instructor in proctology in Marquette University School of Medicine; chief of staff of the Milwaukee Maternity and General Hospital; died, January 25.

Edward Henry Bushnell ⊕ Quincy, Mass.; University of Vermont, Burlington, 1889; aged 56; captain, M. C., U. S. Army, and discharged, April 11, 1919; president of the Norfolk Southern District Medical Society; died, February 4, from heart disease.

Burr Burton Mosher ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1890; aged 54; one of the founders and surgeon-in-chief of St. Giles Hospital for Cripples; died, January 31, from the effects of injuries received in an automobile accident.

Henry Harrington Janeway ⊕ New York; College of Physicians and Surgeons in the City of New York, 1898; aged 47; a member of the American Society for Cancer Research; attending surgeon to the Memorial Hospital; died, February 1.

Alfred Wells Abbott, Laconia, N. H.; Dartmouth Medical School, Hanover, N. H., 1868; aged 78; a member of the New Hampshire Medical Society; secretary of the Laconia County Medical Society; died, January 23.

Arch Edwin Pope, Denver; Ensworth Medical College, St. Joseph, Mo., 1911, Tufts Medical College, Boston, 1912; aged 39; a member of the Missouri State Medical Association; died, January 20, from pneumonia.

Myron Alanson Patterson, Port Huron, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; aged 54; at one time health officer of Flint, Mich.; died, Oct. 18, 1920, from heart disease.

Joses B. S. Holmes, Lakeland, Fla.; Atlanta (Ga.) Medical College, 1871, Jefferson Medical College, Philadelphia, 1877; aged 68; a member of the Southern Surgical and Gynecologic Association; died, January 19.

Thomas H. MacKenzie ⊕ Trenton, N. J.; Harvard University Medical School, Boston, 1871; aged 73; a member of the medical staff of St. Francis' Hospital, Trenton; died, Oct. 19, 1920, from heart disease.

Raymond F. Goeringer, Wilkes-Barre, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1920; aged 24; an intern in the Hahnemann Hospital, Scranton; died, about January 16.

Frank Johnson Thornton, Raleigh, N. C.; Leonard Medical School, Raleigh, 1908; aged 36; lieutenant, M. C., U. S. Army, during the World War; a colored practitioner; died, January 13.

William Drexler, Denver, Gross Medical College, Denver, 1909; aged 45; a member of the Colorado State Medical Society; died, Dec. 22, 1920, following an operation for gallstones.

William James Guinan, Marysville, Calif.; University of Vermont, Burlington, 1900; health officer of Marysville and physician of Yuba County; died, January 23, from uremia.

James Merton Day ⊕ Lansing, Mich.; Starling Medical College, Columbus, 1902; aged 45; captain, M. C., U. S. Army, during the World War; died, January 21, from heart disease.

James Bertrand McAvoy, Bethlehem, Pa.; Medico-Chirurgical College of Philadelphia, 1907; aged 35; lieutenant, M. C., U. S. Army, and discharged, March 7, 1919; died, January 25.

Arthur Hopkins Rice, Starkville, Miss.; Medical College of Alabama, Mobile, 1873, College of Physicians and Surgeons in the City of New York, 1874; aged 68; died, January 14.

William Millen McGalliard, Donaldsonville, La.; New Orleans School of Medicine, 1866; aged 82; a veteran of the Civil War; died, January 26, from cerebral hemorrhage.

Noble Winfield Scott, Huntington, Ind.; Cincinnati College of Medicine and Surgery, 1866; aged 80; a member of the Indiana State Medical Association; died, January 20.

Rudolf C. Teschan ⊕ Milwaukee, Wis.; Michigan College of Medicine, Detroit, 1882; aged 68; at one time a member of the Milwaukee school board; died, February 1.

Hudson Morton Roberts, Herkimer, N. Y.; University of Buffalo, N. Y., 1892; aged 59; a member of the Medical Society of the State of New York; died, January 15.

George W. Ellison, Townville, Pa.; Cleveland Homeopathic Medical College, 1899; a member of the Medical Society of the State of Pennsylvania; died, January 20.

Thomas G. Binkley, Sinking Spring, Pa.; Jefferson Medical College, 1888; aged 56; was instantly killed, January 24, when his automobile was struck by a train.

Pink P. Crowe, Dora, Ala.; Vanderbilt University, Nashville, Tenn., 1882; a member of the Medical Association of the State of Alabama; died, Dec. 26, 1920.

Mathew Marshall, Pittsburgh; University of Pittsburgh, 1920; aged 27; an intern in the Western Pennsylvania Hospital, Pittsburgh; died, January 24.

William Royster, Turnersville, Tenn. (license, 1908); aged 41; a member of the Tennessee State Medical Association; died at Nashville, January 21.

William A. L. Riegel, Philadelphia; College of Physicians and Surgeons, Baltimore, 1884; aged 59; died, January 22, from cerebral hemorrhage.

William F. Laney, Lancaster, S. C.; Medical College of Virginia, Richmond, 1897; aged 44; died, Nov. 27, 1920, from cerebral hemorrhage.

William B. Jones, Millsboro, Del.; Jefferson Medical College, Philadelphia, 1887; aged 58; died, January 24, from heart disease.

Robert W. Harmon, Lauderdale, Miss.; University of Alabama, Mobile, 1899; aged 47; died, January 26, from heart disease.

Frederick Elmer Colony, Evansville, Wis.; Rush Medical College, 1891; aged 55; died at Madison, Wis., January 18.

Anders Gustavus Emilus Nordlander, Boulder, Colo.; University of Louisville, Ky., 1902; aged 60; died, recently.

William Hinton Miller, Oakland, Calif.; College of Physicians and Surgeons, Chicago, 1886; died, January 17.

John Q. Wrenn, Placerville, Calif.; Medical College of Ohio, Cincinnati, 1876; aged 76; died, January 16.

William F. Gibson, Livingston, Texas; Tulane University, New Orleans, 1882; aged 71; died, January 14.

William Mervin Bonnet, Denver; University of Michigan, Ann Arbor, 1874; aged 69; died, January 14.

James Thompson, Ewing, Ky.; Louisville (Ky.) Medical College, 1884; aged 86; died, January 20.

John G. Elder, Clermont, Ga.; University of Georgia, Augusta, 1896; aged 54; died, January 11.

LeRoy D. Munson, Cleveland; Columbus Medical College, 1881; aged 64; died, about January 17.

Henry L. Davenport, Guthrie, Ky.; University of Louisville, Ky., 1886; died, about January 10.

Hiram Hopkins, Yorkville, Ill.; Rush Medical College, 1885; died at Elgin, Ill., January 16.

John J. Solomon, Omaha (license, Nebraska, 1891); aged 77; died, January 10.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

THE WILLIAM F. KOCH CANCER REMEDY

A number of inquiries have been received of which those that follow are typical. This from a Philadelphia physician:

> "Would you give me any information you have about one so-called 'Dr. W. S. Koch,' Detroit, Michigan. This man is said to claim to have in his possession a cure for cancer, the nature of which I do not know. I know, however, that he obtained a very large fee not very long ago in treating a case but without success . . ."

While a Chicago physician writes:

> "I have at hand a pamphlet from Wm. F. Koch, M.D., Ph.D., of Detroit, Mich., which is supposed to be a reprint from the *Medical Record* of Oct. 30, 1920, entitled 'A New and Successful Diagnosis and Treatment of Cancer.' Will you kindly advise me what you know about this man's work on this subject and how much stock I can put in the claims he makes in this article?"

And this from a physician in Seattle, received a few days ago:

> "Has your office any knowledge of the cancer cure devised by Dr. William F. Koch, Ph.D., M.D., of Detroit? He published an article on it in the *Medical Record,* Oct. 30, 1920. . . . I enclose copy of letter received by one of our patients from his 'western representative' which reads like pure quackery. I do not find Dr. Koch's name in either the A. M. A. or Polk's Medical Directories."

The letter referred to in the last inquiry as coming from Dr. Koch's "western representative" was addressed to a woman who had written to Dr. Koch with reference to his alleged cancer cure. The letter, dated Jan. 19, 1921, was signed "Chas. L. Tisdale, 1898 Geary Street, San Francisco." It read:

> "*Dear Madam:*—Your letter of January 10th written to Dr. Koch of Detroit in reference to his cancer cure has been sent to me by Dr. Koch. I am the Western representative of Dr. Koch and am giving the treatments with his remedy. I am now treating 14 cases here with some most wonderful results. The amount of the remedy that Dr. Koch can supply me with is limited and it is a very expensive substance. None of it can be sent to Seattle or any other place for I have only enough to treat the cases that are constantly presenting themselves here. If you could come to San Francisco and have the money to pay a reasonable fee, say enough to pay for the remedy, I would be very glad to do everything I can for you.
>
> "The results that have already shown in many of these cases warrant me in believing that almost any case of cancer can be cured if the treatment is persisted in.

According to our records, Dr. William F. Koch of Detroit was born in 1885. Some years ago he graduated in chemistry and for some time held the position of Professor of Physiology and Physiologic Chemistry at the Detroit College of Medicine and Surgery. In 1918 Dr. Koch received his degree in medicine from this same college. Less than a year after his graduation Dr. Koch declared that he had "developed a real specific cure for cancer." In the *Detroit Medical Journal* for July, 1919, there appeared a brief article by William F. Koch entitled "A New and Successful Treatment and Diagnosis of Cancer." A more extensive article bearing the same title was published in the New York *Medical Journal* of Oct. 30, 1920.

As a result of the publicity that was given the Koch treatment, the Wayne County (Detroit) Medical Society appointed a committee to investigate the treatment. Its first report appeared in the society's *Bulletin* for Dec. 22, 1919. Briefly this report said in effect that the Board of Health of Detroit had placed at the disposal of the committee twelve beds in a local hospital with the necessary special nurses and everything else required free of charge. The committee sent certain patients to the hospital and there were also some other patients recommended by different physicians as proper cases for treatment. There were nine altogether. After going over the cases carefully the committee found some in which the diagnosis was doubtful. There were five cases, however, of undoubted cancer, a positive diagnosis having been made from specimens and microscopic examination. The management and treatment of these patients were turned over to Dr. Koch.

Dr. Koch seems to have raised certain objections and to have made certain criticisms. He also insisted that he ought to have some representative on the committee. The committee offered to put on any and all he would name. He failed to name any. The committee reported further that Dr. Koch was very negligent in his treatment of the patients and finally, on November 26, the committee met with Koch and went over all the cases with him. At that time he gave the patients injections and promised to attend to the treatment regularly in the future. According to the report, he saw the patients only once more (three days later) and then did not come near them again. As the patients became disgusted with the neglect some of them left and the committee sent the rest home and closed its connections with the investigation of the subject.

In the same issue of the county society *Bulletin* in which this committee's report was published, the editor of the *Bulletin* stated that from all sections of the country inquiries were coming relative to the treatment and "from long distances patients are coming to Detroit to be 'cured' of cancer." The editor further stated: "It is reported that Dr. Koch is treating many patients promising much and charging well." To this Dr. Koch retorted that only about 30 per cent. of his patients had "contributed." The balance were treated free.

The Wayne County Medical Society *Bulletin* for Jan. 5, 1920, was devoted almost exclusively to another discussion of Dr. Koch's "cancer cure." It was there stated that a second committee had been appointed to gather what information could be obtained from outside sources relative to cases treated by Dr. Koch. This committee reported that of fifty-six cases of which it was able to obtain data, only three of the patients showed clinical improvement; twenty-one of the patients were dead. Three other patients treated both by the Koch injection and by operation were reported as clinically improved. The condition of eighteen of the patients was reported as stationary, or unimproved. In eleven of the cases the results were unknown but the surgeons reported unfavorably.

The committee reported further that Dr. Koch's records were incomplete and that he had submitted no proof that his injections have any particular merit and the committee concluded that the study "is entirely experimental and improperly supervised."

Evidently, the most that can be said of Dr. Koch's alleged "cure" for cancer is that the claims made for it have not been supported by independent investigators.

Correspondence

PERTUSSIS VACCINE

To the Editor:—While one may assume that The Journal would select one eminently able to discuss each particular phase of "Biologic Therapy," it seems permissible to ask Dr. Davison for the statistics on which he bases his statement that "the more careful studies show that pertussis vaccine has practically no therapeutic value" (The Journal, Jan. 22, 1921, p. 242). Such has not been true in our small experience; but if the prevailing larger experience does not justify the use of these vaccines, they should not be continued in spite of favorable results attained. On the other hand, is it not generally recognized that no one is yet able to speak arbitrarily about the use of many of the vaccines; also that perhaps neither group of the investigators quoted would conform to every postulate laid down by the Special Committee of the American Public Health Association? Even modern medicine is not an exact science.

Paul W. Van Metre, M.D., Rockwell City, Iowa.

To the Editor:—May I draw your attention to an error in the article on "Pertussis Vaccine" in which it is stated that the vaccines "should be used within *four* months of the date of manufacture." There is no authority, so far as I know, for such an assertion. No vaccine of any kind has ever been recommended for use when older than three months. In the case of pertussis vaccine there is direct evidence to the effect that even a three month vaccine is not fully potent. Huenekens has shown that pertussis vaccine two to three months old immunizes only 12 per cent. of the cases; while freshly prepared vaccine (less than one week old) confers immunity in from 94 to 100 per cent. of cases.

It is unfortunate that the author of the article, contrary to the usual practice followed by the other writers of the biologic therapy series, did not deem it expedient to quote the authorities on which he based his ultrapessimistic conclusions. The only name mentioned, that of Bordet, has no bearing on the subject, as he experimented with a *serum* and not with a vaccine. One might as well condemn typhoid vaccine because antityphoid serum had not come up to expectations.

Failures to obtain results with pertussis vaccine are due to: (1) old, inert vaccines; (2) intramuscular, instead of subcutaneous, administrations, and (3) insufficient dosage.

PAUL LUTTINGER, M.D., New York.

[NOTE.—The foregoing letters were referred to DR. WILBURT C. DAVISON, Baltimore, writer of the article on "Pertussis Vaccine," for reply. The importance of the subject discussed warrants giving the reply more space than is usual. These communications will be reprinted in pamphlet form, together with the bibliography referred to by Dr. Davison. The pamphlet will be sent together with that containing the series on biologic therapy on receipt of twenty-five cents.—ED.]

Dr. Paul Luttinger and Dr. Paul W. Van Metre, in commenting on my lack of enthusiasm for prophylactic and therapeutic inoculations with pertussis vaccines (THE JOURNAL, Jan. 22, 1921, p. 242) regret the omission of the list of authorities on which my "ultrapessimistic conclusions" were based. I sent in a bibliography of more than eighty references, five of which were to Dr. Luttinger's work, with my article, but its length precluded its publication. I am appending another list to this letter and shall send copies to Dr. Luttinger and Dr. Van Metre.

Dr. Luttinger, in criticizing my statement that pertussis vaccines "should be used within four months of the date of manufacture," writes that *"No vaccine of any kind* has ever been recommended for use older than three months." The point I intended to convey was that if any one desired to use pertussis vaccines, they were as efficacious within four months of the date of manufacture as at any other time. In the majority of the favorable reports on the value of prophylactic and therapeutic inoculations with pertussis vaccines, stock commercial preparations of the Bordet-Gengou bacillus, as well as mixtures with other organisms, of various ages were all recommended as efficacious. It is, of course, conceivable that had fresh vaccines been used, these reports might have been even more enthusiastic. I judge that Dr. Luttinger referred only to pertussis vaccines in his statement of "no vaccine of any kind," for of course typhoid and other vaccines are recommended as reliable and also found to be reliable even when they are older than four months. It is difficult to estimate the age of the pertussis vaccines Dr. Luttinger employed, for he states (THE JOURNAL, May 19, 1917, p. 1461) that "it is equally regrettable that no minute comparative study of the various vaccines supplied to the clinic could be made, . . . but that all of the pertussis vaccines used, except old strains or old suspensions of new strains of pertussis bacilli, seemed to be equally potent. . . . This is merely an impression, as I have no reliable figures on the subject. . . . The results of an influenza vaccine collated by one of our workers are said to be equally good."

Huenekens did not prove "that pertussis vaccine, from two to three months old, immunized only 12.5 per cent. of the cases." He merely found evidence (*Am. J. Dis. Child.* **16**:30 [July] 1918) of complement fixation in only one of a total of eight individuals (12.5 per cent.) inoculated with pertussis vaccines of from two to three months of age, while in eighteen of a total of nineteen children (94 per cent.) receiving fresh vaccines, the reaction became positive. Huenekens, however, stated that his older vaccines were thinner and had probably autolyzed. This might explain his results, which are so contradictory to the fact that vaccines of other organisms like *B. typhosus,* even though several months of age, produce antibodies in man. In an earlier article (*Am. J. Dis. Child.* **14**:283 [Oct.] 1917), Huenekens found that one of the four children (25 per cent.) inoculated with commercial vaccines developed a positive complement fixation reaction, while in three of five receiving fresh vaccines the reaction became positive. This small series suggests that fresh vaccines are more efficacious than older stock vaccines in producing complement fixation bodies for the Bordet-Gengou bacillus. The absence of a complement fixation reaction, however, is not reliable evidence of a lack of immunity. Dr. Luttinger (*New York M. J.* **101**:1043, 1915) states that "the complement fixation test, notwithstanding statements to the contrary, has not proved, so far, to be of any practical value in the diagnosis of pertussis for therapeutic indications."

Olmstead and Luttinger (*Arch. Int. Med.* **16**:67 [July] 1915) found that "about 40 per cent. of whooping cough cases have given a positive reaction (complement fixation) with antigens of the Bordet-Gengou bacillus when inactive serum was used. . . . The highest percentage of positives is given by convalescent *vaccinated* cases. . . . Active serum may give nonspecific positive reactions." Some investigators have failed to find any evidence of complement fixation in the serum of pertussis patients. Dr. Luttinger found (*Am. J. Dis. Child.* **12**:290 [Sept.] 1916) only eighteen children among 9,400 who recovered from the disease, with an apparent second attack of pertussis (with a typical whoop). Obviously, then, the complement fixation reaction does not appear to be an index of immunity, since in only 40 per cent. of Olmstead's and Luttinger's cases was it positive, while over 99 per cent. of the latter's patients failed to have a second attack of the disease.

It is difficult to correlate Hueneken's statement (*Am. J. Dis. Child.* **16**:30 [July] 1918) that "pertussis vaccines from two to three months old employed in very large doses, one billion and over, immunize in only 12.5 per cent. of the cases" with the reports that the natural immunity of children to pertussis appears to range from 24 to 58 per cent. Dr. Luttinger stated (*Am. J. Dis. Child.* **12**:290 [Sept.] 1916) that in 29.3 per cent. of the families he investigated "there were one or more children of susceptible age who failed to contract the disease." Although Dr. Luttinger subsequently eliminated many of these children because they had had "mild coughs" or "vomiting spells," he concluded that "there seems to be a certain indefinite percentage who do not contract the disease or who do not show any symptoms of it."

Hess reported (THE JOURNAL, Sept. 19, 1914, p. 1007) that 26 per cent. of eighty unvaccinated children exposed to whooping cough did not develop the disease and were presumably naturally immune. As 92 per cent. of 244 children he inoculated with pertussis vaccine failed to contract pertussis after exposure, Hess concluded that "pertussis vaccine has protective value in a certain percentage of cases," although "we cannot compare its protective value to that of typhoid vaccine." Hess used stock commercial preparations as well as fresh and autogenous vaccines, and yet obtained a percentage of immunity practically as high as the percentage of positive complement fixation reactions Huenekens reported with fresh vaccine. Hess also stated that "none of the four vaccines, including an autogenous strain, was of value in curing or tempering the disease in the epidemic in our institution."

Von Sholly, Blum and Smith (The Journal, May 19, 1917, p. 1451) report that "of 267 children exposed to whooping cough in the families which showed partial immunity and not vaccinated against it, 155 (58 per cent.) did not contract it. . . . Altogether, of 700 exposed children in 243 of our families, 174, or 24.8 per cent., escaped the disease. . . . Of 243 families the children of which were exposed to whooping cough, seventy-seven families (31.6 per cent.) exhibited an immunity in some of the children. . . . In the light of these natural immunes, can we be sure that pertussis vaccine conferred immunity, especially since, according to our statistics, influenza vaccine apparently can do the same?"

Bordet and Gengou (*Ann. de l'Inst. Pasteur* **20**:731, 1906), in addition to studying the effect of antiendotoxic serums, also experimented with pertussis vaccine and stated that the latter was harmless and that it does not provoke any unpleasant symptom ("ne provoque aucun symptôme fâcheux").

Dr. Luttinger writes that "failures to obtain results with pertussis vaccine are due to (1) old inert vaccines; (2) intramuscular, instead of subcutaneous administrations, and (3) insufficient dosage." I might add a fourth and a fifth reason in regard to therapeutic results of possibly more weight than the preceding three, namely: (4) a careful study of a sufficiently large number of uninoculated pertussis patients as controls, and (5) the realization that equally as enthusiastic and presumably equally as reliable reports are published in favor of the treatment of pertussis with benzyl benzoate, with local applications of resorcin, by a change of air, and with injections of *B. influenzae* vaccines, of ether, of the sterile ether extract of the sputum of whooping cough patients, and of sugar solutions.

"PSYCHANALYSIS"

To the Editor:—Your criticism of the lay public's becoming too much interested in psychanalysis is probably very well taken; and this criticism would apply to the average lay magazine writer. But the tone of your remarks also implies a criticism against psychanalysis itself, and in this respect I think your remarks might do some harm. Of course, we all know how the battle has raged about this subject, which is gradually coming into its own. Witness, for example, the great change in British medical opinion in its favor since the war. I know of few well-known psychiatrists who are against psychanalysis. Of course, we often hear a man declare that he has practiced neurology for twenty years or more, adding that he has no faith in psychanalysis. But very few neurologists are distinguished in the psychiatric field. These two specialties are quite distinct and are each too big for one man to excel in both. It is all well and good for a man to declare that he is thoroughly qualified to speak on psychanalysis "because he has met Freud personally," or for another to write that books on this subject are to be found in popular book-shops, especially those patronized by ladies; but this sort of argument convinces no one who is attracted by logic. Again, when the statement is made that "fakers" are practicing this method on the boardwalk at Atlantic City, to deride psychanalysis deceives nobody. Fakers are also practicing medicine in the form of osteopathy, Christian science, etc., on almost every prominent street in our big cities, yet this is no argument against the practice of legitimate medicine.

Psychanalysis takes years to learn properly, as does surgery, gynecology, etc. Years ago when I first began to study the subject, I had a certain amount of skepticism. But when you see, after earnest study, facts about your patients every day—when your patients are able to get insight into their condition—which they can get in no other way, one must be convinced. Like all new things in medicine, yes, in every profession, this subject must have its critics. This applied to the use of rubber gloves, the stethoscope, obstetric forceps, the bacterial origin of disease, etc.

The most convincing reason why I think the profession should accept this method of the diagnosis and cure of the so-called functional nervous conditions and certain psychotic upset is this—that practically all the best-known psychiatrists are earnest students of psychanalysis. Should I hear that men like Adolf Meyer, White, Jelliffe, Kirby, Kempf, MacCurdy, Macfie Campbell, the late Professors Koch and Putman, and numerous other such authorities disbelieve in this method, I might have some doubt as to its utility.

I would ask of the critics of psychanalysis that they attempt to disprove the theory section by section, and not merely attempt to dispose of the subject by sarcasm or witticism. The latter procedure, when discussing a scientific subject, is almost a confession of weakness.

J. F. W. Meagher, M.D., Brooklyn.
President, Brooklyn Neurological Society.

"NICOTIN AND TOBACCO"

To the Editor:—In reference to your editorial on this subject (The Journal, Jan. 15, 1921, p. 180), I would call your attention to some research reported in the *New York Medical Journal* (**99**:519 [March 14] 1914). This article is concerned primarily with the effect of tobacco smoking on mental efficiency, but there is an important discussion of the components of the smoke of tobacco.

The statement that nicotin is the toxic factor in tobacco smoke has been sharply challenged. In Allen's "Commercial Organic Analysis" the statement is made that the great part of the nicotin is converted into pyridin, and my analyses with silicotungstic acid (sensitive to 1 part in a million) bears out this statement. The method of use is described on pages 525-526, and strongly indicates that pyridin and not nicotin is the leading toxic agent in tobacco smoke.

So far as I have been able to ascertain, my findings have not been controverted or disproved; and I have not been able to learn of any reagent more reliable and sensitive than silicotungstic acid. Until some method equally valid has been presented showing contrary results, I feel inclined to believe that these findings remain as yet the most conclusive and reliable.

A. D. Bush, M.D., University, N. D.
Professor of Physiology and Pharmacology,
University of North Dakota, Department
of Physiology.

[Note.—In addition to the foregoing letter, which concerns the scientific aspects of the subject, we have received a number of others. We reproduce two representative of all the rest to indicate the type of discussion which, we fear, does not add to a solution of the problem. The question as to the physical harmfulness of tobacco smoking—whether pipe, cigar or cigaret—is a scientific one and can be settled only by scientific evidence.—Ed.]

To the Editor:—Permit me to congratulate the writer of the editorial on Nicotin and Tobacco in The Journal, January 15. What a striking contrast between its style and that of the antitobacconist's early propaganda! It is becoming evident that what Cowper termed "creamy smoothness" is the shibboleth by which they betray themselves. The writer shows great skill, but. . . .

Charles Busey, M.D., Avery, Idaho.

To the Editor:—I doubt whether there are many readers of The Journal who bank more than I do on the worth and dependability of the teachings of its editorial columns. So far as I am competent to judge, the editorials without exception fully meet scientific requirements in that their conclusions "approximate the theoretical." All of which expression of appreciation applies in a marked degree to the editorial "Nicotin and Tobacco" in The Journal, January 15.

I take it that this editorial is intended to stage a nicotin dream. And true to scientific form, the dream note runs from the beginning of the editorial clear down through to about the middle of the article where, for a time, it loses itself in a long array of what The Journal elsewhere styles "bewildering pseudoscience."

No writer in The Journal has ever stuck to his text better than has the writer of "Nicotin and Tobacco." And without a quiver or a quaver, in the very last line he gives nicotin credit for the whole thing!

It would be an unwieldy mixture to add anything of psychology to "pharmacophysiology," but one cannot help wondering what bogy there can be in the narcosis produced by nicotin that will get comfort out of the travail of this editorial.

J. L. Tracy, M.D., Toledo, Ohio.

"STRONGYLOIDES INTESTINALIS INFESTATION"

(Translated)

To the Editor:—In a communication in The Journal, Dec. 18, 1920, Dr. E. P. de Bellard of Caracas expresses the skepticism of former times with regard to the pathogenic rôle of intestinal parasites. We cannot understand why he should dwell on the harmlessness of *Strongyloides,* since he is familiar with the study and treatment of intestinal helminthiasis in the tropics. This worm is actually harmful, and the determination of its presence is most useful for public health purposes. We have discussed the pathogenic rôle of these parasites (*Archivos del Hospital Rosales,* El Salvador, No 130, 1920), after observing zones of rural infestation, basing our work on recent data from helminthologists and sanitarians. We consider it a dangerous parasite whose action on the host differs according to its presence either alone or in symbiosis, and also according to the social environment of the patient. *Strongyloides* increases the sepsis due to intestinal toxins and enhances the action of duodenojejunal worms such as *Necator americanus* and ascarids.

As regards tolerance to the parasite, this is a fact so well known that I will not lay stress on it. All intestinal parasites present two pathologic types, that of carrier and that of patient. *Strongyloides intestinalis* is not an exception to this rule. I may add that in order to decide the significance of recent studies, it is not wise to depend on the classic authors. For instance, Sir Patrick Manson asserted that *Trichuris trichiuria* was harmless, but nowadays it is considered as about the most harmful of all intestinal parasites, as shown by the statements of Dr. J. Antonio Villagrán of Guatemala, who in his study on trichuris ileotyphlocolitis places *Trichuris* above *Necator* in noxiousness.

F. Peña Trejo, M.D., St. Louis.
Consul, El Salvador.

"SYNERGISTIC COLONIC ANALGESIA"

To the Editor:—The facts presented by Dr. James T. Gwathmey in his article on "Synergistic Colonic Analgesia" (The Journal, Jan. 22, 1921, p. 222) are interesting, but the conclusions seem full of danger. I am aghast at the nonchalant manner in which a routine preliminary medication of three-eighths grain of morphin is to be employed, combined with magnesium sulphate, whose synergistic action will increase the latter to a potency of six-eighths grain (with a predilection to the respiratory center). In other words, the patient is to be given three-quarters grain of morphin before the general anesthetic, nitrous oxid and oxygen, or colonic ether anesthesia is employed. It is alleged that this technic will give a safer and better relaxation than when ether is used. I must confess my inability to grasp the force of this allegation. Does colonic anesthesia and gas-oxygen anesthesia per se require a routine preliminary medication of three-quarters grain of morphin to yield satisfactory anesthesia? Furthermore, I fail to see how massive morphin medication "will render expert supervision unnecessary." Indeed, what is the reason to attempt to introduce methods which will exclude expert supervision from the anesthetic field, increasing thereby preventable deaths, depriving future generations of instructors now in the making, and throwing the entire legal responsibility for the patient on the shoulders of the surgeon?

Paluel J. Flagg, M.D., New York.

[Note.—The foregoing letter was referred to Dr. James T. Gwathmey, New York, writer of the article criticized, who replies:]

Dr. Flagg's criticism does not seem to be based on established clinical facts. If a patient has an idiosyncrasy to morphin, it would be discovered before the danger zone is reached, if the method outlined in my paper is employed, i. e., one-eighth grain of morphin twice repeated at half hour intervals, making three-eighths grain of morphin, for the ordinary adult; this supplemented by nitrous oxid and oxygen. This is the evolution of a series of laboratory experiments and clinical observations with the army in France and verified in civilian practice since my return. Analgesia from morphin, supplemented with nitrous oxid and oxygen, gives a safer anesthetic zone in which to work, insuring better relaxation, than saturation with nitrous oxid and oxygen alone or with ether. The addition of small amounts of magnesium sulphate to the morphin has not affected the respiration center in either our laboratory or our clinical work. Relaxation and aftereffects are determined by the surgeon and not by the anesthetist, and are matters of fact.

Other questions in Dr. Flagg's criticism will be answered in an article now in preparation.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

ELECTRIC HEARING DEVICES

To the Editor:—I would greatly appreciate information regarding devices for aiding the hearing of deaf persons:

1. Are devices operated on the principle of the telephone with pocket battery generally satisfactory?

2. Is there any marked difference in efficiency among the various devices of this sort which are now on the market?

3. Specifically, I would be glad if you could give information regarding the merits of the "Oriphone," manufactured and sold by the Harper Oriphone Company, 936 Old South Building, Boston, and also regarding the reliability of this company. I have heard the instrument well spoken of, but the company refuses to let any instruments go out on trial on any conditions.

James C. Todd, M.D., Boulder, Colo.

Answer.—1. Electric hearing devices, operated on the principle of the telephone with pocket battery, are used to advantage by a considerable number of persons who are hard of hearing. Such instruments are not "generally satisfactory" for all patients with defective hearing. In the first place, only those whose deafness is more advanced receive any substantial assistance from their use. In the second place, not all the cases of advanced deafness are benefited. Broadly speaking, patients suffering from nerve deafness receive no particular assistance from such devices. It is only when the defect in hearing is caused by disease of the sound-conducting mechanism that the electric hearing devices are of special value. As a matter of fact, with very few exceptions, it is only patients with advanced otosclerosis (bony fixation of the stapes) who find these instruments a practical aid to hearing. Nor does it matter that in these advanced cases of otosclerosis there is always a more or less extensive degeneration in the labyrinth, producing a large element of nerve deafness superimposed on the obstruction deafness, resulting from fixation of the stapes.

It is possible to state in a general way that it is only those patients with advanced deafness in whom the defect has developed insidiously, beginning in early middle life, that find this device useful. In the same way it may be stated that, as a rule, only those patients who hear better in a noisy place find the electric device an aid. On the other hand, deafness beginning late in life is not benefited by this type of instrument, because these are always cases of pure nerve deafness. The same is, of course, true of those cases of nerve deafness beginning earlier in life.

2. The several devices of this type are operated on the same general principle, and there appears to be very little evidence that one has any particular advantage over others. As a matter of fact, some patients like one device while others prefer another make. One fact seems to be pretty generally accepted, namely, that it is only after a rather prolonged trial that one becomes so accustomed to the use of such instruments as to be really benefited. These hearing devices are being constantly improved, and it seems likely that the best possible device has not yet been perfected. Many of these devices are advertised in an objectionable manner, as is the "artificial ear drum," making extravagant, unwarranted claims. Some of the companies urge the use of noise-making devices to restore the hearing, which they sell as an adjunct to the hearing device. These can only tend further to impair the remnant of hearing.

3. An aurist familiar with the Oriphone considers it "no better than an ear trumpet, but one less uncouth and conspicuous. . . . The trumpet has an invariable column of air as its transmitting medium, and the 'telephone set' a more or less variable current of electricity." Another aurist writes: "So far as I know, the Oriphone is no better than a number of other similar contrivances. These appliances certainly help a very few but absolutely fail to relieve in the majority of cases." Still another aurist says that he knew a physician who was extremely deaf and to whom it was necessary to shriek except when the physician was using the Oriphone, "but with this instrument it is like conversing with a normal hearing." The same man added that in the case of an aged relative who tried the Oriphone, "It did not work well." He said, further: "A nephew of mine who has been almost of a deaf-mute standard of hearing now uses a similar instrument—product of another firm, I do not know the name of the maker—with great success."

REQUIREMENTS FOR LICENSURE IN CUBA

To the Editor:—What are the requirements that must be met in order to secure a license to practice medicine in Cuba? Does any reciprocity exist between Cuba and various states of the Union? Please omit my name.

A. B. C., Birmingham, Ala.

Answer.—To practice medicine in Cuba, a graduate of a foreign medical school must furnish proof to the department in charge of public instruction of the validity of his diploma, and of the standing of the institution granting such diploma. After such proofs, the department grants permission for an examination, the fee for which is about $50, American gold. The examination is theoretical and includes also a clinical examination of a patient, description of the method of performing a prescribed operation, and a thesis. Examinations, both written and oral, are held in the Spanish language, or through an interpreter; the interpreter to be chosen by the department, the applicant to pay for his services. Reciprocal relations have not been established between Cuba and any of the states of this country.

TESTS FOR HYPERTHYROIDISM

To the Editor:—1. Is the giving of graduated doses of thyroid extract of any value in differentiating hypothyroidism and hyperthyroidism? 2. How does this compare with the basal metabolism tests?

A. R. Lannon, Denver.

Answer.—1. The procedure is of some value in differentiating the two conditions, but it is better, if possible, to differentiate them first and give the thyroid extract only when it is indicated. 2. Measurements of the basal metabolic rate do no harm. They give immediate information, and if one accepts the view that there is no hyperthyroidism without an increased rate, the test is crucial.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

California: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

Connecticut: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Maine: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

Massachusetts: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

MEDICAL SCIENCE, CULTS AND PUBLICITY

From the beginning, scientific medicine has had to contend against certain idle beliefs and delusions on the part of the public, some of which have been quite picturesque and fantastic. In a recent editorial,[1] Mr. George W. Whiteside, counsel for the New York State Medical Society, sets forth a number of these delusions, leading up to the latest of their ilk, the chiropractors, who, "with elaborate offices, paraphernalia and trappings, claim to cure all disease through pressure on the sufferer's vertebra." Their claims are shown to be based on a thoroughly false and unscientific hypothesis, yet they widely proclaim and advertise their "cures" as evidence of the truth of their claims until they "have actually created in some quarters a public sentiment supporting their propaganda." Reference is made also to cults "that scorn the very existence of disease and assert that it is but a baseless fear in the mind of spiritually deficient man." The medical profession is in the best position to recognize the falsity, the hopelessness and even the harmful character of these delusions, but the profession is still resting in the belief that these, like previous fads, will "run their course and in due time be forgotten." The author points out, however, that, differing from those formerly existing, these later fads have "developed a formidable organization for proselyting purposes" and that, "by a publicity campaign of attractive phrasing," they have "succeeded in arousing a prejudice against the medical profession and its scientific truths, evidently because their preposterous claims are being unchallenged. He shows that the clamor of these small groups of selfish men, even with its evident falsity, "can easily be mistaken by legislators for popular opinion," and, as a consequence, "the exponents of these false beliefs in many states have received official sanction and have been licensed to undermine the public health for their own private and sordid gain." In the United States, the citizen has a duty to the state and to his fellow man. The medical profession "discharges its duty in the practice of the healing art with much self-sacrifice and is entitled to the respect of the people at large and to recognition by the state in the councils of government." That it does not exercise power commensurate with its service to the state is due to its shrinking from the use of publicity. "Until this condition is changed," says the author, "medical opinion will have little effect on the trend of medical legislation." He strikes the keynote, however, when he says: "Without publicity in a democratic form of government, popular sentiment cannot be aroused and, therefore, will not find expression in legislative action." The false beliefs and painful delusions which today are defying the truths of medical science "will not find support and entrenchment in legislative action if they are squarely met in the form of popular discussion." Merely to promote discussion in scientific journals is not sufficient, since "the great mass of the public can be reached only through the medium of the lay press and the public forum." In this way "a true sentiment, a public support, respect and love for medical science would be created." The author believes that the profession should be "less sensitive to glorifying its achievements," but should be willing to "render an accounting of its accomplishments that the world may know how faithfully and devotedly it has discharged its duty." Having thus gained public support, the profession's voice in legislative halls will then be heard and heeded. In brief, "the majority of legislative activities affecting the medical profession and to which it is opposed are made possible by the people's ignorance of the essential truths of medical science and of the good work being done by the profession. Bring the public to a realization of these things, and the voice of the profession will be more heeded in . . . the halls where laws are made." Awaken the same confidence in the profession's legislative wisdom on medical matters that is now reposed in its medical skill, and the legislative desires of the profession will be heeded.

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[1] The Trend of Medical Legislation in the State of New York, editorial, New York State J. Med., October, 1920.

IRREGULARS ATTACK MISSOURI PRACTICE LAW

What is probably happening in several states occured in Jefferson City, Mo., a few days ago, when irregulars of all kinds made their annual attack on the state board of health. The chiropractors had a great force present before the legislative committee. They spoke for about an hour and a half, beginning with a senator, followed by one Ray, who conducts a chiropractic college in Missouri, and several other lesser lights, with a lot of "cured" patients. Several physicians who were present spoke in behalf of the state board of health. Then appeared Palmer of "Fountain-Head of Chiropractic" fame. The usual claims were made that the chiropractors "do not practice medicine" but "only assist nature"; that they "do not need to study medicine so long as medical students do," because they "do not have to waste time on the diseases physicians treat" or the "poisonous remedies" that physicians use. The physicians replied that chiropractors were looked on by the public as doctors—a matter favored by the chiropractors themselves except when before legislators; that chiropractors saw people with all kinds of diseases and therefore needed to have a training equal to that of physicians in order to be able to recognize the diseases they are attempting to treat, to report contagious diseases, and to exclude surgical cases. It was shown that the chiropractors admitted obstetric cases to treatment, although before legislators they claimed that they did not want to treat them. It was shown that three years of only six months each—the requirement set forth in the proposed bill—did not permit sufficient time to be devoted to the branches with which all who treat human diseases should be familiar. The folly of multiplying examining boards was shown, and it was pointed out that the board of health was able to carry on all the essential work and that it should be strengthened rather than weakened. It was emphasized that such legislation would be the means of multiplying low type teaching institutions which would only turn out more poorly educated doctors. It is hoped that the legislators of Missouri will appreciate, on the one hand, the selfish ends being sought by the chiropractors, and, on the other hand, the importance of upholding reasonably high standards of medical licensure.

Connecticut November Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the oral and written examination held at Hartford, Nov. 9-10, 1920. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 30 passed and 10 failed. Five candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Yale University	(1920)	76, 76.3, 80, 84.2, 85.8
Bowdoin Medical School	(1919) 83.5, (1920)	78.5, 78.7
Johns Hopkins University	(1910) 80.1, (1918)	83.6
Harvard University	(1916) 82.4, (1919)	81.7
Tufts College	(1919) 77.1, (1920)	75.1, 78.3, 83.1, 84.8
Washington University	(1919)	80.9
Albany Medical College	(1919)	82.4
Columbia University	(1910)	86.6
Fordham University	(1920)	76.2
Syracuse University College of Medicine	(1912)	81
University and Bellevue Hospital Medical College	(1920)*	80.1, 85.1 (1920) 88.1
Jefferson Medical College of Philadelphia	(1917)	83.2 (1919) 82.7, (1920) 77.3, 76.2
Baylor University College of Medicine	(1920)	75.2
FAILED		
Yale University School of Medicine	(1920)	73.5
Atlanta Medical College	(1914)	73.7
Harvard University	(1904)	62.6
Medico Chirurgical College of Philadelphia	(1915)	74.2
Meharry Medical College	(1920)	58.2
Medical College of Virginia	(1917) 71.1, (1919)	71.1
University of Vermont	(1914)	70.2
University of Budapest	(1911)*	65.7
Montreal School of Medicine and Surgery	(1918)	58.5

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Harvard University	(1898) (1908)	Mass.
Columbia University	(1899) New York, (1904)	Oregon
University of Pennsylvania Department of Medicine	(1908)	Penna.

* Graduation not verified.

Missouri October Examination

Dr. George H. Jones, secretary, Missouri State Board of Health, reports the written examination held at Kansas City, Oct. 6-8, 1920. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 14 passed and 1 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Georgetown University	(1920)	87.7
Howard University	(1920)	79.3
Chicago College of Medicine and Surgery	(1914)	80.1
University of Kansas School of Medicine	(1920)	86.2
Barnes Medical College	(1898) 75, (1904)	83.3
St. Louis College of Physicians and Surgeons	(1918)	75.3
Jefferson Medical College of Philadelphia	(1919)	83.1
University of Pennsylvania School of Medicine	(1920)	90.7
College of Physicians and Surgeons, Memphis	(1911)	81
Meharry Medical College	(1919) 78.3, 82.1, (1920)	75.2, 82.3
FAILED		
St. Louis College of Physicians and Surgeons	(1918)	57.1

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Howard University	(1910)	Kansas
Bennett Medical College	(1914)	Illinois
Rush Medical College	(1920)	Illinois
Northwestern University	(1920)	Illinois
University of Illinois College of Medicine	(1916)	Illinois
Tulane University	(1919)	Louisiana
Southwest School of Medicine and Hospital	(1916)	Kansas
University Medical College of Kansas City	(1909)	Kansas
John A. Creighton Medical College	(1912), (1913)	Nebraska
University of Oklahoma	(1917)	Oklahoma
University of Pennsylvania School of Medicine	(1917)	Kansas
Meharry Medical College	(1905)	Mississippi
Medical College of Virginia	(1915)	Virginia
University College of Medicine, Richmond	(1907)	W. Virginia
Marquette University	(1913)	Illinois

Arkansas November Examination

Dr. T. J. Stout, secretary, Arkansas State Board of Medical Examiners, reports the written examination held at Little Rock, Nov. 9-10, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 7 passed and 2 failed. The following colleges were represented:

College PASSED	Year Grad.	Number Licensed
University of Arkansas	(1920)	2
Tulane University of Louisiana	(1919) 1, (1920) 1	2
Washington University	(1903)	1
Jefferson Medical College of Philadelphia	(1913)	1
Meharry Medical College	(1902)	1
FAILED		
Meharry Medical College	(1912) 1, (1918) 1	2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Tulane University	(1919)	Louisiana
St. Louis University School of Medicine	(1907)	Illinois
University Medical College of Kansas City	(1898)	Kansas
Washington University	(1910) Illinois, (1917)	Missouri
Columbia University	(1918)	Texas
Western Reserve University	(1886)	Nevada
Memphis Hospital Medical College	(1896) (1899)	Tennessee (1909) Mississippi
Universities of Nashville and Tennessee	(1910)	Mississippi (1911) Tennessee
University of the South Medical Department	(1900)	Tennessee
University of Tennessee	(1900) (1913)	Tennessee
Vanderbilt University	(1901)	Tennessee
University of Texas	(1915)	Texas
Medical College of Virginia	(1916)	Virginia

Book Notices

The X-Ray Atlas of the Systemic Arteries of the Body. By H. C. Orrin, O.B.E., F.R.C.S. Cloth. Price, $5. Pp. 91, with illustrations. New York: William Wood & Company, 1920.

This atlas of arteries in situ is a welcome contribution to anatomic illustration. It shows the arteries throughout the body in twenty-one roentgenograms, of which two are so prepared that they can readily be converted into six cards for stereoscopic study covering all regions. Twenty roentgenograms were made from the body of a full term fetus after injection of the arteries. This was necessary because suitable adult material was not available. One roentgenogram was made from a soldier's hand, amputated after the arm had been shattered by a shell. The clearness and definition with which even the small arteries and anastomoses stand out is a revelation of the possibilities of roentgen-ray photography. A brief text, tabular in character, is arranged for convenient reference in the study of the plates. Some features of the anatomy of the arteries which can be studied to especial advantage in these plates, and which will make the book appreciated, are the relative richness of arterial supply of different regions and structures, anastomoses and collateral circulation, and relations to bones and joints. Incidentally, the state of ossification of the bones at the time of birth is well shown. It is to be hoped that subsequent editions may be enlarged by the inclusion of a full series of plates representing all the arteries of the adult. Surgeons will appreciate the atlas because the relations shown are accurate and reliable—qualities inherent in roentgenograms. Such plates might well be mounted and exhibited in dissecting laboratories so that the study of them might supplement dissection.

Laboratory Course in Histology. By Adolph Elwyn, A.M., Assistant Professor of Anatomy, College of Physicians and Surgeons, Columbia University, and Oliver S. Strong, Ph.D., Associate Professor of Neurology, College of Physicians and Surgeons, Columbia University. Cloth. Price, $2.50. Pp. 235. New York: Physicians and Surgeons Book Company, 1920.

This little manual, of 118 blank and 118 printed pages, represents the laboratory instructions already tried out in the course in histology at Columbia University. The blank pages are to permit modification or amplification of any part of the course, being intended for notes regarding supplemental material, either fresh or in special preparations, introduced by instructors. The printed pages contain directions for study of the sections issued to the classes at Columbia, with only enough description to secure proper orientation—the amount being necessarily greater in the part of the book devoted to the nervous system (sixty-three pages). The student's attention is guided and directed, but he is not told what he sees; rather, he is asked to see for himself, the idea evidently being that the power of seeing for himself is useful and necessary in a physician, that it merits cultivation, and that it is more worth having then a tendency toward passive reception of observations made by some one else. The preparations indicated are well selected and well arranged, and the content sufficient to meet the needs of medical students in the introductory required course in histology, provided the amplification suggested is utilized in the study of fresh material. The method requires good instructors, and should produce good results with students of capacity.

Mental Disorders Briefly Described and Classified, with a Few Remarks on Treatment and Prevention. By Charles B. Thompson, M.D., Medical Director of the Mental Hygiene Society of Maryland. Paper. Pp. 48. Baltimore: Warwick & York, 1920.

This outline offers a modern classification of mental diseases. The author follows Freud closely in his discussion of the causes of mental diseases, explicable in psychologic terms. The elation depressive oscillation or manic-depressive psychosis, and the discussion of the causes of the dementia praecox reaction are well done, even in the limited space allotted to them; still, the syllabus is brief enough to be inaccurate in places. For instance, no mention is made of the pupillary changes in the description of the physical symptoms of paralytic dementia. The syllabus is intended to serve as a guide to beginners in the field of psychiatry.

Diathermy in Medical Practice. By Claude Saberton, M.D., Hon. Radiologist to the Harrogate Infirmary. Cloth. Price, $2.25 net. Pp. 138, with 33 illustrations. New York: Paul B. Hoeber, 1920.

The first five chapters of this book are devoted to the explanation of the principles concerning high frequency currents, their generation, and their medical and surgical application. This presentation, while not accurate and complete enough for the expert, is certainly not sufficiently perspicuous to the layman. In his enthusiasm, the author goes so far as to mention diathermy as a valuable medical aid in the treatment of neurasthenia. It is doubtful whether pathologists and clinicians will accept his use of the term "fibrositis" as applied to various inflammatory affections of the interstitial fibrous tissues of the body in place of "muscular rheumatism." In the chapters on surgical diathermy the bipolar method, using two active electrodes, is practically not discussed at all. Sentences like "There is complete destruction of visible and palpable malignant disease" do not serve to enhance the value of this pamphlet. That Dr. Saberton recommends chloroform anesthesia in operations inside the oral cavity will not add to the popularity of his book among American surgeons.

Vorlesungen über Bakteriologie, Immunität, Spezifische Diagnostik und Therapie der Tuberkulose, für Aerzte und Tierärzte. Von Dr. Ernst Löwenstein, a. o. Professor an der Universität Wien. Paper. Price, 43 marks. Pp. 476, with 3 illustrations. Jena: Gustav Fischer, 1920.

In the preface, the author states that his purpose is to collect all the facts coming within the subjects covered, as far as they have been established by trustworthy methods, in order to accomplish two purposes: 1. That every earnest physician, even when isolated where access to literature is impossible, may be enabled to do independent work. On this ground the methods are given particular attention. 2. That every physician may be enabled to reach proper conclusions concerning the value of new discoveries reported in this field. "A good critical capacity is necessary in these days, in order to keep a clear head against the flood of new medicaments with which the medical industries overwhelm us, and against their more or less scientifically masked advertisements." The greater part of the book deals with the immunologic reactions of tuberculosis, from the standpoint of both diagnosis and therapy, and the confusing literature on these topics is digested in a properly objective and critical spirit. The first third of the space is given over to a discussion of the properties of the tubercle bacillus itself, including also the subjects of disinfection and chemotherapy. The purposes of the author seem to be well achieved. There is an enormous amount of well-digested information, in a comparatively small space, and with a considerable bibliography. While of necessity much of the literature published since the war in countries outside the central empires has not been considered, there are not many important omissions. The book should be of value as a reference work for all those interested in tuberculosis, whether from the standpoint of clinical or from that of laboratory investigation.

Nucleic Acids, Their Chemical Properties and Physiological Conduct. By Walter Jones, Ph.D., Professor of Physiological Chemistry in the Johns Hopkins Medical School. Second edition. Boards. Price, $3.25. Pp. 150. New York: Longmans, Green and Co., 1920.

The publication of the Monographs on Biochemistry is an important service to medical and biologic science, since it puts in readily available form critical reviews of important subjects in this field, each prepared by an authority specializing on the topic which he is discussing, and keeps these reviews up to date. For the medical sciences, one of the most important of these monographs is that on nucleic acids by Prof. Walter Jones, which now appears as a revised edition, the first edition having been published in 1914. It constitutes the most useful source of information available concerning the composition and properties of these important and characteristic elements of cell structure, and the source of the purins. The chief changes noted in the new edition concern the development of our knowledge concerning the structure of the nucleic acid molecule, which has been worked out mostly in this country by P. A. Levene and Walter Jones and their collaborators.

Medicolegal

Treatment of Osteomyelitis After Parent Refused to Give Consent to Operation

(Routt v. Ready (D. C.), 265 Fed. R. 455)

The Court of Appeals of the District of Columbia, in affirmng a judgment, with costs, in favor of the defendant, a pracicing physician and surgeon, says that the action was one for damages for alleged malpractice in the treatment of the plaintiff, an infant. The two counts of the declaration on which the case was tried charged the defendant with failure to make proper diagnosis and with lack of skill, care and attention in treating the plaintiff's ailment, which consisted of osteomyelitis of the bone of the leg. After a preliminary operation, the defendant recommended a second operation, to which the mother of the child refused to give her consent. The defendant continued to treat the child for several months, when another surgeon was consulted, who recommended an immediate operation, which was performed with successful results, except that the plaintiff's leg is deformed, which slightly interferes with its use. The only question of law which called for consideration was whether the refusal of the mother to permit an operation relieved the defendant from liability for the course pursued. The court thinks that it did, in the absence of any evidence showing lack of ordinary skill in the treatment of the case in other particulars. The mother was the parent and natural guardian of the child, and so long as she assumed the responsibility of disregarding the defendant's advice as to the necessity of an operation, and he continued to treat the patient with reasonable skill, he could not be held liable for the result. In other words, when a physician in charge of a patient prescribes the proper treatment and points out the danger that may result from failure to pursue the course outlined, and the patient, or, as here, the mother of a child under treatment, refuses to be guided by his advice, the physician is exempt from legal responsibility. The propriety or impropriety of abandoning the case, and the question whether the conduct of the defendant after recommending the second operation was such as would be expected from a physician of ordinary skill in that community, were submitted to the jury on the testimony adduced, and resolved in the defendant's favor. No mistake was made in diagnosis, the proper operation was recommended, and from that time on the damage resulting from failure to operate lay with the mother, and not with the defendant.

Suit for Penalty Is Civil, With Right to Jury

(State Board of Medical Examiners v. Curtis (N. J.), 110 Atl. R. 816)

The Supreme Court of New Jersey, in affirming a judgment in favor of the defendant in this proceeding for practicing medicine in violation of the act of 1894, as amended in 1915, holds that a suit under the statute, for penalty for practicing medicine without a license, is a civil one. The court says that, as in the other cases, now growing numerous, in which the question has been raised, the language of different sections of the medical examiners' act is incongruous, and provisions may be cited which afford an argument for either side. But the court thinks that, in view of the decisions, it ought to be considered settled that, so far as this court is concerned, suits for penalties under statutes like the present are civil suits. The reasoning applies with all the greater force since the procedure under the medical examiners' act is confined to two courts, the district court and the common pleas, which have always been peculiarly courts of civil jurisdiction. Then the question was as to the right to trial by jury. The fact that the suit was a civil one did not of itself settle that question. The conclusion is that it was proper to try the case before a jury, either party to a civil suit in the district court being entitled to a trial by jury. The court reaches its result with the greater satisfaction since it does away with the serious objection in point of policy to the medical examiners' act, in that the act permits the arrest and imprisonment for 100 or 200 days of a defendant on a complaint, not by one having knowledge, but on mere information and belief. Such a provision would go far to make it impossible for a defendant wrongfully imprisoned to recover damages; the prosecutor would not even be obliged to show that his belief was a reasonable one; it would be enough that he had received information, which he believed, no matter from whom it came.

It was urged that in this case the trial judge should have directed a verdict for the plaintiff. The evidence was suggestive that the defendant in one instance at least undertook to diagnose and prescribe, but his testimony was that he merely sold medicine and avoided any attempt to make a diagnosis or to prescribe. Whether he admitted facts sufficient to sustain the charge depended on what he in fact said and did, and presented a question for the jury.

Commission of Experts Supersedes Jury—"Classical" Insanity

(In re Grammer (Neb.), 178 N. W. R. 624)

The Supreme Court of Nebraska, in overruling a motion to stay an execution after conviction of a capital offense, holds that Section 9098 of the Revised Statutes of Nebraska of 1913, providing that if a person, convicted of a capital offense, was thought to have become insane, he should be entitled to a jury trial to determine that question, and, if found insane, execution should be stayed, has been repealed by implication by Section 9212, which provides for a commission of experts, instead of a jury, to pass on the question. The court holds, further, that it was not sufficient that the petition in this case stated that since the conviction defendant Grammer had become insane, as shown by the affidavit of a physician, attached to the petition, which affidavit stated that the physician felt convinced that the defendant "is and has been classically insane." By such allegations as these it was not shown that Grammer had become insane within the meaning of that term as used in the statute. Why the physician limited his allegation by the word "classically," and omitted all other statement of fact or description of condition of mind, which might point to the kind or degree of insanity referred to, the court is unable to tell. It is apparent, however, that he desired to qualify the term "insanity," and he did not explain what he meant by it. It is not every degree of insanity which would entitle the petitioner to the relief sought. Generally speaking, insanity, as defined by this court, is not mere imbecility or weakness of mind, however great that may be. To entitle a person, convicted of a capital offense, to a suspension of sentence under Section 9212, it must appear that he has become insane, not in some slight or peculiar or classical degree, but that his state of mind and mental condition are such that he does not understand, and is incapable of understanding, the nature of the proceeding against him, and of his impending fate and execution, and is unable, in a rational manner, to offer a defense or make objection to execution.

Physician's Bill Should Be Probated Separately

(Gaulden v. Ramsey (Miss.), 85 So. R. 109)

The Supreme Court of Mississippi holds that, in this action against the administrator of an estate, in which a son-in-law of the deceased included in his claim the amounts of the latter's physician's and drug bills, after having paid them, these two items of his claim should not have been allowed. The court says that the physician's and drug bills were debts against the deceased, as they were necessarily incurred in her lifetime, and, as the evidence did not disclose that they were paid by her son-in-law at her request, they should have been separately probated on the affidavit of the original creditors that they were "just, correct, and owing from the deceased," etc., in accordance with the provisions of Section 2106, Code of 1906 (Section 1774, Hemingway's Code).

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Philadelphia, March 24-26.

American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.

Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, March 7-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

January, 1921, **161**, No. 1

Diagnosis of Bronchopneumonia and Its Complications. N. B. Foster, New York.—p. 1.

Internal Pancreatic Function in Relation to Body Mass and Metabolism. F. M. Allen, New York.—p. 16.

*Benzyl Benzoate in Pediatric Practice. J. Ruhräh, Baltimore.—p. 32.

*Physiology of Liver: 1. Technic and General Effects of Removal. F. C. Mann, Rochester, Minn.—p. 37.

Alimentary Hypersecretion; Gastric Hypersecretion; Gastrochronorrhea. J. Reiss, New York.—p. 43.

Treatment of Chronic Intestinal Invalid. J. Bryant, Boston.—p. 63.

*Etiology of Typhus Fever. E. W. Schultz, San Francisco.—p. 78.

Acute Epidemic Encephalitis. C. H. Miner and S. L. Freeman, Wilkes-Barre, Pa.—p. 91.

Recurrent Type 1 Pneumonia: Serum Treatment of Two Attacks One Month Apart. H. M. Thomas, Boston.—p. 103.

*Colloidal Gold Curve in Epidemic Encephalitis. T. K. Davis and W. K. Kraus, New York.—p. 109.

Carcinoma of Supra-Ampullary Portion of Duodenum. N. B. Herman and W. C. von Glahn, Baltimore.—p. 111.

Etiology of Acne Rosacea Through a Visceroneurologic Mechanism. F. P. Miller, Los Angeles.—p. 120.

Benzyl Benzoate in Pediatric Practice.—Ruhräh states that benzyl benzoate may be used in place of atropin wherever a relaxing effect is desired on spasm of smooth muscle. He recommends it in bronchial asthma, spasmodic bronchitis, gastric or intestinal colic, hiccough and spasmodic constipation. In whooping-cough, he says, its action is often most beneficial, but the results are uncertain, as is the case with all other antispasmodics in this disease. In general convulsive conditions not dependent on organic lesions of the central nervous system, especially in the new-born, the drug is of benefit.

Physiology of Liver.—A method is described by Mann for the total removal of the liver of a dog without complicating factors other than the anesthetic. This makes it possible to study the effect resulting solely from the loss of liver tissue. An animal from which the liver is removed by this technic recovers from the immediate effects of the operation and then presents a definite and characteristic syndrome, a sequence of events invariably ending in death. The length of life after removal of the liver in this series of experiments has been from five to eleven hours.

Etiology of Typhus Fever.—In Schultz's opinion there is no conclusive evidence that the *Bacillus typhi-exanthematici* of Plotz is the cause of typhus fever. Proteus X 19 has more in favor of its being the cause of typhus fever than the Plotz bacillus, but on immunologic and other grounds it appears that both these bacteria are secondary invaders. There is evidently a state of more or less mixed infection in typhus fever. There may be a state of symbiosis. Schultz suggests that *Rickettsia prowazeki* is probably the cause of typhus fever.

Colloidal Gold Curve in Epidemic Encephalitis.—Davis and Kraus have been unable to observe any relation between the colloidal gold curves noted and the severity and duration of the disease. However, it does appear that in a large percentage (41 per cent.) of cases of epidemic encephalitis chemical changes, whether parenchymatous or meningeal, are present in the central nervous system which produce substances in the spinal fluid able to bring about an abnormal colloidal gold reaction. The diagnosis by means of the colloidal gold reaction cannot be made without confirming clinical evidence based on the progress and symptomatology of each case.

American Review of Tuberculosis, Baltimore

January, 1921, 4, No. 11

*Pulmonary Atelectasis as Source of Confusion in Physical Examination of Chest. H. Sewall, Denver.—p. 811.

*Extrapleural Thoracoplasty; Modification of Operation of Apicolysis Utilizing Muscle Flaps for Compression of Lung. E. Archibald, Montreal.—p. 828.

Purine Bases of Tubercle Bacillus. E. R. Lomg, Saranac Lake, New York.—p. 842.

*Mechanism of Bacillus Carrier State with Special Reference to Friedländer Bacillus. A. L. Bloomfield, Baltimore.—p. 847.

*Conditions Commonly Mistaken for Pulmonary Tuberculosis. B. Stivelman, Bedford Hills, N. Y.—p. 856.

Indigent Migratory Consumptive Problem. D. E. Breed, Austin, Tex. —p. 866.

Pulmonary Atelectasis.—Sewall states that a relative degree of atelectasis occurs normally in any pulmonary area which is not habitually undergoing vigorous ventilation; it is favored by feeble and opposed by vigorous respiratory movements. In proportion as the vigor of respiratory aeration is diminished the pulmonary collapse becomes more extreme. Minor degrees of atelectasis may be denoted clinically by the demonstration of circumscribed areas of relative percussion dulness which quickly acquire normal resonance after deep breathing or with change of posture; or by the advent, with deepened breathing, of inspiratory râles which quickly disappear under respiratory exercise. Collapse of an extensive volume of pulmonary tissue is denoted by the contraction of overlying chest wall combined with physical signs simulating those of consolidation or of an encysted pleural effusion.

Extrapleural Thoracoplasty.—In cases of chronic disease with marked tendency to fibrosis with cavity in the upper lobe and strictly, or almost strictly, unilateral, Archibald utilizes flaps raised from the pectoralis major and minor muscles to produce a compression of the lung. The muscle flaps having been made, portions of the second, third and fourth ribs are resected subperiosteally anteriorly under the pectoral muscles. The parietal pleura is separated with the finger from under the clavicle and the first rib, and from side to side, but not more than an inch or so downward at the back. This leaves a pocket into which the flap of the pectoralis major is crowded. The technic of the operation is described in detail.

Mechanism of Bacillus Carrier State.—Bloomfield presents experimental evidence on the mechanism of the carrier state, at least in certain instances. It is shown in the case of the Friedländer bacillus carriers that the breeding place of the bacteria is in a definite focus—the tonsil. From this point the organisms are discharged into the open pharyngeal cavity, and at times they may be introduced into the nose. Of eighty-five individuals, 5.8 per cent. were found to be carriers of *B. Friedländer*. It was impossible artificially to produce a carrier state by repeated inoculation with *B. Friedländer*. The conclusion reached by Bloomfield is that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria.

Conditions Mistaken for Pulmonary Tuberculosis.—Stivelman claims that tuberculosis is unquestionably much overdiagnosed in those who for some reason present themselves for examination in the clinics of large municipalities. Errors in diagnosis are due to lack of care and thoroughness, failure to examine the sputum carefully, disinclination to utilize the roentgen rays, and, above all, failure to correlate the history and clinical findings. Among 1,700 cases diagnosed as tuberculosis, 176, or 10.4 per cent., were nontuberculous. The conditions most frequently diagnosed incorrectly were: chronic bronchitis and emphysema, cardiac conditions, nonspecific diseases of the upper respiratory tract, neurasthenia, chronic interstitial pneumonia, bronchiectasis, chronic nontuberculous lung infections, asthma, gastric ulcer, pulmonary abscess and dysthyroidism.

Annals of Surgery, Philadelphia

January, 1921, **73**: No. 1

Bone Grafting: Study of Cases Operated in U. S. Army Hospitals. J. B. Walker, New York.—p. 1.

*Bacteriology of Infected Wounds with Especial Reference to Importance of Streptococcus Hemolyticus. T. H. Sweetser, Minneapolis. —p. 4.

*Picric Acid in Operative Surgery. C. E. Farr, New York.—p. 13.

Intracranial Aerocele Following Fractured Skull. G. Horrax, Boston. —p. 18.

Squamous Cell Epithelioma of Thyroid: Review of Literature and Report of Case. C. A. Roeder, Omaha.—p. 23.

Bronchopulmonary Fistula. A. O. Wilensky, New York.—p. 30.

Cholelithiasis. G. Woolsey, New York.—p. 46.

*Production by Chemical Means of a Specific Cholecystitis. F. C. Mann, Rochester, Minn.—p. 54.

Hemorrhagic Cysts of Spleen: Report of Case. C. S. Hamilton and E. H. Boyer, Columbus.—p. 58.

Polycystic Kidneys and Liver: Report of Case. D. N. Eisendrath, Chicago.—p. 62.
Renal Tuberculosis in Twins. H. L. Kretschmer, Chicago.—p. 65.
Technic of Operative Treatment of Neoplasms of Urinary Bladder. E. Beer, New York.—p. 72.
Tibial Tubercle Affections: Report of Seven Cases. R. Stephens, New York.—p. 77.
Hysterectomy in Lankenau (Formerly German) Hospital. J. B. Deaver, Philadephia.—p. 84.
Nonoperative Treatment of Fractures. E. C. Cutler, Boston.—p. 91.
*Exstrophy of Bladder in Female. J. Burke, Buffalo.—p. 100.
Gelatiniform Carcinoma of Breast. P. J. Reel, Columbus.—p. 108.

Bacteriology of Infected Wounds.—Sweetser says a combination of streptococcus hemolyticus and staphylococcus aureus was the most common of all associations in wounds. That association was particularly frequent in fatal wounds. *Streptococcus hemolyticus, Staphylococcus aureus, Bacillus welchii, Bacillus coli-communis, Bacillus proteus,* and to a less extent, *Staphylococcus albus,* were the bacteria appearing most often in both the fatal and nonfatal cases. The prognosis seems to have been good in cases showing *Staphylococcus aureus* or other aerobes aside from streptococcus. Association with *Staphylococcus aureus* seemed to lower the virulence of infection with anaerobes. Infections with anaerobes showed a high death rate, but a short period of danger to life, unless the anaerobes were associated with steptococcus. Deaths from steptococcus infection were numerous and occurred at least up to the end of the fourth month. The mortality was even higher where streptococcus was associated with *Staphylococcus aureus* or with anaerobes. Conversely: cases fatal early usually showed anaerobic infection; those patients dying late invariably showed streptococcus infection. Most of the early improvements and cures were cases of infection by aerobes other than streptococcus, while the improvements and cures that were tardiest generally showed infection by streptococcus without anaerobes, or by streptococcus and *Staphylococcus aureus* without anaerobes.

Picric Acid in Operative Surgery.—Picric acid, Farr says, is ideal as a skin application preceding operation in that it never irritates and that it remains in the skin for a long period of time. Its only drawback is its rather startling color, which may annoy sensitive patients when exposed surfaces are stained. From the clinical standpoint, Farr's results compare very favorably with those formerly obtained with iodin and with the older methods of skin preparation.

Chemically Induced Cholecystitis. — Mann found that the intravenous injections of a solution of chlorinated soda in dogs produces a definite reaction of the gallbladder in a high percentage of experiments. The reaction consists of a breaking down of the capillaries and infiltration of the wall of the gallbladder with blood. The reaction is undoubtedly produced by some chemical in the solution; chlorin is suggested as the probable substance.

Exstrophy of Bladder in Female.—Burke reports the case of a girl successfully operated on by the extraperitoneal method for this condition.

Archives of Internal Medicine, Chicago

January, 1921, **27**, No. 1

*Study of Unusual Endocrine Disturbances; Their Associated Myopathies, Endocrine Balance and Metabolism Findings. S. Brock, New York, and W. E. Kay, San Francisco.—p. 1.
*Blood Volume in Pernicious Anemia. G. P. Denny, Boston.—p. 38.
*Simple Device for Measuring Rate of Metabolism. H. M. Jones, Chicago.—p. 48.
*Spirochetal Pulmonary Gangrene. M. Fishberg and B. S. Kline, New York.—p. 61.
Significance of Acidosis of Methyl Alcohol Poisoning. C. C. Haskell, S. P. Hileman and W. R. Gardner, Richmond, Va.—p. 71.
*Constancy of Volume of Blood Plasma. A. V. Bock, Boston.—p. 83.
*Hereditary Hemorrhagic Telangiectasia with Recurring (Familial) Hereditary Epistaxis. H. I. Goldstein, Camden, N. J.—p. 102.
Some Fundamental Principles of Electrocardiography. G. Fahr, Madison, Wis.—p. 126.
Acholuric Jaundice. M. A. Blankenhorn, Cleveland.—p. 131.

Endocrine Disturbances. — Three cases are presented in detail by Brock and Kay, in each of which remarkable endocrinopathies are associated with unusual manifestations in the muscular system. Attention is directed to the endocrine balance, the sugar and the basal metabolism. It is shown that the basal metabolism is the result of the sum total activities (in part compensatory) of the various ductless glands. In polyglandular disorders, such as those described, the basal metabolism does not reflect the degree of participation of any individual gland. In two cases a congenital developmental defect is postulated as the cause of both the endocrine deficiencies and the psychic disorders.

Blood Volume in Pernicious Anemia.—A method for calculation of blood volume is described by Denny. By this method nineteen determinations were made in ten cases of pernicious anemia. The total blood volume in these cases was reduced in all but two cases. Plasma volume remained essentially normal, the decrease in total volume being due to loss of cell mass. One case showing a normal volume had a high plasma volume. There was no noticeable relation between the severity of the disease and the decrease in total volume.

Simple Device for Measuring Rate of Metabolism. — An apparatus for measuring the rate of oxygen consumption, designed to be portable in a practical sense, is described by Jones. Mathematical procedures necessary for calculation of the rate of metabolism (from the respiratory quotient, the body area, and the rate of oxygen consumption) are eliminated from the test. The reading is made directly, in terms of calories per hour per square meter of body area. Independent and comparative tests show its technical variations to be within physiologic and individual variations, and, therefore, adequate to the needs of the clinician as an instrument for measuring basal metabolism.

Spirochetal Pulmonary Gangrene.—The presence of numerous spirochetes in the gangrenous portions of the lung in the case reported by Fishberg and Kline suggests their etiologic relationship to the lesion. The spirochetes responsible for the gangrene in this case are of the type Castellani calls *Spirochaeta bronchialis.*

Constancy of Volume of Blood Plasma.—Bock shows that the plasma volume in man, in contradistinction to the total blood volume, tends to be a physiologic constant, except under certain stated conditions. The evidence consists of data obtained by blood volume determinations in five normal and twenty-five abnormal individuals. Recovery after hemorrhage is associated with rapid restoration of plasma to the normal plasma level, provided the tissue fluid reserve is adequate. Complete restoration of the total blood volume is dependent on increase in the number of corpuscles. Overdilution of the plasma after hemorrhage has not been encountered.

Hereditary Hemorrhagic Telangiectasis.—A review of the literature on telangiectases of the hereditary type associated with familial epistaxis is given by Goldstein, and a case of hereditary telangiectasia with severe recurring nasal hemorrhages is recorded. Cases are mentioned of two married sisters, seven children and the patients' mother, all in the same family, suffering from the same disease, a total of eleven cases in one family.

Archives of Neurology and Psychiatry, Chicago

January, 1921, **5**, No. 1

*Clinical and Anatomic Study of Vascular Lesion of Both Cerebellar Hemispheres, with Especial Reference to Cerebellar Catalepsy and Nystagmus, and Anatomic Connections of Inferior Olive. W. F. Schaller, San Francisco.—p. 1.
Case of Acromegaly Associated with Brain Tumor. W. A. Bryan and S. Uyematsu, Hathorne, Mass.—p. 20.
Motor Disturbances in Lethargic Encephalitis. I. Abrahamson, New York.—p. 33.
*Oculocardiac Reflex (Dagnini-Aschner Phenomenon)—Its Use in Medicine and Psychology. S. Naccarati, New York.—p. 40.
*Phenolsulphonephthalein Absorption from Subarachnoid Space in Paresis and Dementia Praecox. P. G. Weston, Warren, Pa.—p. 58.
*False Localizing Signs of Spinal Cord Tumor. C. A. Elsberg, New York.—p. 64.

Vascular Lesion of Both Cerebellar Hemispheres.—A case is reported by Schaller in which there is a destruction of tissue in both cerebellar hemispheres with conservation of the vermis and the central vestibular system, and whose predominant symptomatology is marked dyssynergia, cerebellar catalepsy and scanning speech. Equally important from the standpoint of negative symptomatology is the absence of spontaneous nystagmus and of spontaneous errors of pointing after Bárány. The absence of nystagmus is explained by the practically intact vestibular system. This case confirms the opinion of Wilson and Pike that rhythmic nystagmus or labyrinthine nystagmus consisting of slow and quick components is properly a symptom of vestibular disease. The symptoms of dyssynergia, dysmeteria and dysdiadokokinesia were marked and characteristic. They would tend to confirm prevalent notions regarding cerebellar symptomatology. In contrast to the above symptoms was the conservation of trunkal static equilibrium as evidenced by the ease with which this patient maintained the sitting position. Cerebellar catalepsy in this case is another example of conserved static equilibrium contrasted with disturbed dynamic equilibrium exemplified by the great incoordination in the extremities. From the anatomic standpoint, the principal findings are corroborative in general of the degenerations following cerebellar defects such as are demonstrated in cases of cerebellar lesions, animal experimentation, and particularly unilateral and bilateral agenesias of the cerebellar hemispheres. Worthy of mention, and perhaps throwing some light on the anatomic connections of the cerebellum and of the inferior olive, are the following considerations: 1. The destruction of the left restiform body may be brought into relationship with the destruction of the left dentate nucleus for the reason that the right restiform body is practically intact with an extensive destruction of both cerebellar hemispheres and conservation of the right dentate nucleus. 2. On the left side the degenerations in the central tegmental tract, circumolivary fibers, internal fibers of the olive, and Helweg's bundle seem to indicate a more or less intimate connection of these structures. 3. On account of the small tegmental lesion, which is in close vicinity to the central tegmental tract, the question must remain an open one as to whether this tegmento-olivo-spinal degeneration is dependent on it or on the cerebellar lesions. In a careful study of the serial sections representing the tegmental lesion no actual defect in the bundle could be demonstrated due to softening. This lesion probably explains the degeneration of the left median fillet which it directly involves.

Oculocardiac Reflex.—An experimental and comparative study was made by Naccarati of groups of normal and pathologic subjects. He found that this reflex is subject to individual differences and variations, as is the pulse. Since normal persons are subject to the same changes in their oculocardiac reflex, it cannot constitute a positive sign for differential diagnosis. It may serve only as an indicator of probability. The classification of the oculocardiac reflex into normal, abolished, inverted and exaggerated classes cannot be accepted on account of the extreme inconstancy of the reflex index: the same normal or abnormal subject may present a positive, a negative, and a 0 index at different times, even when the hour, position, and the amount of ocular compression are kept constant. About 40 per cent. of the normal subjects examined by Naccarati showed a reflex index of from 0 to + 4. In tabes the reflex index is 0 or very small; exceptionally it surpasses three units; it shows slight variations or no variations at all when taken at different times. In general paresis the index tends to remain small, but cases showing a larger positive or negative index are encountered with much more frequency than in tabes. In the feebleminded no tendency to a large positive index (exaggerated reflex) was found, as reported by some authors. In epilepsy, although a well defined tendency toward a large positive index (vagotonic reaction) was found, it was not the rule; cases with small positive indexes, with 0 and negative indexes, were quite often encountered. Bromids did not reduce the reflex index. In thyroid states, a definite tendency was found on the part of the hypothyroid patients to react with a positive index and of the hyperthyroid patients to react with a negative index; this tendency was much more definite in hypothyroid patients. Where the reflex could be repeated at different intervals, large variations were found. Administration of thyroid extract to the hypothyroid patient seemed to produce a reduction of the index. In normal and pathologic cases, pressure over different sensitive spots of the body did not induce the changes in the pulse rate that were obtained with ocular compression. Unilateral paralysis of the second, third, fourth, fifth (motor branch), sixth, seventh, ninth, eleventh and twelfth cranial nerves did not modify the reflex to a substantial extent. Involvement of the vagus nerves greatly influenced the reflex index; involvement of the cervical sympathetic nerve caused a slight alteration of the index. Resection of the sensory branch of the trigeminal nerve produced suppression of the reflex on the side of the lesion, without influencing the reflex index of the other side. These facts substantiate the results of experiments previously reported, namely, that the centripetal pathway of the oculocardiac reflex is constituted exclusively by the sensory branch of the trigeminal nerve and that the centrifugal pathway is constituted mainly by the vagus and partially by the sympathetic nerve.

Phenolsulphonephthalein Absorption in Paresis and Dementia Praecox.—Westen injected 1 c.c. of neutral, sterilized solution of phenolsulphonephthalein having a specific gravity of 1 0061 into the lumbar subarachnoid space, and the contents of the needle were washed into the canal with 15 c.c. of previously withdrawn spinal fluid. The time of appearance of the dye in the urine was then determined. Twenty-eight cases of catatonic dementia praecox and seventeen cases of paresis were observed. Age, duration of the psychosis, physical and mental condition, so far as could be determined, had no constant effect on the appearance time. In all cases the dye was longer in making its appearance in the urine than the normal time stated by Dandy and Blackfan, six minutes, and by Mehrtens and West from four to ten minutes. In these observations the time varied from twelve to sixty-eight minutes in the case of paresis and from twenty-five to 104 minutes in the case of catatonic dementia praecox. The specific gravity of the spinal fluid varied from 1.0061 to 1.0063 in the dementia praecox group and from 1.0061 to 1.0073 in the paretic group. The hydrogen-ion concentration in all cases was 7.4 The Wassermann reaction, gold and globulin tests were all negative in the dementia praecox cases and were positive in the paretics. The dye was not found in fluid drawn from the cisterna magna at any time up to five hours after it had been injected into the lumbar subarachnoid space. The absorption of the dye took place from the lumbar region.

False Localizing Signs in Spinal Cord Tumor.—In some patients the symptoms and signs noted at repeated examinations by different examiners pointed clearly to a certain level and a definite location, but the growth was found to have entirely different relations to the cord. Elsberg has characterized these as cases with "false localizing signs." He has been impressed by the frequency with which patients with spinal tumors in the cervical region first complain of sensory and motor symptoms referable to the lower extremities. In twenty-five cases of extramedullary and intramedullary cord tumors in the cervical region, six patients stated that the first symptoms they observed were in the lower extremities; in three, weakness, stiffness and sensory disturbances preceded symptoms in the upper limbs by many months, and two of the five patients had no knowledge of any motor or sensory disturbances in their upper extremities when they were first examined.

Boston Medical and Surgical Journal

Jan. 20, 1921, **184**, No. 3

*Clinical Recognition of Various Types of Paroxysmal Rapid Heart Action. S. A. Levine, Boston.—p. 53.

Medical Complications Following Surgical Operations. W. E. Preble, Boston.—p. 57.

Balneology of Japan. H. Packard, Boston.—p. 60.

*Case of Congenital Heart Disease with Complete Auriculoventricular Dissociation Presenting Unusual Features. F. A. Willius, Rochester, Minn.—p. 64.

Report on Sixty-Four Consecutive Examinations of Duodenum in Cadaver. H. F. Aitken.—p. 67.

Conditions in Palestine During War and Medical Relief Among Civil Population and Refugees. I. Alcazar, Boston.—p. 68.

Duty of State Medical Societies. R. C. Fish, Worcester, Mass.—p. 71.

Differentiation of Paroxysmal Tachycardia. — Levine discusses how normal tachycardia can be distinguished from the paroxysmal rapid heart action and differenciates the various types of the latter where that is possible, with such simple means as all physicians have at the bedside. The points involved in the differential diagnosis are discussed and the importance of vagal stimulation as a life saving measure in rare instances is emphasized. The proper treatment of the various types of paroxysms depends on the correct differentiation of the abnormal mechanism.

Congenital Heart Disease.—Willius' patient presented a very remarkable type of complete auriculoventricular dissociation. The P wave was inverted (negative), indicating an ectopic focus of stimulus production. An auricular arrhythmia was present, apparently not influenced by ventricular activity. The P wave shows the tendency to occur sooner in each succeeding cycle. An abnormal T wave was present in Derivation II and in Derivation III. The rate of the ventricles was greater than that of the auricles.

Florida Medical Association Journal, St. Augustine and Jacksonville

January, 1921, **7**, No. 7

Medical Journals and Campaign Against Cancer. F. J. Osborne.—p. 102.
Difficulties in Diagnosing Acute Appendicitis. J. S. McEwan, Orlando.—p. 106.

Journal of Experimental Medicine, Baltimore

Jan. 1, 1921, **33**, No. 1

*Reticular Material of Developing Blood Cells. E. V. Cowdry, Peking, China.—p. 1.
*Streptococci Occurring in Sour Milk. F. S. Jones, Princeton, N. J.—p. 13.
Preparation of Collodion Sacs for Use in Bacteriology. F. L. Gates, New York.—p. 25.
*Mechanical Measuring Instrument for Sterile Liquids. F. L. Gates, New York.—p. 45.
Factors Influencing Anaerobiosis, with Special Reference to Use of Fresh Tissue. F. L. Gates and P. K. Olitsky, New York.—p. 51.
Preservation of Stock Cultures of Bacteria by Freezing and Drying. H. F. Swift, New York.—p. 69.
*Quantitative Distribution of Particulate Material (Manganese Dioxid) Administered Intravenously to Cat. C. K. Drinker and L. A. Shaw, Boston.—p. 77.
Study of Classification of Meningococci. A. B. Wadsworth, R. Gilbert and A. Hutton, Albany.—p. 99.
Comparison of Potency of Polyvalent Antimeningococcus Serum Produced with Four and Six Representative Strains and That Produced with Sixty Strains, as Determined by Agglutination Titer. A. B. Wadsworth, Albany.—p. 107.
Purification and Concentration of Antigens for Complement Fixation by Methods of Dialysis, Adsorption and Extraction. A. B. Wadsworth and F. Maltaner, Albany.—p. 119.

Reticulum in Blood Cells.—Erythroblasts, leukocytes and lymphocytes, Cowdry says, resemble other cells of the body in containing a restricted area of fluidity in their cytoplasm. In special preparations this fluid appears in the form of a more or less complicated reticulum which seems to be continually but slowly changing in shape. For convenience, the fluid may provisionally be referred to as reticular material, emphasis being laid on its composition rather than its form. As a working hypothesis it is safe to assume that the chemical and physical properties of this material vary in cells of different kinds as well as in different stages in the activity of the same cell. The conclusion that it is "identical" in different cells, because the present crude methods of technic reveal no fundamental differences, would be as incorrect as the statement that the serum of different animals is identical, because no difference is observed on microscopic examination.

Streptococci in Sour Milk.—A well defined group of rod-like and coccoid organisms arranged in pairs and chains has been encountered by Jones in sour milk. The group comprises at least three species; the largest number ferment dextrose, lactose, maltose, mannitol and salicin, and fail to ferment saccharose, raffinose, and inulin. A smaller number ferment saccharose in addition to dextrose, lactose, maltose, mannitol and salicin. A few fail to attack mannitol. All three types grow luxuriantly at room temperature, coagulate milk, reduce litmus, and produce large amounts of acid in fermented bouillon containing dextrose.

Measuring Sterile Solutions.—An instrument is described by Gates by which aliquot portions of a liquid may be mechanically measured and delivered. It was devised especially for use in immunologic experiments, to take the place of a graduated pipet in setting up serum tests.

Quantitative Distribution of Particulate Material.—The experiments reported on by Drinker and Shaw, coupled with correlative results by other investigators, make it clear that in certain organs—the lungs, liver and spleen of the cat—the vascular endothelium possesses phagocytic power rendering the capillaries permeable to particulate material as well as to gases, liquids and dissolved substances.

New York State Journal of Medicine, New York

January, 1921, **21**, No. 1

State Medical Legislation. Its Effect on the Public and the Profession. The Health Centers Bill of 1920. E. L. Hunt, New York.—p. 1.
Need of Health Centers. E. V. Delphey, New York.—p. 3.
State Board of Health. H. M. Biggs, New York.—p. 6.
Impending Public Health Legislation. H. L. Winter, Cornwall.—p. 9.
*Roentgen-Ray Treatment of Tonsils and Adenoids. W. D. Witherbee, New York.—p. 14.
Paraspecific Therapy in Severe Ocular Infections. B. Witt Key, New York.—p. 18.

Roentgen-Ray Treatment of Tonsils and Adenoids.—Witherbee reports his results from the use of the roentgen ray in the treatment of hypertrophied tonsils in about sixty cases. The exposure is made over an area of which the angle of the jaw forms the center. Good results are reported. Only two exposures are necessary in each treatment, and the maximum dose used is 1¾ skin units of filtered ray. Each exposure was given for from three to seven minutes, depending on the age of the patient.

Northwest Medicine, Seattle

January, 1921, **20**, No. 1

Acute Abdomen. R. C. Coffey, Portland.—p. 1.
Some Experiences with Perforation of Stomach. C. R. Mowery and H. C. Mowery, Wallace, Idaho.—p. 7.
Intestinal Stasis. G. F. Koehler and D. Palmer, Portland, Ore.—p. 10.
Cecal Pathology. W. D. Read, Tacoma, Wash.—p. 11.
Laboratory as Aid to Diagnosis in Gastro-intestinal Diseases. M. M. Null, Seattle, Wash.—p. 13.
*Pituitary Polyuria or Diabetes Insipidus. K. Winslow, Seattle, Wash.—p. 16.

Pituitary Polyuria.—Winslow reports two cases of diabetes insipidius in which treatment with a pituitary extract gave immediate and favorable results. One of the patients had had encephalitis four months previously and the author ascribes the polyuria to involvement of the pituitary gland by the encephalitic process. In the second case the onset was slow and except for a chronic tonsilitis, pyorrhea and abscessed teeth, no abnormalities were present. The pituitary extract was given daily, 1 c.c. to the first patient and 0.5 c.c. twice daily to the second.

Surgery, Gynecology and Obstetrics, Chicago

January, 1921, **32**, No. 1

Restoration of Shoulder Function in Cases of Loss of Head and Upper Portion of Humerus. F. H. Albee, New York.—p. 1.
*Operative Treatment of Infantile Paralysis. R. W. Lovett, Boston.—p. 20.
*Carcinoma of Prostate. H. C. Bumpus, Rochester, Minn.—p. 31.
Urinary Calculus at Canton Hospital. J. O. Thomson, Canton, China.—p. 44.
*Placenta Praevia. G. L. Brodhead and E. G. Langrock, New York.—p. 55.
Papillary Adenocystoma of Ovary of Psammocarcinoma Type. R. H. Miller and L. E. Viko, Boston.—p. 59.
Compressive Trauma as an Entity. P. W. Nathan, New York.—p. 62.
*Result and Feasibility of Treating Lymphangiomas with Injections of Boiling Water. F. Reder, St. Louis.—p. 70.
Diathermy in Some Bone Lesions. A. B. Hirsh, New York.—p. 74.
Bilateral Renal Dystopia. Report of Case. H. W. E. Walther, New Orleans.—p. 82.
*Treatment of Suppurating Wounds Following Abdominal Section. T. J. Watkins, Chicago.—p. 87.
*Saving Suppurating Incisions. H. A. Royster, Raleigh, N. C.—p. 90.
Resection of Clavicle to Accomplish Coaptation of Divided Brachial Plexus. H. M. Richter, Chicago and K. L. Vehe, Cheney, Wash.—p. 92.

Operative Treatment of Infantile Paralysis.—Paralysis or weakness of the gluteus medius or gluteus maximus muscles, Lovett says, causes two forms of lameness, which are primary in their importance and are too often neglected while attention is diverted to more serious defects lower down, which are really secondary in importance. He urges that in each case the patient's gait be examined thoroughly and carefully with a view as to ascertaining just which muscles cause the lameness. Paralysis of the hip flexor muscles and abdominal paralysis are also frequent causes of lameness. Lovett points out that all operative procedures should be undertaken only after a careful study of the gait, that is of the case as a whole, and that operations on the thigh and leg should not be undertaken in the presence of severe involvement of the hip and abdominal muscles, without warning the parents, or the patient, that the hip and abdominal lameness will not be affected materially by the remedy of the condition below.

Lovett deprecates especially the performance of serious structural operations on the foot when the chief cause of the limp lies in the muscles of the hip and abdomen. These operations may well be necessary and if so, should be performed, but not with the expectation of remedying a limp of which they are not the cause.

Carcinoma of Prostate.—In the 362 cases of carcinoma of the prostate analyzed by Bumpus metastasis was found in 79, 21.8 per cent.; in 37, 10.2 per cent., the glands were involved. He is of the opinion that metastasis to the glands probably occurs more frequently in cases of carcinoma of the prostate than is demonstrable clinically because of the inaccessibility of the glands first involved. One-third of the patients with carcinoma of the prostate have osseous metastasis demonstrable by the roentgen ray. The pelvis and spine are the most frequent sites of osseous metastasis. Metastasis occurs rarely in the lungs, probably never without involvement elsewhere. Metastasis to the spinal cord from carcinoma of the prostate closely simulates primary cord tumors and often occurs when the prostate is but slightly enlarged. Pain is absent in one-fourth of all cases with metastasis. Urinary symptoms are absent in 11.5 per cent. of all cases with metastasis. Neuralgic and rheumatic pains in men above middle age, even in the absence of urinary symptoms, should suggest the possibility of carcinoma of the prostate.

Placenta Praevia. — One hundred cases are analyzed by Brodhead and Langrock. There were 58 marginal praevias (10 in primiparas, 47 in multiparas): 25 of cerebral type (6 in primiparas, 16 in multiparas); 12 lateral praevias (1 in primiparas, 11 in multiparas); and there were 5 of unknown type. There were 9 maternal deaths.

Treating Lymphangiomas with Boiling Water Injections.—Eight patients so treated by Reder have been benefited, but in none has the tumor disappeared. As a lymphangioma favors an inflammatory invasion on very slight pretense Reder warns that any measure for its cure or palliation, be this measure boiling water or a chemical irritant, must be instituted with great risk and with a thorough understanding of the probable clinical course the measure might excite in the tumor, fostered by a courage ample to meet any disappointment.

Treatment of Suppurating Laparotomy Wounds.—In the treatment which Watkins has adopted, no sutures are removed until the wound is healed, unless it becomes necessary on account of extensive cutting of the sutures into the tissues; no drainage is inserted; no probing is permitted. Moist dressings are kept continuously over the wound as long as it remains reddened or indurated. Care should be exercised, however, not extensively to macerate the parts with moist dressings. The value of moist dressings consists almost entirely in preventing desiccation of the secretions and thus in favoring drainage. A large amount of drainage can efficiently take place through a small opening when thus treated. Watkins generally employs a solution of boric acid for the purpose of preventing decomposition. The use of antiseptics, irrigations and drains materially injuries the delicate tissue-repair present in healing wounds. Important features of this treatment of infected abdominal wounds are that no pain is inflicted and that the patient is very little disturbed mentally by the presence of infection, as one can give assurance that the suppuration is of minor importance. The question of systemic treatment of patients with infected abdominal wounds is not presented for discussion in this paper.

Saving Suppurating Incisions. — Through a small stab wound, Royster empties the pus cavity by pressure on each side. When the small cavity is emptied a quantity (equal in amount to the pus removed) of a 10 per cent. melted iodoform-vaselin ointment is introduced by means of a glass syringe. This distends the cavity, fills the interstices, and solidifies on cooling. A cold wet compress is immediately applied over the whole area, and an ordinary dressing over this. As a rule, the wound is not disturbed for four days, when on removing the dressing the incision and the suppurating area will be found clean and intact. Slight pressure will cause any excess of ointment to exude and another cold compress may be put on. If before the fourth day a discharge be noted through or around the dressing, the wound again may be emptied by pressure and a second injection of the ointment made. The only advantage of the iodoform is said to be its odor, which counteracts that of the colon bacillus in the pus. In this type of cases it is superior to bismuth. It is admitted that simple vaselin would be sufficient in many instances, except for the absence of deodorizing qualities.

West Virginia Medical Journal, Huntington

January, 1921, **15**, No. 7

Pre-Operative Localization of Acute Appendix. R. J. Reed, Wheeling. p. 241.
Plea for Normal Appendix; Its Physiology as Viewed from a Surgical Point. H. G. Nicholson, Charleston.—p. 244.
Two Hour Test for Renal Function. C. G. Willis, Huntington.—p. 246.
Report of Case of Vaginal Septum and Bicornate Uterus. H. G. Steele, Bluefield.—p. 249.
Paper Read Before Eastern Panhandle Medical Society. W. Neill, Charlestown.—p. 250.
B. J. Palmer, Chiropractor. F. F. Farnsworth, Charleston.—p. 252.
Report of Committee on Nursing. L. V. Guthrie, Huntington.—p. 255.
Hernias of Ovary, of Fallopian Tube, and of Ovary and Fallopian Tube. A. P. Heineck, Chicago.—p. 259.
Epilepsy a Symptom of Splanchnoptosis. C. A. L. Reed, Cincinnati. —p. 266.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

January, 1921, **26**, No. 1

*Congenital Hypertrophy of Pylorus. J. Thomson.—p. 1.
Medical Education, Legislation and Practice in the United States. N. Walker.—p. 21.
Influence of Trauma on Distribution of Psoriasis. W. D. D. Small.—p. 51.
Case of Idiopathic Tetanus. R. A. Fleming.—p. 53.

Congenital Hypertrophy of Pylorus.—One hundred consecutive cases of congenital pyloric hypertrophy are analyzed by Thomson. Fifty-eight cases ended fatally; forty-five were examined postmortem. The subjects specially dealt with comprise the family history and complications, the causation of the muscular hypertrophy and of the symptoms, the natural course of the disease under medical and surgical treatment, the symptoms and choice of treatment in different types of the disease, the diagnosis, especially that between pyloric hypertrophy and the so-called "pyloric spasm," the difference in the prognosis in hospital and private cases, and the subsequent health of the patients who recover.

Indian Medical Gazette, Calcutta

December, 1920, **105**, No. 12

*Prevalence in India of Gastric and Duodenal Ulcer and Allied Conditions of Upper Abdomen. Diagnosis and Treatment. W. J. Wanless.—p. 441.
*Blood Pressure During Intravenous Injection of Quinin in Treatment of Malarial Fever. U. N. Brahmachari.—p. 447.
Field Ambulance Organization. H. V. Thompson.—p. 448.
*Rupture of Spleen. P. H. Hennessy.—p. 452.
Cutaneous Myiasis in Man and Animals in India. W. S. Patton.—p. 455.
Case of Acute Catarrhal Jaundice. A. B. DeCastro.—p. 456.

Gastric and Duodenal Ulcer in India.—Prominent among the chronic conditions of the upper abdomen prevailing in India, Wanless says, is gastric and duodenal ulcer, a disease which fifteen years ago was not thought to be particularly prevalent in India. Up to the end of 1919, 591 cases of gastric and duodenal ulcer were operated in the Miraj Hospital. These facts, together with the now frequent performance of gastro-enterostomy reported from almost every part of India, are sufficient to establish the fact of a widespread incidence of gastric and duodenal ulcer in India. The irritating causative agent in the development of ulcer is, Wanless claims after all, not the character of the food itself, but much more likely the excessive stimulation produced by the ingestion of hot curries taken in conjunction with poorly cooked and inadequately masticated food. The average dirty septic mouth so commonly observed in India must be regarded as an ever-present source of potential focal infection provocative of gastric ulcer and other intestinal disorders. The presence of lime in the mouth of the beetle-nut chewer may exert an antiseptic influence in these septic mouths which inhibit bacterial growth, albeit the lime is itself an exciting factor in the development of buccal cancer. Alcohol, once thought to be a factor in the etiology of gastric ulcer, cannot be so regarded in the case of Indians, comparatively few of whom, in the villages at least, are addicted to its excessive use.

Blood Pressure During Intravenous Injection of Quinin.—During attacks of malarial fever, Brahmachari says, the blood pressure is generally low, especially in the pernicious type of the case. Intravenous injection of quinin in concentrated solution (10 grains to 20 c.c.) is generally followed by a fall in blood pressure and sometimes by a disappearance of the pulse for a few seconds. Intravenous injection of quinin in dilute solution (10 grains in 200 c.c.) may be followed by a fall in blood pressure, but it is neither so sudden nor so great as in the case of concentrated solutions. In many cases there is no fall of blood pressure. The slower the injection is given, the less is the chance of fall of blood pressure taking place. The lowered blood pressure after intravenous injection of quinin may persist for twelve hours or more after the injection. Brahmachari states that intravenous injections of quinin should always be given in very dilute form (1 to 300). The injection must be given at the rate of 10 c.c. every minute, and while making frequent careful blood pressure observations during the operation and guarded by administration of pituitary or epinephrin and the application of tight bandages over the extremities.

Rupture of Spleen in India.—During the five years from 1915 to 1919, 151 cases of rupture of the spleen were officially recorded from the four Federated Malay States-Perak, Selangor, Negri Sembilan and Pahang. Hennessy believes that it is more than likely that these figures understate the actual occurrence of this fatal condition. The average annual return for these years indicates that thirty persons at least have been in danger of death from this accident. Malarial fever is indirectly responsible for the large number of cases. Hence the figures for rupture of the spleen in any one place vary directly as the prevalence of malarial fever. Eight cases are analyzed briefly by Hennessy. In the few cases which he has been able to keep in sight, there have been no ill effects.

Journal of Laryngology and Otology, Edinburgh

January, 1921, **36**: No. 1

*Chorditis Fibrinosa. A. B. Kelly.—p. 5.
*Angeioma of Larynx. I. Moore.—p. 11.
Infection of Middle Ear and External Auditory Meatus, with Vincent's Organisms. W. Wingrave and A. Ryland.—p. 27.

Chorditis Fibrinosa.—Attention is directed by Kelly to an uncommon variety of acute laryngitis characterized by the deposition of fibrin and the occasional formation of erosions on the vocal cords. All of his cases (113) occurred in soldiers, and neither before the war nor since two months after the armistice has he met with a case of the kind. The affection is rare among civilians. The condition apparently is caused by certain noxious agents. Owing to exceptional factors, particularly shouting and rapid respiration, a damaging effect is produced especially on the vibrating part of the cord, and necrosis of the superficial epithelium results. A fibrinous exudation representing the process of repair takes place over the area so destroyed. The extent of both the necrosis and the resulting fibrinous deposit corresponds presumably to the severity of the process. The inflammation is limited to the true cords, the ligamentous portions of which have suffered specially owing to excessive vibratory movement.

Angeioma of Larynx.—Moore has traced seventy-three cases of laryngeal angeioma in the literature. A synopsis is given of each case and the clinical history of the condition is discussed.

Lancet London

Jan. 8, 1921, **1**, No. 2

*Use and Misuse of Curet. W. E. Fothergill.—p. 59.
*Carbuncles. S. Phillips.—p. 61.
Tabes: Early Recognition and Treatment. E. F. Buzzard.—p. 65.
Difficult Cases of Infant Feeding and Management. R. Vincent.—p. 67.
*Diabetes Insipidus Complicated by Intermittent Glycosuria. G. Evans and R. L. M. Wallis.—p. 70.
Cultural Diagnosis of Enterica in Inoculated Individuals. J. C. G. Ledingham.—p. 72.
Treatment of Crippling Disabilities of Children. G. R. Girdlestone.—p. 74.
Osteitis Deformans? F. Romer.—p. 77.

Use and Misuse of Curet.—Admitting that there is still much futile curetting, Fothergill says that the pendulum has swung too far against a useful instrument. As to the use of a large curet for emptying and cleaning the uterus infected either postpartum or postabortum, he states that if this is done before the pathogenic organisms have entered the blood stream, the result is generally excellent. The cleansing of the uterine cavity should, of course, be completed with fairly dry swabs, and not by intra-uterine douching, which sometimes forces septic material and irritating antiseptic solutions up through the tubes into the peritoneal cavity with disastrous results. The dry cleaning should not be repeated, and no subsequent intra-uterine or vaginal douche is desirable. Once emptied and swabbed, not swilled, with an efficient concentrated antiseptic, the uterus is best left alone. The discovery of retained products of conception and their removal from the uterus, remain, in spite of all that has been said to the contrary, sound and common uses for the curet. And these include subinvolution, in which the removal of an unduly persistent layer of decidual tissue is often an essential step in the treatment. The dilator and the curet are essential for the discovery of mucous and small fibroid polypi, of malignant disease within the cervical canal and uterine cavity, and of the results of infection superadded to postmenopause changes known as "senile hemorrhagic endometritis." Except in malignant cases, they provide the treatment as well as the diagnosis. The rule should be, curet in metrorrhagia but not in menorrhagia. When the cervix is to be amputated or repaired, it must first be dilated in order to gain working room for suturing. Again, it is wise to make sure that all is well within the uterus before so narrowing the vagina as to render access to the uterine cavity very difficult thereafter. Polypi are often found and removed during the preliminary scraping, and early malignant disease of the body of the uterus is discovered from time to time. The dangers of curettage are pointed out.

Carbuncles.—In Phillips' opinion operation is advisable in the following circumstances: (1) Where the sloughing process is very deep seated, perhaps under the fascia, and the inflammatory effusion is much obstructed in extending toward the surface. (2) Certain carbuncles, though not large, may be deep seated and the slough may be very tough and thick; the process is subacute, the surrounding inflammation is not intense, and the amount of pus may be small. The opening formed in the skin may be single and very small at first, enlarging only very gradually; this, and the toughness of the slough and its depth, often imprison the small amount of pus there is beneath the slough. (3) Incisions to enlarge spontaneously formed openings in the skin or throwing them together are often useful as assisting discharge of slough and in accelerating healing. (4) Operation is sometimes required when final healing is prevented by tough bundles or bands of fibrous tissue which have resisted the sloughing process. (5) If either of the first two conditions have led to opening a carbuncle by operation it is well to apply pure phenol at the same time, but it is not desirable to incise a carbuncle otherwise progressing favorably in order to use phenol.

Diabetes Insipidus with Glycosuria.—The most constant and important signs of disease shown by the two patients whose histories are reported by Evans and Wallis were polyuria and the secretion of urine of low specific gravity. Chemical examination of the urine, microscopic examination of its deposit, and clinical examination of the cardiovascular system ruled out renal disease or disease of the nervous system as a cause of the abnormal condition of the urine. Neither patient showed any very obvious sign of pituitary disease, but in spite of this, on the strength of the general evidence the authors believe it is justifiable to diagnose both cases as pituitary dystrophies. One patient had an enlarged sella turcica and the second patient's lower jaw was underhung, the skull dolichocephalic, and there was dorsal kyphosis; hirsuties was marked. Both patients made chief complaint of headache and definite complaint of lassitude. The authors believe that cases of this type have not been previously recognized.

Practitioner, London

January, 1921, **106**, No. 1

Treatment of Acute Nasal Sinusitis. S. Thomson.—p. 1.
Chronic Catarrhal Otitis Media. W. Milligan.—p. 9.
Venereal Diseases as We See Them Today. J. E. R. McDonagh.—p. 18.
*Treatment of Gonorrhea in Women. R. Hobbs.—p. 31.
Recent Progress in Gynecology. F. J. McCann.—p. 43.
Some Mistakes and Their Lessons. C. H. Whiteford.—p. 54.
Plea for Compulsory Appresenticeship. E. F. Pratt.—p. 63.
Theories of Malaria. M. D. O'Connell.—p. 69.

Treatment of Gonorrhea in Pregnant Women.—In cases of gonorrhea complicating pregnancy, it is generally held that treatment of the cervix is contraindicated by the risk of miscarriage, unless the circumstances are very exceptional, and there is no doubt that under improper or unsuitable treatment this risk is a real one. Experience leads Hobbs to hold that there is greater risk of miscarriage from the infection of the endometrium than from properly applied treatment to the cervix. It is not only safe to treat the cervical canal, but decidedly in the patient's interest to do so. In addition to the treatment of the vagina and urethra, a small tampon saturated with equal parts of iodin and glycerin is introduced into the cervical canal and left in for one hour. This is repeated every fourteen days until the cervical secretion looks normal and the smears are negative. The treatment has been carried out as late as the eighth month of pregnancy. Up to the present no uterine contractions have resulted, and the vagina and its secretions have become normal.

Tubercle, London

January, 1921, **2**, No. 4

*Heredity in Tuberculosis. A. Adams.—p. 145.
*Symptoms and Course of Tuberculous Meningitis in Adult Consumptives. C. Holten.—p. 150.
*Syphilis as Predisposing Cause of Laryngeal Tuberculosis. E. Morton.—p. 156.

Heredity in Tuberculosis.—The matter of heredity in tuberculosis was looked into by Adams, and the records of 1,000 patients admitted to a sanatorium were analyzed. The relatives looked up embraced grandparents, uncles, cousins and children, and where any doubt existed as to definite disease, all chest conditions were included among the tubercular to counteract any error arising from lack of knowledge. Over 60 per cent. gave no family history. The percentage of patients who failed to respond to treatment was less among those with history than those without. The gravity of the history made little difference. In the very greatly improved group, the results also are in favor of those with a history. Adams asks: "If civilization means syphilization, does it not also denote tuberculization? How rarely does one see today the acute onset and progress with the severe hemorrhages, etc., formerly described and feared; and it is very improbable that this result is all due to improved treatment. The death rate from tuberculosis for many years past has shown a steady decline until the recent war period, when a small rise occurred, probably due to overcrowding in houses and factories, overwork and worry, and insufficient diet—all results of the war. Is it not most probable that the decrease is largely due to an acquired or hereditary immunity which is steadyily raising our resistance to the onset and course of the disease, and that the cases of tuberculous families which undoubtedly exist are only examples of massive infection during infancy and childhood in which the resistance is overcome?"

Tuberculous Meningitis in Adults.—In the course of ten years, thirty cases of tuberculous meningitis were observed by Holten in persons over the age of 16. In fourteen cases the diagnosis was confirmed by postmortem examination. Twelve of these patients were in the third stage, and the remaining two in the second stage of pulmonary tuberculosis. While the clinical picture in children is fairly classical, Holten says this is not the case in adults. The symptoms may be vague, and the whole course of the disease ill-defined. In one case, the most prominent symptom was drowsiness and the duration of the meningitis was only about eleven days. Only in one case were there spasmodic contractions of the legs, accompanied by considerable restlessness. Convulsions were never seen, and in no case did motor aphasia occur; nor was hemiplegia ever seen. Such focal symptoms as squint were observed twice. As a rule, the patients did not lose consciousness till near the end, but in a few cases partial loss of consciousness was the first symptom. Headache was the most constant symptom, and, Holten says, meningitis should always be suspected when a consumptive complains of persistent headache. Vomiting was a common symptom. The symptom which dominates the clinical picture after the disease is well developed is drowsiness. In some cases the terminal stage of toxemia in pulmonary tuberculosis may evoke a clinical picture indistinguishable from that of tuberculous meningitis without the aid of lumbar puncture.

Syphilis Predisposes to Laryngeal Tuberculosis.—In eight of ten cases of phthisis complicated by laryngitis, in which tubercle bacilli had been demonstrated in the sputum. A positive Wassermann reaction was obtained by Morton. The Wassermann reaction was tested in a control series of ten cases of pulmonary tuberculosis. An average of 10 per cent. had a positive Wassermann, as compared with the 80 per cent. in the laryngeal group. Therefore, Morton concludes that a syphilitic soil acts as a predisposing cause of laryngeal tuberculosis.

Archives des Maladies du Cœur, etc., Paris

October, 1920, **13**, No. 10

Instability of Blood Pressure with Aortic Stenosis. L. Gallavardin and A. Devic.—p. 433.
*Second Pulmonary Sound in Carditis. G. Turrettini.—p. 440.
Measurement of Pressure in Temporal Artery. P. Baillart.—p. 445.
*Chronic Hemorrhagic Purpura. Roubier and Richard.—p. 448.

Modification of Second Pulmonary Sound with Carditis.—Turrettini ascribes considerable importance to the metallic resonance of the second pulmonary diastolic sound at the third left interspace. It was pronounced in three cases of articular rheumatism described, and it gave warning of the involvement of the endocardium in the disease process. It seems to occur only when the infection spreads to the heart by way of the vessels and lymphatics, those which surround the base of the pulmonary artery. It does not appear when infection is propagated from the pleura. In a case of tuberculous pericarditis and one of cardiorenal disease, this *éclat clangoreux* was pronounced.

Chronic Purpura.—Roubier and Richard present an instance of chronic hemorrhagic purpura in a young woman cured by three injections of serum from a sister's blood. The profuse hemorrhages stopped at once after the first familial serum injection of 10 c.c., but six injections were given in all in the course of sixteen days, in amounts ranging from 10 to 18 c.c. The last injection was followed by a chill which kept up for fifteen minutes, and then the temperature ran up to 39.4 C. and there was vomiting. After this she gradually recuperated. The hemorrhagic purpura had developed without known cause, and had proved rebellious to all other treatment for two months before this familial serotherapy was applied. There was no history of hemophilia in the family, and the young woman was nearly exsanguinated before the sister's serum was tried.

Archives de Médecine des Enfants, Paris

January, 1921, **24**, No. 1

*Periodic Vomiting with Acetonemia. A. Marfan.—p. 5. Cont'd.
*Migraine in Children. J. Comby.—p. 29.
*Progressive Degeneration of Lenticular Nucleus. J. Comby.—p. 50.

Periodic Vomiting with Acetonemia.—Marfan remarks that the intervals between the recurring attacks of vomiting may be for weeks, months or years, and that there is very seldom any regularity about them. Gruère of Dijon published the first description in 1840, but Marfan states that he was the first to call attention (1901) to the acetonemia as a constant element in the clinical picture, possibly preceding the vomiting and hence not referable to inanition. He also pointed out a familial tendency, and that this vomiting with acetonemia may develop in the course of some other malady, and obscure the diagnosis. The primary cause he has long affirmed is not in the digestive tract but in some primary metabolic disturbance entailing the acetonemia. In the few cases that have come to necropsy, the fatty degeneration of the liver and other signs of violent acute intoxication resembled those of chloroform poisoning. In a family attended by d'Oelsnitz at Nice, four of the children have had this periodic vomiting with acetonemia, and two have died in connection with the attacks, the acetonemia complicated with hematuria and convulsions. Marfan has three patients who have been under observation for more than ten years who never had but the one typical attack. Between the ages of 2 and 6 the attacks are most frequent and most severe. After 6 the frequency and intensity decline, and the age of 12 seems to be the final limit, no attacks later than this occurring. He knows of one instance however where they kept up to the age of 14, but very mild. Among sixty adults known to have been subject to periodical vomiting with acetonemia during childhood, four have attacks of migraine; two young women have had gallstone colic after marriage, and one man of 27 has developed diabetes. During the attacks the urine contains large amounts of ketone bodies, but during the intervals it seems to be normal. The attacks of vomiting may alternate with attacks of asthma, or with transient fever or somnolence —all with pronounced acetonemia or with convulsions, with stupor and sometimes meningitic symptoms. One child of 18 months developed convulsions after the attack of vomiting, with somnolence or coma keeping up for a week, and leaving flaccid paralysis for over a month. This child later had recurrence of the vomiting and acetonemia.

Migraine in Children.—Comby emphasizes the hereditary nature of migraine in children, and that it is by no means rare, affecting both boys and girls. There is always photophobia. In some of fifteen cases under the age of 15 he describes in detail, the first known attacks were at the age of 2 to 12 months. The attacks sometimes are very severe, with fever and other symptoms, but perfect health during the intervals is a characteristic feature. Treatment should aim to ward off inciting causes. Such children are nervous, and country life, a boarding school in the country, brief hot or cold douches, and potassium bromid, morning and at bedtime, have all proved useful. When a child develops migraine there is reason to fear gout, asthma, diabetes or gravel in later life. Perhaps migraine in some cases may prove to be a manifestation of anaphylaxis to some article in the diet, eggs, chocolate, etc. He has known instances of migraine developing as the children outgrew the tendency to periodical vomiting with acetonemia.

Progressive Lenticular Degeneration. — Comby analyzes recent literature on Wilson's disease, and comments on the solid basis already acquired. Disease of the striate body has been definitely proved to entail involuntary movements, tremor, etc., and contractures, dysphagia, dysarthria and exaggeration of the physical emotional responses, but there is no sensory, reflex or paralytic disturbance.

Bulletin de l'Académie de Médecine, Paris

Dec. 28, 1920, **84**, No. 40

*Malarial Encephalomyelitis. G. Marinesco.—p. 369.
*Cancer of Uterine Cervix. J. L. Faure.—p. 376.
*Pathogenesis of Migraine. Rémond and Rouzaud.—p. 379.

Encephalomyelitis of Malarial Origin.—The young woman was brought to Marinesco's service with symptoms indicating a pronounced myoclonic type of encephalomyelitis. On raising the trunk for lumbar puncture, the tremor and jerkings and respiration all ceased. Under artificial respiration, she recuperated, but the pulse was very weak, and death occurred the twenty-fifth day from the first symptoms, which had been fever and malaise. Necropsy revealed hematozoa in the blood, including one crescent. The hematozoa were found also in brain, medulla and spinal cord, while the cerebellum seemed to have escaped.

Cancer of Uterine Cervix.—Faure has been preaching for twenty-five years the necessity for abdominal hysterectomy when cancer of the cervix is diagnosed, and declares that this is perhaps the most curable of all forms of cancer. More than 50 per cent. of his 71 patients treated in this way have been free from recurrence to date. The interval since in 16 has been from six to twelve years and in the others from one to six years. In the cases seen early, the permanent cures amount to 88.24 per cent. and even in the most advanced cases to 26.66 per cent. For several years he has been giving radium exposures to supplement the operation, but has been astonished to find that recurrence followed in 50 per cent. of the 44 given radium treatment while there was recurrence only in 39.14 per cent. of 23 not thus exposed.

Pathogenesis of Migraine.—Rémond and Rouzaud found evidences of both liver and kidney insufficiency in examining the urine of eighteen women and twenty-four men during the intervals between attacks of migraine. They reason from this that migraine is the manifestation of intoxication progressively increasing until it reaches a crisis, the toxic action affecting the sympathetic and vasomotor nervous systems.

Bullètins de la Société Médicale des Hôpitaux, Paris

Nov. 26, 1920, **44**, No. 36

*Gastric Ulcer with Kidney and Liver Lesions. C. Gandy.—p. 1423.
*Cerium Salts in Treatment of Tuberculosis. L. Rénon.—p. 1425; Id. H. Grenet and H. Drouin.—p. 1427.
Degeneracy of Corpus Callosum in Chronic Alcoholism. Laignel-Lavastine.—p. 1432.
*Autochthonous Pernicious Malaria. Brulé, May and Lermoyez.—p. 1436.
Febrile Psoriasis with Psychosis and Endocarditis. Pierre-Kahn.—p. 1440.
*Short Form of Slow Malignant Endocarditis. N. Fiessinger and H. Janet.—p. 1443.
Acute Peritonitis Simulating Enteritis. A. Bergé and J. Roberti.—p. 1450.

Association of Kidney and Liver Lesions with Gastric Ulcers.—Gandy recalls that twenty years ago he published an article calling attention to derangement of kidney or liver functioning or both as an important factor in the toxemia which he regards as responsible for the histologic process of hemorrhagic necrosis that we recognize as simple ulcer of the stomach. Le Noir, Richet and Jacquelin's recent report of five cases showing this association in a pronounced form, was read at a preceding meeting.

Cerium Salts in Treatment of Tuberculosis.—Rénon reports further experience with the rare earths in the treatment of local tuberculosis, all confirming the extreme leukocytosis and mononucleosis and the local and general improvement which they induce for a time, possibly for several months; but then comes a stationary phase. The lesions do not progress to a complete cure. In some of those treated during the nine months of his experiments no action from the drug was apparent. Grenet and Drouin assume that this peculiar mononucleosis promotes the development of connective tissue, activating fibrogenesis. They have recently been using these cerium salts in a lipoid solution by subcutaneous injection. The action of these salts on the bacilli, modifying the fats and altering the shape in vitro is beyond question, they say, but their therapeutic application is still only in the tentative stage. Their previous research was mentioned editorially, July 24, 1920, p. 246.

Malignant Malaria in France.—The autochthonous malignant tertian malaria had developed at Paris, following treatment with neo-arsphenamin. Although the onset was grave, the cure was soon realized under quinin.

Slow Malignant Endocarditis.—In the two cases reported by Fiessinger and Janet the streptococcus isolated was not of the viridans type. The first patient, a man of 24, died in less than two months from the first symptoms; the other in three months. In both, death was evidently due to mechanical factors from insufficiency of the left ventricle. In the first case intense headache was one of the earliest symptoms, and kept up to the end, although not quite so severe toward the last. It was relieved by lumbar punctures. The headache was as intense as with purulent meningitis, but the physical signs were those of slight meningism, and necropsy revealed merely diffuse congestion and generalized edema in the brain centers.

Encéphale, Paris

November, 1920, **15**, No. 11

Pathologic Anatomy of the Nerve Centers in a Cretin with Myxedema. P. Marie, C. Trétiakoff and E. Stumfer.—p. 601.
Simulation, Supersimulation. R. Mignot.—p. 609.
"Voices" and Hallucinations. P. Quercy.—p. 618. Conc'n in No. 12, p. 671.
Case of Genitoglandular Dystrophy. A. Prince and Staub.—p. 626.

December, 1920, **15**, No. 12

Aphasia and Psychology of Thought. R. Mourgue.—p. 649. Cont'd.
Diagnosis of Atypical Psychopathic States. P. Courbon.—p. 665.
*Eschars and Atrophy of the Brain in Dements. H. Damaye.—p. 680.

Eschars and Atrophy of the Brain.—Damaye says that in his fifteen years of research on the pathologic anatomy of mental disease, he has been impressed by the fact that when the brain of a dement was found of normal size there was never any tendency to production of eschars on the buttocks or heels. On the other hand, this tendency was always pronounced when the brain showed signs of atrophy, if the patient had been bedridden for a time before death.

Journal d'Urologie, Paris

September, 1920, **10**, No. 3

Diagnosis of Condition of Neck of Bladder and of Posterior Urethra. L. Buerger (New York).—p. 169.
*Kidney Functioning After Prostatectomy. R. Darget.—p. 197.
*Reconstruction of Neck of Bladder. A. B. Aach.—p. 203.
Traumatic Lesions of Part of Bladder Wall. R. H. Kummer.—p. 211.
Polycystic Kidney with Calculi; Two Cases. V. Richer.—p. 219.
Calculi in Kidney Diverticula. R. Cassanetto.—p. 223.

Changes in Kidney Functioning After Prostatectomy.—Darget analyzed the twenty-four hour urine after prostatectomy in eighteen cases, recording the urea in the blood and the blood pressure, before and after the operation, and comparing them with the outcome later. They show that severe symptoms showing malfunction on the part of the kidneys may retrogress completely after the prostatectomy, but that this cannot be expected when the blood pressure is high. This reveals that the heart is malfunctioning likewise; the operation on the prostate has little effect on the blood pressure. When the blood pressure is high, the heart should be closely supervised, and camphorated oil administered in large doses at the slightest sign of its failing. Postoperative oliguria should be vigorously combated in every way, including lactosed drinks and theobromin. He never saw any disadvantage from the preliminary purge, and intraspinal anesthesia proved very satisfactory. In the eighteen cases there were four fatalities, but complete prostatectomy had been done in only one of these fatal cases.

Reconstruction of Neck of Female Bladder.—Ach refers to cases of relative incontinence of urine. There is no incontinence when the woman is seated or reclining, the anomaly being evidently due to weakness of the muscles in the neck of the bladder and posterior urethra. Marion remedies it by what he calls *réfection du col vésical,* and Ach states that in six women treated by this technic the cure is complete in four; the two others, whose incontinence had been absolute the moment they stood erect, were cured almost completely but a little urine still escapes after physical exertion at the close of a fatiguing day. A self-retaining catheter is introduced in the bladder. The cervix of the uterus is seized and drawn backward to expose the anterior wall of the vagina. Through a transverse incision in this anterior wall of the vagina the tissues on each side of the neck of the bladder are drawn together with a U stitch. Other stitches are taken below to draw up the tissues over the urethra. He uses linen thread. If the tissues draw up easily, a second row is sometimes taken. The article is illustrated.

Lyon Médical

Dec. 25, 1920, **129**, No. 24

*Surgery of Brain Tumors. L. Bériel.—p. 1009.

What Can Be Expected from Surgery of Brain Tumors?—Bériel asks this question on behalf of general practitioners. When the practitioner has diagnosed a tumor in the brain, the symptoms reveal usually whether it is a tumor of fibrous nature, and thus foreign to the brain proper, or a glioma. The fibrous tumor generally grows slowly and causes disturbance only by its mechanical encroachment on surrounding tissues. After a tumor of this kind is removed, a permanent cure may be hoped for. But a glioma is different; this is part of the brain itself, and the entire brain reacts to its presence as it is a disease of the whole brain. The conditions with which it is liable to be confounded are not other cerebral tumors, but neurosyphilis, alcohol and lead poisoning, uremia, epilepsy, migraine or psychoneurotic headache. The key to the diagnosis is the excessively high pressure of the cerebrospinal fluid. This hypertension is fatal, and operative intervention with a glioma must be restricted to keeping this tension within bearable bounds. In Bériel's sixteen cases of glioma, eight of the patients died without any operation having been attempted, but the others were treated by decompressive trephining at one or more sittings. In one case the man had had epileptic seizures for three and a half years, with progressive hemiplegia toward the last. A flap was cut in the skull and this relieved the tension and restored earning capacity. A year later symptoms returned, and the flap was found lifted up by gliomatous tissue. A decompressive operation permitted a survival of nearly a year. The illustration shows the extension into the brain of the neoplastic tissue, and the futility of attempting its removal at any time. In another case the lifting up of the skull flap shows proliferation of the gliomatous new growth. The many months of clinical good health in the interval since the decompressive operation in these two cases represent what is to date the best that can be hoped for with glioma of the brain. Bériel's advice therefore is to call in the surgeon as soon as a glioma is diagnosed, but to insist that the surgeon must not attempt to remove the tumor. There is no possibility of a cure from operative intervention. All we ask of the surgeon is to cut a large decompressive flap in the skull which can be left loose. If nothing points to the exact localization of the tumor, the anterior portion of the skull should be selected, as gliomas are more frequent in the frontal lobe than elsewhere. The surgeon must be impressed with the necessity for resisting the temptation to open the dura. Lumbar puncture is enough to release superfluous fluid.

Médecine, Paris

December, 1920, **2**, No. 3

*Hygiene and Infectious Diseases in 1920. L. Tanon.—p. 165.
*Streptococcus Pyosepticemia. C. Achard and C. Gardin.—p. 178.
Hygiene Institute to Train Health Officials. L. Bernard.—p. 181.
Serotherapy in Bacillary Dysentery. M. Dopter.—p. 186.
*Diagnosis of Infectious Jaundice. M. Garnier.—p. 188.
*Epidemiology of Epidemic Encephalitis. H. Roger.—p. 194.
Bubonic Plague. E. Joltrain.—p. 200.
Diagnosis of Cholera and Choleriform Enteritis. C. Richet, Jr.—p. 205.
*Revaccination Lesions. P. Gastinel.—p. 210.
Treatment of Influenza. R. Neveu.—p. 215.
Vaccines in Therapeutics. L. Tanon.—p. 221.
The Schick Reaction. Idem.—p. 228.
Spirochetal Bronchitis. Idem.—p. 229.

Hygiene and Infectious Diseases in 1920.—Tanon rejoices that the provisions for public health in France made great progress in 1920 by the organization of the ministère d'hygiène as a government department with a chief in the cabinet. All the health officers throughout the country are now under its jurisdiction, thus becoming federal officials instead of being subordinate to the prefects. By the new regulations, the country is divided into sanitary regions and subregions, with inspectors for each. He says of infectious diseases in 1920 that interest has centered in lethargic encephalitis and the transformation it has undergone from the lethargic to the predominantly myoclonic type during the course of the epidemic. Treatment to date seems to be only palliative, although Laubie has reported great improvement under antitetanus serum in two cases; Sainton, after intra-arachnoid injection of 1 c.c. of a 1:30 solution of methylene blue; Kahn has reported relief from the jerking, etc., under cold packs, and relief of the lethargy under hot packs. Three clinicians were impressed with the benefit that followed intraspinal injection of convalescents' serum, but Netter could not detect any benefit. The latter advocates a fixation abscess, with an infusion of jaborandi to stimulate production of saliva, plus hexamethylenamin, and epinephrin to sustain the blood pressure. As epidemic encephalitis followed so closely on the influenza pandemic, Lépine suggests that influenza entails a kind of anaphylaxis in the nervous system which renders it susceptible to the action of the encephalitis virus.

Streptococcus Septicemia.—Achard and Gardin report a case in a young man in which, after considerable pain in one hip joint, a suppurative process developed there, suggesting a tuberculous lesion, but other foci developed elsewhere, and necropsy confirmed the blood findings of streptococcus pyosepticemia, fatal in six weeks from the first symptoms.

Infectious Jaundice.—Garnier warns that while spirochetosis may assume all the forms of infectious jaundice, yet there is a group of cases for which spirochetes are not responsible. This spirochetal jaundice is the only one among the diseases accompanied with jaundice of which the etiology seems to be now clear.

Lethargic Encephalitis.—In the course of this survey of the epidemic of encephalitis in France, Roger emphasizes the way in which cases are scattered. Although it is estimated that there have been 10,000 cases in France, yet nowhere has there been a true epidemic; the cases occur in distant quarters, without its being possible, usually, to distinguish any link between the persons affected. In only 174 cases could direct contagion be determined, but Netter comments that direct contact in cases of epidemic meningitis is no more frequent than this. One child of 3 developed the encephalitis after a visit to a country town where there had been cases of the disease, before any had been known in Paris. After its return to Paris, a 6 year old child and a 5 month infant, who slept in the same room, developed the same set of symptoms. In a family reported by Lévy, three children presented in turn the different types of encephalitis. An epidemic has been reported in an institution in England where twelve of the twenty-one inmates were affected and four died, a mortality of 19 per cent. with 57 per cent. morbidity. Contagion may possibly occur from the unrecognized visceral forms, or from healthy carriers. The incubation is generally regarded as very long, from one to two or several months. In one of Netter's cases there was an interval of eleven months between the appearance of the disease in the two sisters. Relative isolation should be enforced, and disinfection of the mouth, nose and throat.

Revaccination Lesions.—Gastinel argues that no matter how peculiar, the response to revaccination should always be regarded as positive, in that any response testifies to the specificity of the virus and the presence of preformed antibodies. It is possible that even in this the organism finds new factors of immunity. The papule which appears and disappears within a few hours is a sign that the immunity conferred by the first vaccination induces a special susceptibility to the vaccine.

Presse Médicale, Paris

Dec. 22, 1920, **28**, No. 94

*Treatment of Fractures. H. Colleu.—p. 925.
*Diphtheria Antitoxin in Prevention of Orchitis in Mumps. S. Bonnamour and J. Bardin.—p. 929.

Treatment of Fracture of Long Bones.—Colleu is enthusiastic on the advantages of Delbet's method of treating fractures of the tibia and fibula, which allows the patient to be up and about from the first. The focus of the fracture is well isolated from the knee and from the ankle, which permits them and the sole of the foot to be used freely, and leaves the play of these joints and of the muscles unhampered. A scultetus bandage of overlapping strips is indispensable. The complete technic is shown in twenty-six illustrations. In walking, instead of the usual long step taken with the fractured leg, a short step should be taken with this leg, and then, with the support of two canes, a long step with the sound leg. In taking the step with the fractured leg, the knee should be well flexed.

Diphtheria Antitoxin to Ward Off Complications in Mumps.—The Journal mentioned at the time Salvaneschi's favorable experience in twenty-six cases of mumps given an injection of diphtheria antitoxin. The parotitis was attenuated, the fever declined, and none of the men developed orchitis. In sixty-five cases a few months before there had been bilateral orchitis in fourteen. Bonnamour and Bardin here cite statistics from nearly twenty epidemics of mumps in adults showing that complicating orchitis was observed in from 10 to 25 per cent., citing Capitan's 15 per cent. one year and 25 per cent. the next among 700 cases of mumps in soldiers. They then report their own experience with sixty-five soldiers with mumps; each one was given a subcutaneous injection of 20 c.c. of antitoxin as soon as he entered the hospital. Excluding five with symptoms of orchitis on admission, all recovered exceptionally promptly and only 5 per cent. developed orchitis, and it was unusually mild. In seven other cases at another hospital treated the same way, none developed orchitis. Their experience is not extensive, but they think it suggests that it might be well to ward off or at least attenuate by this prophylactic injection of antitoxin the complications liable to develop not only in epidemic parotitis but also in other acute infectious diseases of which the causal agent is still unknown.

Revue Neurologique, Paris

July, 1920, **27**, No. 7

Annual Meeting of Société de Neurologie.—pp. 609 to 780.

August, 1920, **27**, No. 8

*Functions of the Corpus Striatum. A. Souques.—p. 785.
*Double Thalamic Syndrome. V. Christiansen.—p. 793.
Cerebellar Syndrome of Malarial Origin. Papastratigakis.—p. 800.
*Vitiligo. M. Kippel and M. P. Weil.—p. 804.
*Heredity in Periodical Depression. J. Piltz.—p. 810.
Asthenia and Mental Confusion. R. Benon.—p. 812.
Mystic Delirium and Automatic Sculpture. Laignel-Lavastine and J. Vinchon.—p. 824.

Functions of the Corpus Striatum.—Souques discusses this subject in connection with a case of progressive degeneration of the lenticular nucleus in a man of 27. The first symptom was a difficulty in writing, and now, six years later, tremor and muscular rigidity are the predominant symptoms. He reasons that the function of the corpus striatum must be to modify the tonus of the muscles and prevent involuntary movements of the muscles. When this function is lost, involuntary movements and rigidity of muscles may be expected.

Double Thalamic Syndrome.—In the case described by Christiansen, the constant pains with violent exacerbations, rebellious to all treatment, even large doses of morphin, are accompanied by choreiform, athetosic and ataxic movements, and there is also dissociation of sensibility, especially in the arms. This thalamus syndrome is bilateral in this case, which is exceptional. It began slowly and insidiously at the age of 63 in a man without pathologic antecedents. Pains in the arms were the first symptom, the fourth month the involuntary movements began. The incoordination by the end of the year now is so extreme that the man is unable to feed or dress himself.

Vitiligo.—Klippel and Weil discuss vitiligo developing by metameres, vitiligo for which some lesion in the commissure fibers seems to be responsible, and vitiligo encircling a nevus. In one patient, aged 27, there were several nevi and each was surrounded by a patch of vitiligo. In this case also the distribution of the vitiligo corresponded to certain metameres.

Manic-Depressive Psychoses.—Piltz has noted that the attacks of periodical depression develop in certain families at a certain age, regardless of provocative causes. In one family, six members had their first attack at the age of 20. They belonged to three different generations. In another family, four members developed it at the age of 35. He warns not to mistake the periodical depression of neurasthenics and hysterics for this serious manic-depressive psychosis. With the latter there is always a tendency to ascribe its first onset to some emotional shock, but he thinks knowledge of the laws of heredity renders this improbable.

Schweizerische medizinische Wochenschrift, Basel

Dec. 16, 1920, **50**, No. 51

*Antibodies. H. Sahli.—p. 1153. Begun in No. 50, p. 1129.
*Growth Epiphysitis. H. Vulliet.—p. 1163.
*Pain in Eye Passing from Dim to Bright Light. K. Siegwart.—p. 1165.

Dec. 23, 1920, **50**, No. 52

Levinthal Agar as Culture Medium for Different Bacteria. B. Galli-Valerio and M. Bornand.—p. 1177.
Survival with Mammary Cancer. J. Aebly.—p. 1178. **Id.** F. de Quervain.—p. 1182.
Experiences at Basel Clinic with Arsphenamin. E. Frey.—p. 1183.
Mercury Lamp in Treatment of Chilblains. E. Jost.—p. 1192.

Nature and Origin of Antibodies.—In this concluding portion of Sahli's work, which was summarized Jan. 29, 1921, p. 344, he insists that the conception of antibodies which he presents is more than a mere hypothesis, as it is derived from absolutely established facts. Notwithstanding his most careful study of literature on immunity and immunization, he can find nothing that conflicts with it in the slightest while every fact fits smoothly into it. He adds that a great general law, such as the law of the conservation of energy—which by the way, he remarks, was the discovery of a physician, Dr. J. R. Mayer of Heilbronn—even the law of conservation of energy cannot be mathematically proved except that never to date have any facts been observed that conflict with it.

Epiphysitis.—Vulliet reports two cases of a lesion of the posterior epiphysis region of the calcaneum in boys of about 11, evidently belonging to the class of growth disturbances that include juvenile deforming osteochondritis and Schlatter's disease. The pain is at the rear of the heel, and there is slight thickening in the region, and the child refrains from stepping on his heel. The importance of the lesion lies mainly in its not being mistaken for a tuberculous or similar process. The family can be reassured; resting the foot for two or three weeks will cure the pain, and there need be no fear for the future. Radiography has revealed the basis for what we used to call merely "growing pains." In conclusion he remarks that epicondylitis is almost invariably a traumatic lesion, the consequence of some abrupt and single or repeated efforts, and it comes under the heading of occupational accidents.

Pain on Change to Bright Light.—Siegwart's experiments and clinical observation have apparently established that without perception of light there is no pain on changing from a dim to a bright light. Even when the invisible rays are applied to the eye in a very intense form there is no *blendungs* pain.

Policlínico, Rome

Dec. 20, 1920, **27**, No. 51

*Angiomas of the Brain. M. R. Castex and N. Romano.—p. 1477.
*Sodium Lactate in Diabetes. F. Curatolo.—p. 1482.
Seashore Sanatoriums for Surgical Tuberculosis. A. Maffi.—p. 1484.
*Perforation of Intestine by Ascaris. P. Gilberti.—p. 1485.

Cerebral Angiomas.—Castex and Romano report the complete recovery of a man of 43, a sculptor, with jacksonian epilepsy, after an operation on the network of varicose veins found in the pia over the rolandic and prerolandic region. The veins were ligated in turn with fine silk at the limits of the exposed area, nearly 7 by 6 cm., up to the median line. The walls of the veins tore easily and hemorrhage from some rendered the procedure slow and tedious. The operation was done at two sittings, the dura, which seemed to be normal, not being opened till a week after the bone flap had been turned back and then replaced and sutured. Improvement was rapid, aided by massage, electricity, arsenicals and strychnin, and by the second month and since the man has been completely well and strong. The symptoms first appeared four years before the operation, finally including paralysis of the right face, arm and leg, and aphasia, besides the jacksonian convulsions every five or ten minutes. No benefit was derived from mercury and iodid, and there was no tuberculous taint.

Sodium Lactate in Diabetes.—Curatolo never discovered the slightest evidence of toxic action in dogs given sodium lactate in large doses. This chemical is exceptionally readily oxidized in the human organism. It is promptly transformed into sodium bicarbonate which is eliminated in the urine. He describes his experience with it in two cases of advanced diabetes, in a man of 36 and woman of 68. In both, the acidosis subsided and the glycosuria was much reduced. Lactic acid was never detected in the urine. Modigliani has found sodium lactate useful also in treatment of acetone intoxication in children; he gave it in progressive doses to children, from 2 to 5 years old, reaching the maximum dose of 12, 18, 25 or 30 gm. a day. Faelli has also reported highly satisfactory results in the acetone poisoning of grave diabetes, reaching the daily dose of 100 or 120 gm. a day. Curatolo gave it to his two diabetics up to a daily dose of 50 or 60 gm. When sodium lactate is not available, a mixture of equal parts of sodium bicarbonate and lactic acid in water seems to answer the same purpose. The alkaline lactate reduces the polyuria, neutralizes the acids, and the output of sugar in the urine dropped from 70 to 33 or 48 per thousand in the younger of his two diabetic patients.

Perforation of Intestine by Ascarids.—The diagnosis in the first of Gilberti's two cases was a huge phlegmon in the abdomen, and the boy of 6 recovered after the operation which had revealed the hole in the intestine wall with an ascaris close by and another projecting partly from it. The other patient was a girl of 7 and the fatal acute purulent peritonitis was traced to perforation of two loops which had grown together, and three ascarids were found close by. The fecal odor of the pus and other features confirmed the assumption that the ascaris fastening itself to the bowel wall sets up an irritation which leads to ulceration, necrosis and perforation. These various steps in the process were evident at necropsy in his case and in several on record. He even admits that the mouth of the ascaris is able to injure the bowel wall directly, enough to entail perforation in time.

Archivos Españoles de Pediatría, Madrid

November, 1920, **4**, No. 11

*Little's Disease. F. Criado Aguilar.—p. 641.
Removal of Cyst in Glossothyroid Tract. A. Martín Calderín.—p. 656.
*Measles and Diphtheria. M. Ponce de León.—p. 663.
*Measles and Whooping Cough. C. Pelfort.—p. 669.

Little's Disease.—Criado Aguilar protests against the assumption that the spasmodic paralysis of this disease is the result of lack of inhibiting control from the brain. He declares that the medulla does not require an inhibiting influence from the brain, and that the brain does not exert any such influence on this organ. When there is any lesion in the elements of the medulla, motor disturbances are entailed corresponding to the elements involved, flaccid paralysis when the anterior portion is involved, and contracture when the posterior portion is in question. The essential feature of Little's disease is a hyperactivity of some portion of the motor tract, contracture being the extreme form of activity. Treatment therefore should refrain from everything liable to stimulate; no rubbing, no massage, no electricity, no training exercises. Repose and passive correction of the abnormal positions of the limbs affected, with potassium bromid, should be the main reliance. The ankle, knee and hip joint should be gently and repeatedly extended to straighten out the limbs as much as possible, and the correction thus realized should be maintained with a padded dressing. A week later they should be slightly flexed, and if necessary a splint applied to hold the correction. After a week's interval the flexion should be exaggerated, and so on, placing something between the knees to combat adduction. Extension should be alternated with flexion, the aim being to keep away from the limbs every form of stimulus while maintaining them in absolute repose except for the muscles and joints being thus gently used a little to keep them flexible. When a satisfactory condition has been realized, then active movements, douches at 40 or 45 C. for the limbs affected, galvanization, etc., can be cautiously begun under strict supervision. If the cause cannot be removed, at least we can combat the contracture, and this can be done without injuring the mechanism of movement. He denounces any attempt at surgical intervention.

Measles and Diphtheria.—Ponce de León states that forty-three of the 103 diphtheria patients in his service (Montevideo) had measles just preceding or during the diphtheria. He urges to inject antitoxin whenever a child with measles develops croup, whether membranes are visible in the throat or not, and without waiting for bacteriologic examination. Discovery of a pseudomembrane in the throat in a case of measles likewise calls for antitoxin.

Measles and Whooping Cough.—Pelfort remarks that acute infectious diseases have been exceptionally prevalent among the children of Montevideo of late. In four cases he describes, measles followed whooping cough and pneumonia developed, fatal in two of the cases.

Revista Médica del Uruguay, Montevideo

November, 1920, **23**, No. 11

Lethargic Encephalitis in Child. W. Piaggio Garzón.—p. 509.
History of Treatment of Inversion of Uterus. E. Poucy.—p. 514.
Idem. A. Turenne.—p. 515.
*Suprarenal Toxemia of Pregnancy. A. Turenne.—p. 519.
*Pyelitis of Infants. V. Zerbino.—p. 526.

Suprarenal Toxemia of Pregnancy.—Turenne attributed to suprarenal insufficiency the uncontrollable vomiting, weakness, chilliness and low blood pressure in a young woman approaching the fourth month of her first pregnancy. Under bed rest, glucose solution by the drop method and epinephrin by subcutaneous injection, the condition materially improved, and under continued epinephrin treatment the pregnancy proceeded to normal delivery. Then came a period of aggravation, evidently due to the stress of lactation and development of a lesion in the adnexa. Improvement was realized with resumption of the epinephrin treatment, but the woman had lost 20 kg. in weight and a final attack of acute suprarenal insufficiency proved fatal in thirty-four hours. Necropsy was not allowed, but he lists the case as one of postpuerperal Addison's disease.

Treatment of Pyelitis in Infants.—Zerbino explains the beneficial action of a disinfectant injected into the intestines, in case of pyelitis in young children, by the lymphatic connections between the intestines and kidneys. These are responsible for the spread of the infection from the intestines to the kidney pelvis. Methylene blue has a pronounced bactericidal action on the bacteria usually involved in these cases, as well as on the fusospirillar infection of Vincent's angina. In one case the infant's symptoms had been ascribed to the intestinal disturbances (which always precede or accompany the pyelitis), until the agitation, thirst, variable infiltration of the face and extremities, and fleeting periods of fever led to examination of the urine, which revealed pus and sediment. Treatment with methylene blue enemas soon cured this child of 2, and it passed through a severe infectious sore throat and measles not long after without harm. The pyelitis in this case had been of a subacute type, but in a case in a boy of 12, fever, headache, vomiting, hematuria and the absence of bladder tenesmus, followed by turbid polyuria, differentiated the pyelitis. In a second case in a boy of 10, the acute pyelitis was associated with nephritis. This acute form is rare. But an acute exacerbation of a subacute, ignored pyelitis is comparatively common. He reports a case of this kind in a breast fed infant of 6 months. It had been presenting symptoms for a month, slight fever, loss of weight, diarrhea, etc., ascribed to overfeeding, until pus was discovered in the urine. The yellowish tint, sunken eyes, agitation and loss of appetite confirmed the diagnosis of pyelitis but a course of hexamethylenamin seemed to irritate the stomach and exaggerate the diarrhea. Zerbino then ordered two injections daily of 150 gm. of a 1 : 3,000 solution of methylene blue, and improvement was evident by the next day and by the tenth day the child could be considered cured and has been in good health during the months since. In conclusion he emphasizes that methylene blue, injected into the intestine, follows the same route as the bacteria causing the pyelitis ,and as it is eliminated easily and rapidly by the kidneys, its action is felt along the entire urinary passages.

Semana Médica, Buenos Aires

July 29, 1920, 27, No. 31

*Thrombophlebitis and Septicemia. J. C. Navarro and C. Pillado Matheu.—p. 133.
*Pylorospasm in Infant. E. Martínez Zuviría.—p. 136.
Film Treatment of Burns. M. Critto.—p. 158.

Thrombophlebitis and Septicemia.—Navarro and Matheu report a case of thrombophlebitis in the lateral sinus in a girl of 8. Only a little pus was found in the sinus, and except for a minute subcutaneous abscess there was no further localization of the infection, although the grave septicemia persisted for four months before death, notwithstanding vigorous treatment.

Pylorospasm in Infants.—The 2 months infant described by Martínez Zuviría presented some of the symptoms considered pathognomonic of the congenital type of hypertrophy of the pylorus, especially the excessive peristalsis in the stomach walls. But, on the other hand, the child screamed just as it vomited, which pointed to a functional spasm. Under treatment with 3 drops daily of a 1 : 1,000 solution of atropin and hot moist heat to the epigastrium, the pylorus promptly became permeable and the emaciated infant soon became round and rosy. Twenty-two pages are devoted to discussion of the literature on stenosis of the pylorus and its treatment. The pathogenesis and diagnosis are also discussed.

Siglo Médico, Madrid

Sept. 11, 1920, 67, No. 3483

The Thévenon-Roland Test for Blood Is Not Specific. R. Alvarez de Toledo.—p. 685.
*Tachycardia and the Internal Secretions. E. Bonilla.—p. 688.
*Phototherapy in Gynecologic Disease. S. Recasens.—p. 689. Conc'n in No. 3485, p. 731.
Lipase of the Serum in the Tuberculous. F. G. Guijarro.—p. 691.

Sept. 18, 1920, 67, No. 3484

Miliary Tuberculosis with Streptococcus Joint Disease. M. Tapia.—p. 705.
Acute Atypical Meningitis. B. Gil y Ortega.—p. 707. Conc'n in No. 3486, p. 750.

Tachycardia and the Internal Secretions.—Bonilla agrees with those who regard excessive functioning of the thyroid as a factor in all forms of tachycardia, paroxysmal or permanent. During the war, persons previously healthy were known to present the clinical picture of exophthalmic goiter developing suddenly after terrific emotional stress, a bombardment, battle, etc. Cannon found an increase of the thyroid hormone and of epinephrin in the blood of cats that had been subjected to great fright. Achúcarro agreed with him that the thyroid and the suprarenals are the endocrine glands most involved in emotional stress. In short, Bonilla concludes, every emotional tachycardia is of thyroid origin, from excessive functioning of the thyroid. Persons inclined to hypothyroidism do not develop tachycardia; they are tranquil, apathetic. The tachycardia may be the only symptom of the hyperthyroidism or there may be hypertension as well, from excessive functioning likewise of the suprarenals.

Phototherapy in Gynecologic Disease.—Recasens reviews the history of the application of sunlight and the mercury vapor lamp in therapeutics, and especially in the diseases of women and in the healing of war wounds, emphasizing the immense progress realized with the artificial sources of the ultraviolet rays. The bactericidal action of the ultraviolet rays has been demonstrated in many ways, just as molds dry up and die when exposed to the sunlight. Chronic gonococcus gynecologic processes may subside completely under exposure to ultraviolet rays, as also essential vulvar pruritus, solely from the analgesic action of the actinic rays, in three, four or five exposures. The sun's rays are less active applied locally, but they have a very pronounced action when the whole surface of the body is exposed. Recasens adds that many have reported benefit in epilepsy from heliotherapy, and as we know the preponderant rôle of the parathyroids in tetany, it seems plausible to assume that the parathyroids are favorably influenced indirectly by substances mobilized from the skin under the influence of the actinic rays. The number of cases of tetany cured by exposure to ultraviolet light is too large for a casual coincidence. The sedative action of the exposures is remarkable; the excitable and restless are tranquilized and often drop into tranquil slumber. He states that leukoplakia of the vulva and craurosis have been materially benefited by the ultraviolet rays in a number of instances, so that now he thinks it is a sin of omission to refrain from insisting on ultraviolet treatment for them, especially as leukoplakia so often is followed by epithelioma. In erosions of the cervix, the ultraviolet rays have yielded notable curative results in his experience. The day is past, he adds, when operative measures were applied to processes of this nature, but they are often rebellious to local treatment, while they yielded to a few applications of the ultraviolet rays, both simple cervicitis and papillary vegetations. In one case the lesion seemed to be a cancer, and hysterectomy had been advocated, but under six applications of the ultraviolet rays the pseudo-ulcerative process disappeared completely. The discovery of giant cells in the lesion was not confirmed by the finding of tubercle bacilli. Tuberculous peritonitis of genital origin is a special indication for actinotherapy; if there is much ascites a laparotomy may be necessary, but with or without this, it is the most effectual treatment when systematically applied. Without ascites, he adds, there is no excuse for a laparotomy, as the actinotherapy alone gives excellent results. Woody phlegmon of the broad ligament has also yielded to general light baths or heliotherapy in a truly remarkable manner. The sunlight —or the mercury vapor lamp in its absence—does not act on the phlegmon directly but by its activation of the organic forces in general, as also in white swelling of the knee, hip joint disease, and amenorrhea or uterine hemorrhage without an organic basis.

Deutsches Archiv für klinische Medizin, Leipzig

July 29, 1920, **133**, No. 1-2

*Adaptation of Shape to Work. V. von Weizsäcker.—p. 1.
*Diagnostic Import of Anisotropic Substances in Urine.. O. Gross.—p. 9.
*Relation of Water Intake to Blood Pressure. G. Dorner.—p. 21.
*Constitutional Obesity. E. Grafe.—p. 41.
*Endothelial Cells in Blood Stream. A. Bittorf.—p. 64.
*Fatalities After Injection of Strophanthin. L. Rahn.—p. 74.
Pathology of Kidneys in Mercury Poisoning. G. Schieck.—p. 99.
*Hyperplasia of Salivary Glands with Endocrine Disease. A. Hämmerli.—p. 111.

Adaptation of Size and Shape of Muscle to Work Demanded of It.—Weizsäcker seeks to explain by mathematical laws how the muscles, and the heart muscle in particular, seek to overcome what he calls "shape insufficiency," the shape not being adapted to the special work demanded.

Diagnostic Significance of Substances with Double Polarizing Power in Urine.—Gross has found anisotropic substances, fluid crystals, that is, lipoids, very often in the urine with kidney disease. They were never found in normal urine. The amount fluctuates, and he found that this was dependent on the diet to a certain extent, but more so on the condition of the kidneys. The lipoiduria after ingestion of 5 gm. cholesterin, fasting, in three cases of kidney disease described, confirmed the assumption that lipoid nephrosis is a manifestation of injury of the tubuli which renders them unable to hold back lipoids. Lipoiduria thus seems to be a reliable sign of disease of the tubuli. Syphilis we know attacks the tubular apparatus of the kidney predominantly or exclusively, and we thus find lipoid nephrosis in syphilis. The same explanation applies to the large amounts of anisotropic substances found in the urine in eclampsia, and also in one case of diabetic kidney disease.

Relation Between Blood Pressure and Water Intake.—Dorner recorded the blood pressure before and one and two hours after 1.5 liter of water had been ingested fasting. The findings are tabulated in fourteen cases of mild nephritis, thirteen of moderate and twenty of severe nephritis, as well as in a number of patients with other diseases and in the healthy. In nephritis the blood becomes much diluted, but with nephrosis there may be very little dilution. The blood may even become concentrated from the flow of water out of the blood in consequence of the freshet, the walls of the vessels being abnormally permeable under the influence of the kidney disease. In some cases of nephritis the response is like that in the normal, without any considerable rise in pressure. With acute glomerular nephritis, the blood pressure rises with a true hydremic plethora; this can be combated by restriction of water and a dry diet. There seems to be in this case some special tension of the vessels, possibly traceable to substances circulating in the blood. Dorner adds that infusion by the vein of 200 c.c. of physiologic solution of sodium chlorid often reduces a high blood pressure, but further infusion raises it. With arteriosclerosis of the vessels, venesection and water restriction seldom reduce the blood pressure. It keeps high even when the blood becomes more concentrated, with a lesser volume of the blood stream. The behavior of the blood pressure during this water freshet test, and with intravenous infusion of saline, may thus throw light on the functional capacity of the vascular system.

Pathology and Treatment of Constitutional Obesity.—Grafe asserts that every case of overweight is due to overeating, while, on the other hand, in every case of obesity from overeating there is a constitutional factor involved. The attempt to define two separate types thus does not conform to facts. In ten cases of predominantly constitutional obesity the thyroid seemed responsible in two, the ovaries in two, and the pituitary in two. In each the respiratory gaseous interchanges were recorded and the influence of pronounced dietary privations, especially on water metabolism—a factor which he thinks has been rather overlooked in the past. The findings are tabulated under twenty headings for each of the tests on each of the patients. They were kept in bed during the whole course of treatment or strictly isolated. The response to the respiratory tests refuted the assumption that obesity is due to disturbance in the oxidation of fat. Some of the patients, especially those with slight disturbance of the circulatory system, lost weight rapidly on reduction of the food to 50 per cent. of the normal requirements; the weight of others scarcely declined even when the nourishment was only 30 per cent. of the requirement, and the weight then kept constant for a long time. The tests showed that this was due to an extreme tendency to retention of water although the cardiovascular system and the kidneys seemed to be normal. The retention of water from the food may keep the weight at a constant level although the body is constantly losing more and more of its dry constituents. This tendency to retention is far greater than corresponds to the prolonged underfeeding, even with very small intake of fluids. This is the reverse of what occurs in healthy persons and dogs under forced feeding. The excess of food forms dry tissues, and water is cast off to compensate for this, so that the weight may not increase in spite of the overfeeding. In the obese the dry tissues melt away and water is retained to compensate for this. So the weight keeps on a level in both conditions.

All this is altered however by removal of the thyroid or ovaries. In the thyroidectomized but otherwise normal animals, retention of water to an extreme degree follows and the weight increases rapidly and continuously. This and other facts cited demonstrate that the thyroid not only controls the intensity of the oxidations but also the intracellular water metabolism. The importance of the thyroid in the pathology and treatment of edema and obesity has been overlooked; the retention of water in the obese has been erroneously ascribed to cardiovascular weakness. This may develop secondary to the sluggish and abnormal water metabolism, and it calls for endocrine treatment, especially thyroid treatment. Two of the patients took for weeks thyroid extract three times a day, with a diet of only 30 per cent. of the normal requirement, and all with good effect and without appreciable subjective disturbances. Moderate exercise, such as a short walk has generally a favorable effect, but it renders more difficult the oversight of the case.

He begins with reduction to 50 per cent. of the requirement, with a maximum of 1,500 c.c. of fluid. The food should contain at least 8 gm. nitrogen and be predominantly of carbohydrates and be salt-poor. A milk diet is often excellent, not allowing over 1.5 liters daily. If these measures fail, the food can be reduced to 33 or even 25 per cent. of the requirement, with only 1,000 c.c. water, if there is nothing to hinder on the part of the circulation or subjective findings. A day of very little or no calory intake may be interposed. There is not much danger, he says, of appreciable losses of nitrogenous substances from the body with this, as in the overfed organism a large part of the albumin stored up in the obese tissues is quite different from living protoplasm albumin, and is by no means biologically on a par with it. Only when all these measures fail, does he supplement them with endocrine therapy.

Endothelial Cells in the Blood Stream.—Bittorf found endothelial cells in the blood stream in a case of slow endocarditis with a hemorrhagic tendency. He is inclined to regard the injury of the blood cell walls, to which the endothelial cells testify, as responsible for the hemorrhagic diathesis.

Fatalities After Intravenous Injection of Strophanthin.—Rahn has compiled twenty-five cases of death occurring in close connection with the first, third or fourth injection of strophanthin. In eleven cases the causal connection was certain and in two it was probable. He is confident that some of the fatalities might have been avoided with smaller doses, longer intervals, and better knowledge of the digitalis that had been given before. With acute weakness of the heart, when the previous history is not known, it is better to abstain from giving strophanthin. In fact, he declares, he refrains from giving strophanthin in the home. The indications for this drug are restricted to cardiac insufficiency with chronic myocarditis or with valvular defects. It might be tentatively used with heart weakness from vascular paresis in infectious diseases, with postoperative collapse, with paroxysmal tachycardia, and with cardiac insufficiency in acute nephritis. It may prove harmful and fatal in pericarditis, in chronic nephritis with high blood pressure, acute myocarditis, angina pectoris, pulsus bigeminus, heart block, extrasusceptibility to digitalis, and in the heart weakness of exophthalmic goiter.

Hyperplasia of Salivary Glands with Suprarenal Disease.—Hämmerli remarks that in the 13 cases he has compiled from the records in which hyperplasia of the salivary glands was associated with endocrine disturbance, none of the patients were examined postmortem nor in Nagel's later series of 7 cases. But he is able to describe the necropsy findings in a man of 50 with dementia praecox, enormous goiter and enormously enlarged salivary glands. There was also hyperplasia of the suprarenals and slight atrophy of the testicles. In 12 of the 26 clinically observed cases, the thyroid was mainly at fault, and in 11 of the 26 there was pronounced obesity. The coexistence of the endocrine derangement suggests that we must ascribe an internal secretion to the salivary glands. These cases differ from those in the Mikulicz group of cases, but in both there is endocrine derangement. In his case the salivary glands showed merely hyperplasia. At the Geneva clinic an increase in size and weight of the salivary glands in cases of goiter has been noticed of late.

Deutsche medizinische Wochenschrift, Berlin

Oct. 14, 1920, **46**, No. 42

Open Ductus Arteriosus; Two Cases. A. Schittenhelm.—p. 1157.
*Ethyl Chlorid Spray for Boils, etc. P. Bockenheimer.—p. 1158.
Chronic Influenza. G. Treupel.—p. 1159.
*The Spirochete in Weil's Disease. G. Sobernheim.—p. 1160.
*Loose Bodies in Joints. M. Kappis.—p. 1161.
Paralysis and Civilization. W. Gärtner.—p. 1163.
Spirochaeta Pallida in the Cervix Uteri in Primary Syphilis. D. Fuchs.—p. 1165.
Radical Destruction by the Benzidin Reaction Itself of Minute Quantities of Blood. J. Gattner and E. Schlesinger.—p. 1167.
Remarks on Steinach's Rejuvenation Experiments. E. Liek.—p. 1167.
Importance of Distinction Between Open and Closed Pulmonary Tuberculosis in the Campaign Against Tuberculosis. E. Hartmann.—p. 1168.
Aspergillus Fumigatus in the Lungs in Influenza. Müller.—p. 1169.
Idem. K. Kleberger.—p. 1170.
Serious Poisoning from Fumes of Benzene. Adamkiewicz.—p. 1171.
Technic of Catheterization. L. Casper.—p. 1172.

Treatment of Circumscribed Pyogenic Infections by Refrigeration with Ethyl Chlorid Spray.—Bockenheimer has found ethyl chlorid spray an excellent method of treating boils and carbuncles. In the type of spray that he has designed, a jet of air is combined with the ethyl chlorid, which makes refrigeration more rapid and more intense. Incipient infections are aborted and more advanced infections are checked and a prompt cure effected. The treatment is painless, causes no loss of time from work, and leaves an inconspicuous, smooth scar.

Spirochaeta Icterhaemorrhagiae in Relation to Weil's Disease.—Sobernheim reports from Bern the results of investigations to determine whether the Japanese spirochete which was discovered in 1915 by Inada and Ido to be the causative agent in Weil's disease is identical with the spirochete discovered by Hübener and Reiter and also by Uhlenhuth and Fromme to be the causative agent of the type of disease appearing in Germany, the symptoms of which had been described as somewhat different from those of the type prevailing in Japan. Investigations were carried out by Kaneko and Morihana with the culture of the Japanese spirochete that Kaneko brought from Japan. The results were unequivocal. Animals inoculated with either the Japanese or the German spirochete acquired immunity not only against the strain with which they were inoculated but against the other one as well, and immune serums were found to exert a specific effect on both spirochete strains.

Movable Bodies in Joints.—Kappis says that it is usually assumed that movable bodies are much more common in the knee than in the elbow, but since 1914 he has had fifty-one cases involving the elbow and only eighteen affecting the knee joint. The cases involving the elbow were for the most part in the 14-18 age group or had originated during those years. In the knee cases no particular age group was preferred. Early diagnosis is important, since by the early removal of the movable bodies the development of arthritis deformans is prevented. If arthritis deformans is already present and is not too far advanced, recovery is brought about often by the mere removal of these bodies. During the operation the point of origin of the loose bodies should be looked into and the site cleared up lest new movable bodies be continually formed. Compare with abstract on page 416.

Münchener medizinische Wochenschrift, Munich

Oct. 8, 1920, **67**, No. 41

Mercury in Experimental Syphilis. Mulzer and Bleyer.—p. 1163.
The Oligodynamic Effect of Metals on Bacteria. Süpfle.—p. 1166.
Roentgen Irradiation of Tuberculous Joints. O. Jüngling.—p. 1168.
Treatment of Furunculosis with Roentgen Rays. Schreus.—p. 1169.
Injecting Placenta with Sodium Chlorid Solution to Induce Spontaneous Separation. Traugott.—p. 1170.
Gonorrheal Vulvovaginitis During Childhood. J. Duken.—p. 1172.
Formaldehyde-Ether Solution in Intertrigo and Other Skin Diseases of Childhood. K. Behm.—p. 1173.
*Effect of Raw Onions on Gastric Digestion. E. Wilbrand.—p. 1174.
Healing of Tuberculous Pneumothorax under Intrapleural Injections of Glucose. E. Kulcke.—p. 1175.

Favorable Effect of Raw Onions on Gastric Digestion.—Wilbrand reports the result of experiments on dogs with induced gastric or duodenal fistula to determine the action of raw onions on gastric digestion. Following the ingestion of approximately 200 gm. of potatoes (boiled), to which 10 c.c. of human saliva and 30 gm. of raw chopped onions had been added, he observed that the onions caused a marked retardation of digestion, an increase in the acidity of the gastric juice, and an augmentation in the secretion of digestive juices, which continued at a high level for a long period. These facts have considerable clinical importance, he says. If—in a normally functioning stomach—the food is subjected for a long period to a markedly acid gastric juice, it enters the intestine in a more thoroughly digested condition, and we may assume that no portion of the chyme entering the intestine has escaped contact with the gastric juice. Consequently, bacteria that have entered the stomach with the food are more likely to be killed. Aside from the direct effect of the raw onion juice on the bacterial flora, its action as a prophylactic against intestinal diseases of bacterial origin is thus established, since it is well known that gastric acid constitutes the main obstacle to the development of schizomycetes that enter the body by way of the gastro-intestinal tract. He adds that onions must likewise exert a curative effect on existing intestinal affections as, owing to their action, food leaves the stomach in a well digested condition, so that no extra work falls on the intestine, since no undigested food enters the intestines and becomes decomposed, thus aggravating the already existing catarrhal condition. Raw onions are therefore to be recommended for persons with hypoacidity of the gastric secretion but are contraindicated in hyperacidity.

Zeitschrift für urologische Chirurgie, Berlin

Dec. 20, 1920, **5**, No. 4-6

Partial Antigens in Treatment of Urogenital Tuberculosis. F. Schild.—p. 197.
Universal Urethroscope. A. Glingar.—p. 224.
*Treatment of Injury of Male Urethra. Linnartz.—p. 230.
*Surgery of the Prostate. W. Fischer and O. Orth.—p. 232.

Treatment of Injury of Male Urethra.—Linnartz warns that when it is impossible to pass a catheter into the bladder, this may sometimes succeed under the relaxation induced by general anesthesia. This should be tried before resorting to urethrotomy. In a case described, he passed a metal catheter into the bladder which had been opened by a transverse incision. A thread was then passed through the openings in the catheter and was drawn down through the urethra with the latter. The thread was then passed through the tip of a retention catheter which was then easily drawn up into the bladder. He thus avoided external urethrotomy in this case.

Surgery of the Prostate.—Fischer and Orth are assistants in Voelcker's service, and they here give seventy-two illustrations of the anatomy and physiology of the prostate and of Voelcker's technic for prostatectomy which they claim represents important progress. They discuss further the whole field of diagnosis and treatment of prostate disease. For the Voelcker ischiorectal method of prostatectomy, the patient has the rump raised on a bolster on a table sloping down toward the head. The anus is sutured, and through a vertical incision in the ischiorectal fossa the levator ani is exposed and the fibers worked apart with the fingers. The pelvic fascia is thus exposed and this is incised, avoiding the network of veins, ligating those that are necessary. The rectum is worked loose from the prostate and the latter, with the seminal vesicles, then lies exposed. The "capsule" is incised, the prostate shelled out, and the severed urethra sutured to the neck of the bladder which has been held in place by six long loops of thread passed through its edge all around. The ischiorectal incision is sutured around a large drain. Through the retention catheter 50 c.c. of sodium chlorid solution are injected into the bladder every ten minutes for the first twenty-four hours. It flows out through the large drain. The mortality in 100 cases was 5 per cent., including one death for which the prostatectomy could not be incriminated. The average mortality in Germany with the suprapubic technic is stated to be 20 per cent. A previous article on ischiorectal prostatectomy was summarized in these columns Dec. 11, 1920, p. 1685.

Zentralblatt für Chirurgie, Leipzig

Oct. 9, 1920, **47**, No. 41

Obstructed Gallbladder. V. Schmieden.—p. 1257.
Chisels with Knife Edge for Osteoplasty. E. Payr.—p. 1261.
Case of Mesenteric Duodenal Occlusion with Secondary Gastric Paralysis. A. von Mutach.—p. 1264.
Technic of Antethoracic Esophagoplasty. E. Kreuter.—p. 1266.

Zentralblatt für Gynäkologie, Leipzig

Oct. 9, 1920, **44**, No. 41

*Testing Donor's Blood Before Transfusion. R. Zimmermann.—p. 1146.
Minimal Doses of Pituitrin to Bring on Labor at Term. A. Stein (New York).—p. 1152.
Nitrous Oxid-Oxygen Analgesia for Painless Birth. Idem.—p. 1153.
Management of Abortion. W. Strakosch.—p. 1155.

Iso-Agglutinins and Isohemolysins with Reference to Blood Transfusion.—Zimmermann undertook a series of investigations in order (so far as experiments in vitro would show) to ascertain how frequently, when homogeneous bloods of various origin are brought in contact, agglutination and hemolysis will occur. In one series the blood of four different persons was tested and in four other series the blood of eight different subjects. In each series the serum of each person was tested with the erythrocytes of all the others. In the first series, therefore, there were twelve combinations and in the four other series fifty-six combinations, each. In the first series hemolysis did not occur, but agglutination occurred five times: in the second series (gravidae) hemolysis, none; agglutination eighteen times: third series (gynecologic, convalescent cases), hemolysis, ten times; agglutination, twenty-one times: fourth series (healthy gravidae, gynecologic convalescent cases and healthy subjects), no hemolysis; agglutination, twenty-four times, or 42.8 per cent., and in the fifth series (subjects of about the same character as in Series 4), no hemolysis; agglutination, sixteen times. In four series of investigations conducted by Bäz in the same manner, the results were: of 224 combinations, hemolysis, nineteen times, and agglutination, seventy-five times. Combining Zimmermann's results with those of Bäz we get: of 460 combinations, hemolysis, twenty-nine times, or 6.3 per cent.; agglutination, 169 times, or 36.7 per cent. Although the behavior of a blood mixture may be somewhat different in the circulation from what it is in vitro, the results of these investigations show, in a general way, the relative danger from hemolysis and agglutination, and also point out the necessity of testing out the donor's blood when time allows. Otherwise recourse must be had to the trial infusion of from 20 to 30 c.c. of blood.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 27, 1920, **2**, No. 22

The Language of Medical Writings. G. van Rijnberk.—p. 2351.
*Nonmalignant Stenosis of Digestive Tract. E. van Lier.—p. 2356.
*Relations Between Voluntary Reaction Movements. A. Querido.—p. 2362.
Uniform Medical Inspection Records. E. Bunning.—p. 2419.

Benign Stenosis of the Intestines.—Van Lier warns not to be too ready with the assumption of cancer when there is an intestinal tumor in a person over 50. Statistics show that 20 per cent. of all cases of tumor at the pylorus are benign, and Remijnse's recent compilation of cases of resection of the stomach includes 20 per cent. complete recoveries. Even a palpable tumor at the pylorus is not necessarily malignant. Lanz did not even complete the exploratory operation with a gastro-enterostomy in one case in 1915, as the pylorus was found the seat of an extensive tumor assumed to be a carcinoma. But the patient is still living, five years later, in good condition. Van Lier knows of two other similar cases in which the supposedly doomed patient recuperated and lived for years in good health. Nothing but microscopic examination or the discovery of metastases renders malignant disease certain. Van Lier reports three cases encountered in the last six months in which extreme stenosis of the pylorus in two women of 68 and 70 and a man of 69 was treated by gastro-enterostomy, with apparently complete recovery to date. Cancer had been diagnosed in two of the cases, and he had been warned against "tormenting" these elderly persons with a "needless operation." Advanced age is no argument for the cancerous nature nor a reason for omitting roentgen and chemical examination of the stomach. He spared these patients the use of the stomach tube, examining merely the vomit. Tumors in the ileum are very rare, and they are always malignant, but the colon, from the cecum to the anus, may be the seat of inflammatory tumors. Fortunately, he adds, every tumor in colon or pylorus is not inevitably cancer nor even of syphilitic, tuberculous, gonococcus or scirrhus origin.

Reaction Time.—Querido describes the apparatus in use at the Amsterdam Physiology Laboratory for testing the interval between the stimulus and the biologic reaction, and describes the findings, and the relations between voluntary reaction movements.

Ugeskrift for Læger, Copenhagen

Dec. 16, 1920, **82**, No. 51

*Central Amblyopia After Drinking Cheap Alcohol. O. Blegvad.—p. 1575.

Amblyopia After Drinking Cheap Substitute for Brandy.—Blegvad has encountered thirty-two cases in the last year or two in which central amblyopia had developed sooner or later, up to several months, after beginning to drink a little *kogesprit* daily in place of the more expensive customary brandy. Vision had been reduced by nearly 75 per cent. and in twenty of the eyes the papilla was more or less blanched, and in thirty-four there was a tendency to atrophy, while scotoma for red or green or blue or white was common. The patients had all applied to be fitted with glasses as they could not see to read.

Upsala Läkareförenings Förhandlingar

Sept. 15, 1920, **25**, No. 3-4

*Investigations on Myeloma. A. Wallgren.—p. 113.

Investigations on Myeloma.—Wallgren collected sixteen cases and studied them very exhaustively in the light of clinical and histologic data. He interprets the etiology as a systematic metastasis, the manifestations as a tumor, and points out the close similarity of the latter to sarcoma, while he surmises its true nature to be a form of pseudoleukemia. The diagnosis rests on the presence of the Bence-Jones albuminous bodies in the urine. A combination of rheumatism and albuminuria always should be regarded with suspicion. The Bence-Jones albuminous substances coagulate at 50—60 C. and dissolve again at a temperature close to the boiling point, the exact temperature points varying with the percentages of salts and acids in the urine. This Bence-Jones protein is found in various diseases of the skeleton, notably in cancer and in lymphatic leukemia, and may originate from a degenerative process in the bone marrow due to enzyme action. The myeloma lesions are nearly always within the trunk, not in the extremities, and the initial locality is within the bone marrow. Spontaneous fractures in older individuals should be regarded with suspicion. The prognosis is unfavorable. The progress of the pathologic process may be retarded by radiotherapy or organotherapy, but no specific treatment is known. Death usually results from some complication. Ten plates and an extensive bibliography accompany the paper, with compilation of the few cases on record.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 8 CHICAGO, ILLINOIS February 19, 1921

CAREERS IN PUBLIC HEALTH SERVICE

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There are certain fundamental questions that should be considered by every young man or young woman intent upon a career. The questions apply with equal force to public health work and to every other vocation. They are:

I. What activities does the field embrace?
II. What is the nature of the work?
III. What opportunities does it offer for immediate employment?
IV. What general and special training is required?
V. What compensation can be expected immediately? Ultimately?
VI. Is the work permanent in character?
VII. What, based on merit, is the outlook with respect to tenure?
VIII. What are the possibilities in the field for earning public recognition?

I. ACTIVITIES EMBRACED

1. *Preventive Medicine Defined.*—The science of preventive medicine, so far as it relates to the individual, is concerned with the normal healthy development of the body; the care and usage it should receive; the conservation of its vital organs; its fortification against diseases; its mental and physical efficiency, and the prolongation of its span of life. As related to the community, the science pertains to the eradication, control or amelioration of the causes of disease and physical decay, and to the removal of conditions favoring them. Its aim, therefore, is primarily preventive rather than curative. It deals with the individual, not as an individual alone, but rather as a member of the community. It regards the community as the real patient whose health and physical welfare must be safeguarded. The work is conducted in the name of the community and for its direct benefit.

2. *Scientific Fields Coordinated.*—As the horizon of our knowledge in this field has broadened, the correct procedure for dealing with each problem has developed with increasing precision, and the tangible results have steadily grown in magnitude—and this, too, at steadily diminishing cost. The scope of the work in all well-organized general health programs covers a wide range of specialized activities. Usually these are grouped under divisions, such as communicable diseases; laboratories—bacteriologic, serologic and chemical; statistics—birth, death and morbidity; sanitary engineering—water, sewage, nuisances; public health education; infant hygiene and child welfare, and so on, varying with the special problems encountered, the amount of financial resources available, and the size of the community to be served. Each division requires workers who have specialized training. The general health organization as a whole accordingly offers employment to clerks, stenographers, accountants, technicians, nurses, statisticians, sanitary engineers, trained scientists—bacteriologists and chemists—and to doctors of medicine who have training in hygiene and sanitation.

II. NATURE OF WORK

3. *Development of Public Health Service.*—The development of a public health service in the more progressive centers of population has followed closely the growth in the knowledge of scientific medicine. In such centers, generally speaking, the public health agencies are organized on a large scale and require a large personnel, including sanitary engineers, bacteriologists, chemists, statisticians, nurses and others who possess special training. Their activities call for administrative guidance by men of broad knowledge and training, who have a thorough grounding in modern medicine.

In other parts of the globe, the developments in public health service have been less rapid. Only within comparatively recent years have its possibilities and its necessity won widespread recognition in these regions. Here, where the work to be done is pioneering in character, the organizations are only in the formative stages, and of necessity the personnel is limited. The service therefore requires primarily the administrative guidance of a physician who is trained in the principles of hygiene and sanitation.

4. *Opportunities for Mass Health Conservation.*—Public health is a vocation that makes a special appeal to those seeking to serve society. It is a field in which much pioneering work remains to be done. Opportunities for service in this field are presented in all age groups. Through infancy, childhood, adolescence, maturity and old age they exist, and they will continue to exist so long as there is a waste of human life and physical capacity from preventable causes. The application of preventive medicine through education, demonstration and intelligent counsel and assistance, as well as through legislation, investigation and research, will ever afford opportunities to those who desire to contribute to human welfare. The physician who specializes in this field does not limit his activities to a small group of persons who, oftentimes through individual or community neglect, become sick or damaged. His sphere extends to hundreds, thousands and even millions who, by virtue of his efforts, may escape or

indefinitely postpone the necessity for curative or repair treatment at the hands of the clinician. He is a wholesaler employed in the service of his country, in the conservation of its greatest asset, good health. The results of preventive medicine to the community are, and always will be, therefore, vastly greater and more beneficial than any results that might be realized from the treatment of the sick.

III. OPPORTUNITIES FOR IMMEDIATE EMPLOYMENT

5. *Present Demand for Administrators.*—Although the wide range of activities embraced within the well-rounded public health organization calls for the employment of large numbers of men and women having varied scientific training, the greatest need is for administrators grounded in medicine and the principles of sanitation, to guide the newer public health services through their formative periods. Because of this need for qualified administrators, this article discusses primarily the opportunities in the field for physicians who have been trained in hygiene and sanitation. It should be emphasized, however, that attractive and useful careers are now open for both men and women in the various branches of the work.

6. *Source of Demand for Health Workers.*—The demand for trained health workers comes from a variety of sources—from the public health agencies, federal, state, county and municipal; from semipublic organizations like the Red Cross, the National Association for the Study and Prevention of Tuberculosis, the American Social Hygiene Association, and the International Health Board; from the public schools, where health inspection and supervision have been undergoing rapid extension, particularly since the war; from child welfare organizations, and from many other agencies, public and private, that have come to look on hygiene and sanitation as essential to any program for improved physical, intellectual and economic efficiency. Industrial corporations, domestic and foreign, are steadily increasing the number of sanitarians they are utilizing for the protection of the health of their employees, for the prevention of unnecessary sickness and death, and for the betterment of social, sanitary and hygienic conditions at the homes of the workers and at the places of employment.

IV. TRAINING REQUIRED

7. *Minimum Training Requirements for Public Health Work.*—Graduation from an approved medical school and hospital training are generally prerequisites for an administrative career in public health work. The necessary special training beyond this minimum may be secured through practical experience or in the courses in public health now offered in a number of universities.[1]

8. *Desirability of Special Training.*—It is impracticable to lay down any hard and fast rule as to standards of training. Ideally, the public health worker needs, as part of his equipment, practical experience and specialized training in those branches of science, legislation and administration on which the science of preventive medicine is founded. But medical men without special training in preventive medicine should not be discouraged from entering public health work, as most of the men who are now leaders in sanitary science were obliged to make their way without other training than that of practical experience. On the other hand, as in any profession, development of professional training facilities has made it possible to master in a relatively short time much of the accumulated knowledge in this field.

9. *Eligibility Requirements of Different Health Agencies.*—The eligibility requirements for staff membership vary somewhat among the different health agencies. For example, the United States Public Health Service requires candidates for its regular commissioned corps to be under 32 and not less than 23 years of age, to have received the degree of medical doctor from a reputable institution, and to have had one year of hospital experience or two years in private practice. In addition, applicants for the federal service must undergo three sets of examinations—physical, academic and professional. The International Health Board requires that appointees to its staff hold academic and medical degrees, be physically fit, be available for service in any country in which the board operates, and have an aptitude for administrative responsibilities.[2] Certain other agencies, including many of the state and county departments of health, are less rigid in their requirements. It should be noted, however, that salary and opportunity usually tend to be commensurate with the qualifications required. It is a safe rule in any field to get as much rather than as little training as possible. Superior training is one of the best guarantees of permanence of tenure and satisfactory compensation.

V. COMPENSATION

10. *General Range of Compensation for Health Work.*—Salaries for public health officers range at present from about $2,000 to $10,000 a year. Certain private agencies and industrial concerns pay more than this maximum to health officers who carry large responsibilities. There is a strong tendency to raise the entrance salary, and this movement is being accelerated by the scarcity of qualified men and the growing appreciation on the part of the public of the importance of expert health service. It is becoming very difficult to secure a man having practical experience for less than $3,000 a year for health work of any kind. The British authorities recently issued an advertisement inviting medical men to apply for appointments in the Ministry of Health at salaries of £1,000, rising to £1,400 per annum, together with pension rights, and other privileges.

General information as to the compensation offered staff members by various health agencies of the United States is given in the following paragraphs.

11. *Salaries in the United States Public Health Service.*—In the United States Public Health Service the salaries of commissioned officers have recently been advanced from 15 to 30 per cent. The new schedule allows an income ranging from approximately $3,000 a year for passed assistant surgeon to approximately $7,000 a year for assistant surgeon-general.[3]

12. *Compensation of State Health Officers.*—In state health work, the compensation scale for the chief executive officer for the year 1919 ranged from $1,000 in Arizona to $10,000 in Pennsylvania. The great majority of salaries lie between $3,000 and $6,000, with a creditable number of states paying $5,000 or more. The salaries for assistant state health officers likewise vary widely, from $1,200 a year in North Dakota to $6,500 a year in Pennsylvania.[3]

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[1] A list of institutions giving such courses will appear as an appendix in the reprints. Copies of the reprints may be obtained by applying to the author.

[2] Details and exceptions will be noted in an appendix to the reprints.

[3] Further details will appear as an appendix to the reprints.

13. *Salaries of County Health Officers.*—In the various states in which county health units are in operation, the compensation scale for county health officers ranges from $2,400 to $5,000 a year. A large number of counties are now paying from $3,000 to $3,600, and during the last year quite a number of counties were unable to fill positions at these salaries.

14. *Compensation in City Health Work.*—In city health work, the scarcity of qualified health officers has resulted in the payment of better salaries than were formerly paid. In 1919, cities reported a half dozen or more vacancies for health officers. These positions carried salaries ranging from $4,000 to $6,000 a year.

15.—*Salaries of Instructors in the Science of Public Health.*—Institutions giving courses in public health offer to instructors in this subject salaries commensurate with those paid to teachers of other branches. In some instances the compensation in the department of public health is higher than in other departments. It has proved difficult, however, to secure instructors in public health. At least one place with a compensation of $6,000 remained vacant for many months because a sanitarian qualified to fill it could not be found.

16. *Compensation in Private Health Agencies.*—Among private health agencies—such, for example, as the American Red Cross, the American Social Hygiene Association and the International Health Board—vacancies now exist for men who can qualify for positions carrying, immediately or ultimately, salaries ranging from $2,500 to $7,500 a year.

17. *Salaries of Industrial Health Officers.*—Salaries paid by industrial concerns for the rapidly growing work in industrial hygiene are not, for the most part, made matters of public information. It is known that they vary widely, depending on the size of the plant, the type of service rendered—whether full-time or part-time—and the responsibility of the position. Data collected from a limited number of industries indicate, however, that for full-time health officers in concerns having a thousand or more employees, the compensation ranges from $3,000 to $15,000 a year, with the higher compensation usually going to those health officers who have been able to demonstrate to the management the production value of an effective health program.

18. *Health Centers.*—Among other types of health work for which positions are available are: health centers and similar enterprises involving a combination of health and social work; hospital administration, especially in industry, and medical missionary work of a constructive type, such as is done in China. Demonstration health centers, particularly those for mothers and children, offer a special field for the worker in preventive medicine who is interested in immediate social and educational results. Salaries in this field will generally conform to those paid for the regular types of city and county health work in the more progressive communities.

19. *Hospital Administration.*—Similar in its responsibilities and opportunities to public health service is the work of hospital administration. Salaries of hospital superintendents range from extremely low amounts in some instances to as high as $10,000 a year, with a large number running between $3,000 and $5,000. Assistant superintendents receive salaries ranging up to $6,000.[3]

VI. PERMANENCE

20. *Stability of Public Health Work.*—That such diseases as smallpox, yellow fever, cholera, typhus and plague, with their attendant paralysis of agriculture, industry, commerce, general activities, and sometimes even the functioning of government itself, are no longer ever threatening perils is a tribute to the advances that have been made in preventive medicine, and a guarantee that its practice is established on a permanent basis. The rapid growth of knowledge respecting the nature of disease, the demonstration of the effectiveness of control measures, and the growing appreciation of the fact that the wealth and security of the nation are dependent on the health and physical efficiency of the individuals who constitute it, have developed a wholesome public sentiment favoring the extension and fortification of public health work.

21. *Growth in Available Funds.*—Between 1910 and 1919 the number of commissioned officers in the United States Public Health Service increased from 128 to 218; the number of scientifically trained staff members from 1,350 to 3,746, and the expenditure for professional personnel from $660,620 to $1,778,476. Growth in state and local health work in the same period was even more remarkable. Several Southern states, for example, that appropriated less than $15,000 a year each for health work in 1908 and 1909, are now spending ten times that amount annually. And whereas ten years ago city and county full-time health officers were almost unknown in many parts of the country, they are now becoming numerous, and the appointment of these officers has frequently been accompanied by the establishment of a thoroughgoing health organization to look after the health problems of the community. In at least one state (Pennsylvania) the annual appropriation for health activities has reached the sum of $2,600,000. Everywhere the public health movement has made such headway that the question has ceased to be whether or not the work shall go on, but how fast and how far it can go with the existing limitations in men and means available for the work. The greatest present need is for trained workers; once this is met, progress will be even more rapid than it is now.

VII. TENURE

22. *Tenure of Office.*—Much still remains to be accomplished before the rank and file of health officers everywhere can feel assured of tenure of office on the basis of merit alone. The recent developments in this direction, however, have been gratifying and the outlook is most encouraging. In the federal service the tenure system is firmly established; and in general, qualified health officers throughout the country are holding their places, some of them for long periods of time, quite without reference to political considerations. More enlightened public sentiment with regard to medical standards is fast removing the health officer from politics and guaranteeing him security of tenure during efficient service. Conditions in this respect necessarily vary from state to state and from city to city, but the public health officer has an advantage over other public officials in that the technical nature of his work is readily recognized. In this respect his position resembles that of the city superintendent of schools, who is now nearly always a fairly well-paid, professional executive, specially trained for his work, and not dependent for his position on partisan political consideration.

23. *Old-Age Retirement for Health Workers.*—Another indication of the transition of health work from a political and part-time basis to that of full-time professional service is the adoption of the principle of

retirement allowances for the personnel. The federal Public Health Service provides for the retirement with pensions of officers and employees who have been in its service for a certain period of time. Most of the industrial concerns that have developed health services are among those that already have pension systems as part of their employment policy, so that in such industries, as rapidly as the health officer achieves regular status he becomes eligible for retirement allowances. Similarly, wherever in municipal employ the retirement principle has been adopted, public health officers on full-time basis are eligible for pensions.

VIII. POSSIBILITY OF EARNING PUBLIC RECOGNITION

24. The physician who enters public health work does not relinquish his opportunity to contribute to the sum of scientific knowledge. Public health work offers possibilities for contributions to research that are no less attractive than those offered by other branches of science. Moreover, the coordination of the knowledge already available in the various related fields of health work, and its application to more effective methods for the conservation of health, offer unlimited possibilities. Distinction has been won in both these branches of the public health service, notwithstanding the fact that the field is still comparatively new. The achievements and possibilities are illustrated by the conquest of yellow fever, plague, diphtheria, smallpox, typhoid fever and other diseases that have had widespread distribution. Many other opportunities for distinguished achievements, perhaps equally great, doubtless remain. The medical man on the threshold of his career will recognize that these triumphs of preventive medicine are something more than contributions to science: they constitute a type of service that is becoming universally recognized as fundamental to world progress.

61 Broadway.

A COMPARISON OF RECTAL WITH COLON INJECTIONS OF EPINEPHRIN

WITH REFERENCE TO PRESSOR EFFECTS AND TO GLYCOSURIA *

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Although drugs used for their systemic action are frequently given by rectum, distinctions between the results of high (colonic) or low rectal administration apparently have not been sought. The significance of such a discrimination lies in the anatomic fact that absorption from the terminal portion of the mammalian intestine takes place by way of the middle and inferior hemorrhoidal veins directly into a branch of the vena cava. The colon, on the other hand, is drained by the portal system; before the general circulation is reached, a barrier is interposed by the liver and its capillaries. The two extremes of the alimentary canal present its only absorption areas where such protection is not afforded.

Epinephrin was selected for a comparison of colonic and of rectal administration for a number of reasons. At the time (1916) of carrying out the experiments herein described, the literature apparently contained no reference to the administration of this drug by rectum; it had been assumed that it would be ineffective because of its failure to act when given by stomach.[1]

TABLE 1.—EFFECTS OF EPINEPHRIN ON THE BLOOD PRESSURE, ESPECIALLY OF COLON AND RECTAL INJECTIONS

Exp. No.	Time	Epinephrin Dosage per Kilogram, Mg.	Site of Injection	Blood Pressure Before Mm. Hg	Blood Pressure After Mm. Hg	Difference, Mm. Hg	Time for Maximum Effect, Seconds
1	10:33 a.m.	0.5	Colon	100	111	11	240
	11:11	0.5	Subcut.	98	110	12	90
	11:39	1	Colon	80	92	12	340
	12:07 p.m.	1	Subcut.	80	87	7	112
2	3:40 p.m.	1	Subcut.	96	106	10	111
	4:01	1	Colon	—	—	0	...
	4:18	1	Colon	88	92	4	220
	4:45	1	Rectum	104	116	12	115
	5:45	1	Rectum	112	120	8	220
	6:05	0.5	Rectum	102	104	2	65
		1	Rectum	98	116	18	75
		1	Rectum	44	72	28	45
3	11:15 a.m.	1	Rectum	90	104	14	165
	11:50	1	Colon	82	88	6	150(Fig.1)
	12:20 p.m.	1	Rectum	72	76	4	100
	12:50	1	Subcut.	76	86	10	100
	1:00	1	Subcut.	—	—	0	...
	1:15	1	Rectum	—	—	0	...
	1:27	0.4	Vena cava	72	128	56	50(Fig.2)
	2:10	0.9	Rectum	74	92	18	160(Fig.3)
	2:35	1	Colon	—	—	0	...
	3:15	1	Rectum	80	94	14	30
4	12:12 p.m.	1	Rectum	64	74	10	235
	12:40	1	Colon	—	—	0	...
5	11:50 a.m.	1	Rectum	74	79	5	1,225
	12:25 p.m.	1	Colon	58	60	2	350
	2:18	1	Rectum	48	58	10	340
	4:15	1	Colon	58	68	10	319

Auer and Gates[2] showed, however, that epinephrin given intratracheally produces a definite blood pressure rise, and we saw no reason why it could not be similarly effective after passing through the rectal mucosa; thus given it might prove of value as a circulatory stimulant under some conditions. The prediction was verified as soon as the work was begun, and the fact has since been confirmed independently by Binet,[3] who describes epinephrin as "innocuous by stomach but very toxic by rectum," as well as by Hoskins.[4]

Another reason for selecting epinephrin for study was the fact that it exerts a specific effect on the liver in that the glycogen is mobilized from that organ by subcutaneous injections of the drug, producing the well-known glycosuria. It was considered possible, therefore, that while rectal as compared with colonic administration might exhibit a greater circulatory effect, the glycosuria would, on the other hand, be found less intense, owing to the delay and quantitative diminution of the drug in reaching the liver.[5]

These conjectures were confirmed in the two series of experiments on rabbits reported below. The first series deals with the effects of the respective injections on the blood pressure, the second, on the carbohydrate metabolism.

I. THE BLOOD PRESSURE EFFECTS

In the preliminary experiments, epinephrin was introduced into the colon of rabbits under urethane by means

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* From the Department of Pharmacology, Yale University School of Medicine.

* The expenses of this research were defrayed from the Francis E. Loomis Research Fund of the Yale University School of Medicine.

[1] Herter, C. A., and Wakeman, A. J.: Tr. A. Am. Phys. **17**: 570, 1902.

[2] Auer, J., and Gates, F. L.: J. Exper. Med. **23**: 757 (June) 1916.

[3] Binet, L.: Presse méd. **25**: 191, 1917.

[4] Hoskins, R. G.: Proc. Soc. Pharmacol. & Exper. Therap., 1920.

[5] It must be borne in mind that under normal conditions some of the rectally injected drug can find its way directly to the portal system through the superior hemorrhoidal vein which anastomoses freely with the middle and inferior hemorrhoidals. On the other hand, no solution absorbed in the colon could be expected to find its way to the vena cava backward through the hemorrhoidal plexus.

of a catheter which had been passed over a distance of 26 cm. It was found that 1 c.c. of commercial adrenalin chlorid, 1 : 1,000 diluted to 5 c.c. with distilled water, produced a rise of blood pressure appreciably greater than that produced by 5 c.c. of distilled water given similarly at the same temperature. To compare the effects of colon with rectal injections, the following technic was then pursued:

A rabbit fasted twenty-four hours previously was given from 1.5 to 2 gm. per kilogram of urethane by mouth. After the onset of anesthesia it was secured to the table and a midline incision made in the abdominal wall just above the symphysis pubis. The sigmoid-rectum was doubly ligated at about 5 cm. above the anus, the vessels being included. Intestine and vessels were then cut transversely between the ligatures. Blood from the intestine below this point of separation drained therefore into the systemic veins, while that above it was carried directly into the portal system. The intestinal contents in the neighborhood of the experimental field were removed. Glass cannulas 1 cm. in diameter were inserted, one in each portion of the bowel, and when the abdominal wall was sewed up these were allowed to emerge and labeled, respectively, "colon" and "rectum." The injections were made at body temperature through these cannulas. Blood pressure was recorded from the carotid artery. Injections were made at rather long intervals, time being allowed for complete absorption of one before giving another, as well as for complete return of the blood pressure to normal.

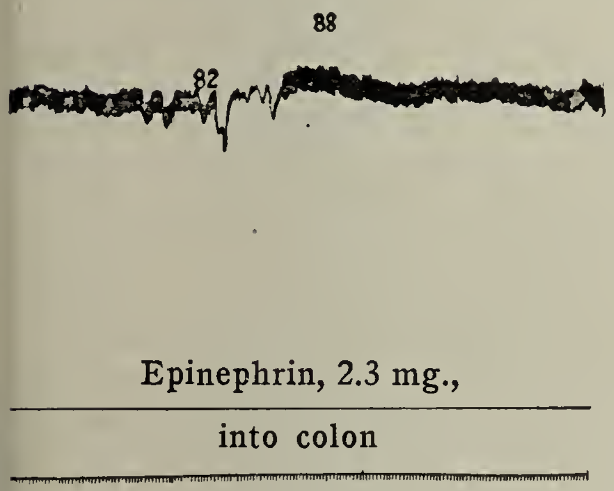

Fig. 1 (Experiment 3).—Upper line, carotid blood pressure; middle line, base line; lower line, time in 5 seconds intervals. Injections of 1 mg. of epinephrin per kilogram into colon (11: 50 a. m.).

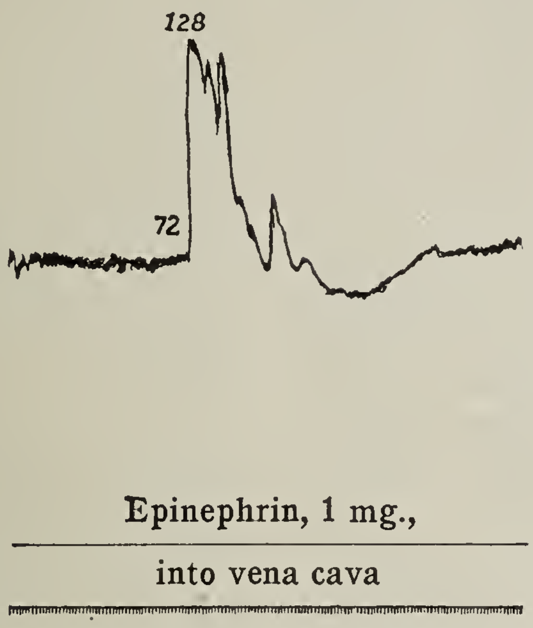

Fig. 2 (same experiment and conditions as Figure 1).—Effect of 0.4 mg. of epinephrin per kilogram injected into vena cava (1: 27 p. m.).

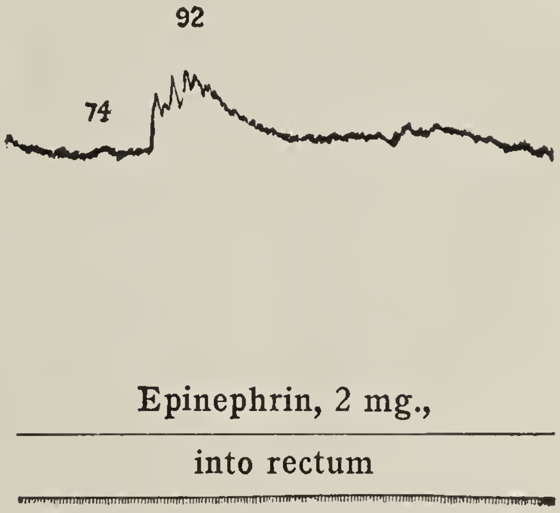

Fig. 3 (same experiment and conditions as Figure 1).—Injections of 0.9 mg. of epinephrin per kilogram into rectum (2: 10 p. m.).

In Table 1 will be seen a summary of the results of five such experiments. A number of the experiments were controlled with similar injections of distilled water or of saline solution, none of which gave significant changes. A number of subcutaneous and intravenous injections of epinephrin are included in the table for comparison.

In Figures 1, 2 and 3 are illustrated, respectively, the results of colon, vena cava and rectum injections in Experiment 3. Table 2 presents a comparison of the effects of rectal and colon injections when a standard dose of 1 mg. per kilogram was employed.

SUMMARY OF RESULTS ON BLOOD PRESSURE

1. An injection of 1 mg. of epinephrin per kilogram caused greater increases in the blood pressure of rabbits when given by rectum than when injected into the colon. The average blood pressure increase after rectal injections was 11.5 mm. of mercury; after colon injections, 4.2 mm. of mercury.

2. The highest rise of blood pressure observed in all of the experiments, due to an injection of 1 mg. of epinephrin per kilogram into the rectum, was 28 mm., while the highest rise from a similar amount into the colon was 12 mm.

3. The earliest effect on the blood pressure after the epinephrin was injected into the rectum was seen in thirty seconds, whereas the earliest effect after an injection into the colon was seen in 150 seconds.

4. The average time necessary for a maximum effect on the pressure after the rectal injections was 141 seconds; after the colonic injections, 275.8 seconds.

II. EFFECTS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

In the metabolism experiments rabbits also were used, the procedure being as follows:

After a period of twenty-four hours' fasting the rabbit's bladder was emptied by exerting pressure over the suprapubic region and the urine thus obtained was determined to be sugar-free. The lower end of the colon and rectum was emptied by exerting pressure over the left iliac fossa. The animal was then given 100 c.c. of water by mouth. A rubber catheter was used for the epinephrin injections. This was inserted for a distance of 16 cm. for the colon injections and held in position at least ten minutes after the drug had been given, by which the fluid was practically prevented from escaping to the lower portion of the bowel. For rectal injections the tubing was inserted a distance of 5 cm. and held in

TABLE 2.—COMPARISON OF RECTAL AND COLON INJECTIONS OF A STANDARD DOSE

Colon Injections		Rectal Injections	
Blood Pressure Rise, Mm. Hg	Time for Maximum Effect, Seconds	Blood Pressure Rise, Mm. Hg	Time for Maximum Effect, Seconds
..	...	12	115
12	340	8	220
0	...	2	65
4	220	18	75
6	150	28	45
0	...	14	165
0	...	4	100
2	350	0	...
10	319	18*	160
		14	30
		10	235
		10	340
Average 4.2	275.8	11.5	141

* Nine-tenths milligram per kilogram.

place for a similar length of time, after which the anus was closed with a small serrefine.

The urine was collected by twenty-four hour periods and preserved with toluene. In only one or two cases was sugar present after the first twenty-four hours. The sugar estimation was made by the Pavy-Ramsden method.

The results of the administration of 0.5 mg. of epinephrin per kilogram under these conditions are given in Tables 3 and 4. It is evident that colon injections were more effective both as regards the total urine output and the amount of sugar excreted, the latter being practically twice as much as after the rectal injections.

TABLE 3.—EFFECTS OF COLON INJECTIONS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

No. of Animal	Weight, Gm.	Urine		Time in Hours Until Sugar-Free
		Volume, C.c.	Dextrose, Gm.	
48	1,577	160	0.277	48
14	2,438	140	0.175	24
5	2,025	143	0.097	24
40	1,558	105	0.084	24
54	1,330	125	0.208	24
169	2,850	125	0.120	24
170	2,650	200	0.148	24
Averages.................		142.5	0.158	

TABLE 4.—EFFECTS OF RECTAL INJECTIONS ON THE AMOUNT AND SUGAR CONTENT OF THE URINE

No. of Animal	Weight, Gm.	Urine		Time in Hours Until Sugar-Free
		Volume, C.c.	Dextrose, Gm.	
19	1,860	53	0.000	00
11	1,885	275	0.000	00
27	1,585	115	0.115	24
34	1,975	118	0.048	24
30	1,600	95	0.119	24
33	2,270	77	0.175	24
34	1,750	115	0.153	24
6	1,778	112	0.121	24
70	1,070	125	0.069	24
Averages.................		120	0.088	

SUMMARY OF EFFECTS ON THE CARBOHYDRATE METABOLISM

1. Colon injections of epinephrin in rabbits gave more profound glycosuria and diuresis than rectal injections.
2. The average amount of dextrose obtained from injecting 0.5 mg. per kilogram into the colon was 0.158 gm., while from the rectal injection it was 0.088 gm.
3. The greatest amount of dextrose obtained from the injection of 0.5 mg. of epinephrin into the colon was 0.208 gm., while the greatest amount obtained from a rectal injection was 0.121 gm.
4. The average twenty-four hour urine volume after injecting 0.5 mg. epinephrin per kilogram into the colon was 142.5 c.c.; after injection into the rectum it was 120 c.c.

CONCLUSIONS

1. Epinephrin is absorbed both from the rectum and from the colon in rabbits.
2. Injected into the rectum, epinephrin causes a greater rise in blood pressure than when injected into the colon.
3. When epinephrin is injected into the colon, it causes a greater degree of glycosuria and diuresis than when injected into the rectum.

Shortcomings of Auscultation.—The physical examiner is wont to overestimate the depth beneath the chest wall to which percussion and auscultation extend their informing signs. The localization of the source of morbid signs by auscultation is often a difficult or impossible procedure.—H. Sewall, *Am. Rev. Tuberc.* **4**:823, 1921.

THE MANAGEMENT OF THE URINARY TRACT OF PARAPLEGIC PATIENTS [*]

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In severe cord injuries, one of the most frequent complications is infection of the urinary tract. The infection is difficult to treat and often proves to be a potent factor in hastening the death of the patient.

Before the war, when cases of cord injuries were not commonly seen in groups, it was more or less casually admitted that infection of the urinary tract would eventually take place, though the treatment of the bladder in these cases was in no way standardized or especially considered. With the exception of the advice of Sir Victor Horsley, who, several years ago, advocated the drainage of the bladder in cases of cord injury in which there were badly infected urinary tracts, no outstanding consideration of the subject is found in the literature until after the advent of the recent war. One of the first notes sounded at that time was by F. A. Besley,[1] who strongly advocated noncatheterization of the bladder as a routine in these cases, and insisted that catheterization of the urinary bladder was usually closely followed by infection of the bladder, with subsequent involvement of the upper urinary tract. Besley advised allowing the bladder to overflow and then regularly to assist its emptying by manual expression of its contents by pressure on the lower abdomen.

In connection with this treatment of the bladder, Col. Andrew Fullerton [2] studied the bladder by cystoscopy in a group of cases of cord injury with lesions at different levels. He observed that the urine was discharged from the ureteral orifices in jets, and that the ureteral orifices contracted and relaxed as in normal bladders and that the tone of the ureterovesical sphincter was maintained. As to the regurgitation of the bladder contents into the ureter when manual expression of the urine from a distended bladder was practiced, Fullerton made a cystoscopic examination of such a patient, with the bladder filled until it reached the level of the umbilicus. Even while marked external pressure on the bladder was being exerted the ureters discharged their contents normally in jets. It must be remarked in this connection that regurgitation of bladder contents has been studied under many conditions. It can take place in normal undilated bladders.[3] On the other hand, it does not necessarily take place in distended bladders.[4] The regurgitation appears to be controlled by a reflex governing the action of the ureterovesical orifice, which is not entirely understood.

At practically the same time that manual expression of the bladder was being advocated in this type of case, J. W. Thompson Walker [5] advocated very strongly treating the incontinent bladder by cystostomy. He states that in 90 per cent. of the war cases of spinal injury there was bladder or kidney infection and that 45 per cent. of the mortality in these cases was due to urinary infections.

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[*] From the Surgical Department, Rush Medical College.

[1] Besley, F. A.: A Plea for Noncatheterization of the Urinary Bladder in Cases of Gunshot Wounds of the Spinal Column, J. A. M. A. **69**: 638 (Aug. 25) 1917.

[2] Fullerton, A.: Brit. M. J. **1**: 124 (Feb. 1) 1919.

[3] Kretschmer: Surg., Gynec. & Obst. **22**: 209, 1917.

[4] Guyon and Albarran: Arch. de méd. expér. et. d'anat. path. **2**: 181, 1890. Lewin: Arch. f. exper. Path. u. Pharmakol. **40**: 287, 1897. Lewin and Goldschmidt: Arch. f. path. Anat. **134**: 33, 1893. Courtade and Guyon: Ann. d. mal. d. org. génito-urin. **12**: 561, 1894.

[5] Walker, J. W. T.: Lancet **1**: 173 (Feb. 3) 1917; Brit. M. J. **1**: 393 (March 29) 1919.

These statements precipitated quite an argument in the British medical press during 1918 and 1919. Percy Sargent [6] also advocated cystostomy. He stated that he had never seen a paraplegic patient with bladder function in abeyance for two days, who had sterile urine. He expresses his doubt as to the efficacy of "expression." Vellacott [7] states on the other hand that in cases in which no catheter had been passed, the urine usually remained clear. Two of his ten patients developed *B. coli* infection of the urinary tract. Sherrington is quoted as saying that he rarely saw an infection of the urinary tract in noncatheterized laboratory animals with cord lesions. Fullerton [2] and Forbes Fraser [8] say that cystostomy was tried early in the war and was abandoned, owing to difficulty in nursing and discouraging reports from the base.

At this point, where the differences between the advocates of manual expression and cystostomy in this type of case have been emphasized, the striking work of Head and Riddock,[9] and Sherrington on automatic emptying of the bladder must be interjected.

Sherrington observed that after transection of the cord in cats and dogs, a primary distention of the bladder, associated with some contraction at the neck of the bladder, took place, and later relaxation of both the neck and fundus of the bladder occurred, and manual expression of the urine became easy. After a lapse of a few days, the bladder musculature contracted slightly, particularly after perineal irritation, and small jets of urine were expressed by these contractions of the bladder wall. The bladder, however, never completely emptied itself, and residual urine was always present.

In the study of bladder reflexes in patients with cord lesions during the war, Head and Riddock described much the same phenomenon of automatic bladder emptying, which they believed to be due to a mass reflex. With complete section of the cord, regardless of site, the bladder begins automatically to expel its contents as early as the twenty-fifth day, provided conditions are favorable and cystitis, bedsores, etc., have not appeared, in which event the automatic emptying may never appear. To establish automatic emptying of the bladder, Head and Riddock advocated the passage of a catheter and injection of from 100 to 600 c.c. of fluid into the bladder until the detrusor mechanism is stimulated and the musculature contracts. The exact amount of fluid pressure in the bladder necessary to excite a reflex emptying can thus be ascertained. Injection of this amount on subsequent occasions finally establishes reflex emptying when the bladder is filled to the known point. Later the same result may be obtained, without the passage of a catheter, by exciting the flexor stimuli on the paralyzed side (stroking the thigh or plantar stimulation) when the sphincter is inhibited, and the bladder will expel a considerable proportion of its contents but will not completely empty itself. After the automatic reflex has been established, deep breathing or pressure on the abdominal wall may induce a partial emptying of the bladder. If the lumbar or sacral roots are destroyed the automatic emptying may occur, but it cannot be induced by exciting external stimuli. If the lesion is confined to the lower spinal cord or lumbar or sacral roots, the patient may be conscious of tension in the bladder, he may recognize contraction of the bladder wall or even experience the pleasure of micturition, but these sensations have no effect on automatic activity of the bladder.

Frank Kidd [10] has observed automatic emptying of the bladder in partial lesions of the cord after fourteen days, in complete lesions after from twenty-one to twenty-eight days, and in sacral lesions after from three to four months. He stresses the point, as does Head and Riddock, that overdistention of the bladder is very detrimental to the establishment of automatic emptying. He advocates an indwelling catheter to obviate this.

We are, therefore, confronted with several divergent views as to what constitutes the underlying principles of treatment of the bladder in severe cord lesions. The principle of intermittent drainage of the bladder by repeated catheterization must be faced with the certainty of cystitis, which sooner or later leads to an infection of the upper urinary tract. Under this treatment, the patient is subjected to the high mortality quoted by Walker.

The establishment of a paradoxical incontinence and subsequent manual expression of the urine, as proposed by Besley, offer safety to the patient in that cystitis is not provoked by catheterization. It is not ideal because the bladder may become greatly distended before manual expression is successful, and this interferes with the establishment of a reflex periodic emptying of the bladder as described by Head, Riddock and Sherrington. It is also deficient as a treatment per se because by it the bladder is not completely emptied. This is most important in patients who may secrete organisms into the urinary tract from the blood stream and thereby set up an infection of the residual urine in the bladder. This point will be particularly considered later.

The third principle of treatment by the establishment of a periodic reflex emptying of the bladder is also a valuable one provided the urinary tract is not infected. Head and Riddock advocate passage of a catheter and distention of the bladder with fluid up to a point where intravesical pressure is sufficient to establish reflex emptying of the bladder. This has the decided disadvantage of probable infection of the bladder with consequent cystitis. Another factor of great importance is that the bladder never completely empties itself by periodic reflex micturition, so that some residual urine is always present in the bladder. This urine is subject to infection by catheterization or by blood stream with resultant cystitis and its complications.

To summarize: Catheterization leads to the establishment of cystitis with eventual ascending infection. Manual expression entails a dilated bladder or at least residual urine, but is safe unless blood stream infection of the urinary tract occurs. Periodic reflex urination is ideal in many ways, but is established from two to four weeks after the cord injury; it never completely empties the bladder and is best established by catheterization of the bladder. This is a serious defect if infection is introduced by catheter or comes through the blood stream.

The fourth principle of treatment is that of continuous drainage of the bladder by indwelling catheter or cystostomy. The indwelling catheter is impracticable, as a long continued treatment, for the obvious and well known difficulty of maintenance and the causation of pressure necrosis at the neck of the bladder. Cystostomy has the outstanding virtues of constant drainage with absence of residual urine and prevention of dilatation of the bladder. These advantages are offset by the necessity of operative procedure, the increased difficulty of nursing and the certainty of infection of the bladder.

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[6] Sargent, P.: Brit. M. J. **1**: 357 (March 22) 1919.

[7] Vellacott, P. N.: Lancet **1**: 733 (May 3) 1919.

[8] Fraser: Brit. M. J. **1**: 293 (March 8) 1919.

[9] Head, H., and Riddock, G.: Brain **40**: 188 (Nov.) 1917; Brit. M. J. **1**: 457 (April 20) 1918.

[10] Kidd, F.: Brit. M. J. **1**: 397 (April) 1919.

AUTHOR'S EXPERIMENTS

To understand more clearly the relation of infection of the urinary tract to cord lesions, a number of experimental conditions were established in dogs. It was attempted to study: (1) the effect of introduction of organisms into normal bladder as compared to their injection into a bladder with residual urine, and (2) the effect of infection on cystostomized bladders as well as the spread of infection from such bladders to the upper urinary tract.

In a former article[11] it was shown that organisms introduced into the bladder under varying conditions involved only the upper urinary tract, by passage of the organisms from the bladder to the kidney through the lumen of the ureter and not by involvement of the blood stream or ureteral lymphatics. This phase of the subject will not be considered in the experimental work which follows.

Dogs were used exclusively, and *B. coli* was the organism selected for injection.

1. *B. coli* injected into the normal dog's bladder can be found in the bladder urine as long as thirty-four days after its injection. Macroscopic and microscopic evidence of infection of the bladder and upper urinary tract is absent in practically all instances. In only three of nine dogs so injected, was *B. coli* found culturally in the pelvis of the kidney. These experiments lasted from four to thirty-four days. It is, therefore, evident that the mere presence of *B. coli* in a normal bladder does not usually cause cystitis or involvement of the upper urinary tract, though the organisms may be found by culture of the bladder urine from four to thirty-four days after the injection into the bladder.

2. Injection of organisms into a bladder containing residual urine gives very different results. In eleven dogs, the urethra was partially constricted by silk; but in no instance was sufficient constriction caused to prevent urination. Complete emptying of the bladder, however, was interfered with. Into these bladders, *B. coli* was injected. An acute ulcerative cystitis developed in from twenty-four to thirty-six hours, and not only were *B. coli* isolated from the bladder urine, but they were also grown in pure culture from the kidney pelvis and ureter in ten of the eleven dogs. Blood stream infection was not present.[11] These results are in sharp contrast to the experiments in which *B. coli* was injected into the normal dog bladder, and ascending infection and cystitis were uncommon.

If these results can be applied to the treatment of the urinary tract in cord lesions, it would appear that residual urine is of uncommon importance if microorganisms are introduced or are secreted into the urinary tract. Manual expression of urine or automatic emptying of the bladder is ideal when infection is absent. However, as soon as residual urine becomes infected, cystitis rapidly develops and an extension of the infection to the upper urinary tract takes place. At this point, manual expression fails in its mission, as does automatic emptying of the bladder, because complete emptying of the bladder is not obtained in either case.

3. In a series of eight dogs, the spinal cord was divided in the lower thoracic region and an attempt was made to empty the bladder several times a day by manual expression. This was found to be unnecessary, for after forty-eight hours the animals were able to urinate spontaneously as the reflex arc controlling the bladder was apparently not completely destroyed by cord section. It was of interest to note that the bladder urine was sterile when the back wound remained clean. In the experiments in which an infection of the back took place, the same organisms were found in the urine as were present in the wound. This secretion of organisms into the urine from the blood stream from extra-urinary foci is well known, but has an added importance in the subject under discussion.

4. Complete occlusion of the urethra, suprapubic cystostomy and injection of *B. coli* into the bladder were carried out in eight dogs. With only partial occlusion of the urethra, we have seen that severe cystitis and ascending infection rapidly develop, so under even more severe conditions of complete occlusion of the urethra, the value of cystostomy in this class of cases was tested. The urethra was occluded by silk. The cystostomy was performed by suturing the mucosa of the bladder to the skin, making an aperture into the bladder of from 1 to 1½ inches. In only two experiments was *B. coli* isolated from the ureters or kidney pelves. In one of these experiments, the cystostomy opening was very small and inadequate. This is about the proportion of involvement of the upper urinary tract occurring when *B. coli* is injected into normal bladders without obstruction. Although *B. coli* was repeatedly injected into these cystostomized bladders, at postmortem, from five to eighteen days later, the bladder mucosa was not found to be the seat of an ulcerative or even marked cystitis, except at the point where the mucosa was sutured to the skin. There an inflammatory reaction was present for about 2 cm. from the mucocutaneous junction. Microscopic sections through this region showed an acute inflammation, but in the fundus and trigon, sections showed very slight inflammatory reaction. When it is considered that these dogs were allowed to run loose in the laboratory dog room and were subject to infection by contact of these cystostomy openings as well as by injection of *B. coli* into the bladder, it is remarkable that more inflammation of the bladder mucosa was not present.

These experiments emphasize the importance of infection of residual urine in relation to ascending infections of the urinary tract, and the apparent efficacy of cystostomy in prevention of ascending infection in obstructed infected bladders. How efficient cystostomy would be in relief of infection already established is problematic and would depend to a large extent on the damage already done. It would seem to be well worth trying, if for no other reason than its great and proved value in treatment of upper urinary tract infections in cases of chronic urinary obstruction from hypertrophied prostate.

In estimating the value of the procedures offered for the care of the bladder in paraplegics, it would seem that in early cases without urinary infection the use of the catheter should be absolutely contraindicated and that the relief of the bladder distention should be overcome by manual expression of the urine. This failing, paradoxical incontinence will be established. If manual expression is eventually successful and can be maintained without incidental infection of the urinary tract through the blood stream, it is within reason to believe that a periodic automatic emptying of the bladder may be established and perhaps induced by the attempts at manual expression. The two methods of treatment should be favored indefinitely, provided a urinary tract infection does not occur. In the event of such infection, and this is not at all unlikely in gunshot injuries of the spine with infected wounds or in patients with other foci of infection, the situation is entirely changed. It is at this juncture that we have infected residual urine, and cystostomy is the procedure to be employed, making a relatively large opening into the bladder and establishing constant drainage by siphonage.

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[11] David, V. C.: Surg., Gynec. & Obst. 26:159 (Feb.) 1918.

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PIONEERS IN EMBRYOLOGY *

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How living things are generated is a question of universal interest which has attracted attention since ancient and even prehistoric times. So far as we know, however, the Greek philosophers were the first to make a systematic study of embryology. Among these, Aristotle (B. C. 384-322) was preeminent. Like Hippocrates, his immediate predecessor, he was descended from a line of physicians, from whom he may have inherited a taste for science. Aristotle was a pupil of Plato, but differed from him fundamentally in his attitude toward philosophy. Plato was an idealist, who relied mainly on intuition, while Aristotle was a realist, and held that observation is the proper basis for knowledge. This view, now a commonplace of science, but then a novel idea, was emphasized by Aristotle thus: "One must believe the observation rather than the theory, and the latter only when it is in agreement with the facts observed."

THE WORK OF ARISTOTLE

Aristotle was a teacher of Alexander the Great, and had influence at court. In order to make an extensive study of animals, he obtained from his royal patron a grant of a large sum, 800 talents, or the equivalent of about $200,000. This is interesting as perhaps the first governmental subsidy for scientific investigation on a large scale. Aristotle used this amount in employing numerous research assistants who traveled over the known world (the regions encircling the Mediterranean), collecting specimens and gathering information from farmers, hunters, fishermen and all who knew anything about animals.

Thus, Aristotle was able to collect a relatively large amount of data for study. In addition to original observations, he also compiled the views of his predecessors, and even at that time refers to the opinions of "the ancients." For while the period of some twenty-two centuries since Aristotle seems a long time, we must not forget that a much longer preceding period had been required to accumulate slowly the small stock of common knowledge then available. Through his own observations and efforts, Aristotle was able to extend greatly this knowledge, and to establish the science of biology.

His biologic work is embodied chiefly in three books: "History of Animals,"[1] "On the Parts" and "Generation of Animals."[2] The "History of Animals" is a classic which should be read by every student in biology and medicine. It contains in briefer form his views on embryology. They are elaborated more fully in the "Generation of Animals," which was the first systematic treatise on embryology. We shall refer briefly to some of his principal results in order to give an idea of the scope and character of Aristotle's work in embryology.

Some 500 species of animals (chiefly vertebrates) are mentioned by Aristotle, and his descriptions in many cases include observations on their mode of reproduction. He recognized among animals two fundamentally different methods of reproduction, which we now designate as biogenesis and abiogenesis. Abiogenesis, or spontaneous generation of living things from lifeless matter was a universal belief at that time, and was thought to occur, by the action of air and warmth on slime, etc., not only among the lower forms of life, but also among vertebrates, such as eels, frogs, and even small mammals. This view seemed to be proved beyond question by everyday experience and even by careful observations.

Aristotle mentions, for example, certain marshy ponds which dried up, and in which eels appeared when the ponds were again filled with water by the rains. Such evidence appeared to him conclusive proof of spontaneous generation, a doctrine that has persisted among the uneducated throughout all ages down to the present day. Even among scientists, abiogenesis was practically unquestioned before the time of Redi, in the seventeenth century, and only after 200 years more of controversy was it definitely disproved by the classical experiments of Pasteur. Even now, many biologists believe that abiogenesis of protoplasm is at least a theoretical possibility, which some day may be successfully accomplished by artificial means.

Aristotle recognized biogenesis, the reproduction of life from living beings, as the prevailing method. He also observed that in some species this might occur asexually (by budding or by parthenogenesis), although the sexual method is usual among the higher animals. The essential principle of the sexual method, the union of male and female elements to form a new organism, was of course already well known. Aristotle studied the process carefully in various species, and classified animals into the oviparous, or egg-producing, including most forms below mammals, and the viviparous, or live-producing mammals. He even noted an intermediate form ovoviviparous, in some elasmobranch fishes, an observation apparently not confirmed until the time of Johannes Müller, more than 2,000 years later.

Unfortunately, Aristotle classified the cocoons of the insect pupae as eggs, a mistake that later misled even Harvey, and give rise to much confusion. Aristotle recognized that the eggs, which are produced by the female, must be fertilized by the semen or sperm of the male, in order to be capable of further development. He studied with care the formation of the egg in the ovary of the hen, and also observed the process of the development of the chick day by day during incubation.

Some of his more important observations on the developing chick are as follows: After three days of incubation, during which he could see no definite change, the heart appears as a pulsating red spot, in the white of the egg near the yolk. From the heart extend two sets of vessels, one to the yolk and the other

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* A lecture given under the auspices of the Graduate School, University of Minnesota.

[1] Aristotle: History of Animals, translated by Richard Cresswell, London, 1891.

[2] Aristotle: Generation of Animals, Von der Zeugung und Entwicklung der Thiere, translated by Aubert and Wimmer, Leipzig, 1860.

to the membranes. Soon the body of the chick embryo appears, the head, especially the brain and eyes, being relatively large, and the tail end of the body very small. The various organs, liver, lungs, etc., appear successively, by epigenesis, and not simultaneously. By the tenth day, all parts are distinct, the intestinal canal extending toward the navel. The yolk sac is gradually absorbed for nutriment. The brain matures slowly, and the roof of the skull is the last part of the skeleton to form.

In the viviparous animals (mammals) Aristotle described the process of reproduction as consisting in an intra-uterine intermingling of the male semen with the female semen. The latter is described as formed from the menstrual fluid in the human female and from a corresponding substance in the females of other mammals during the rutting season. Aristotle's ignorance of anatomy is evident from his view that in both sexes the semen is secreted by the walls of the sexual ducts or passages, the true significance of the testes and ovaries being unrecognized. The material substance with the "vegetative spirit" for the embryo was supposed to be derived from the female, corresponding to the egg of oviparous forms, while the developmental stimulus, or "generative spirit," was ascribed to the male semen. The embryo and the surrounding membranes are supposedly formed by a coagulation of the menstrual fluid, the process being compared to the action of rennet in curdling milk. The formation of the embryonic body and organs was found to be in general agreement with that of the chick, as outlined before. The same sequence was noted, the inner parts of the embryo appearing before the outer, and the upper part of the body before the lower. The "nobler" tissues (the flesh and sense organs), were supposed to develop from the "purest" portion of the nutriment, while the "inferior" structures (bones, tendons, nails, hair) come from the residue.

Aristotle also studied human embryos, including one at forty days, "about as large as a large ant." He speculates at length on many questions concerning human embryology, but is usually cautious in his conclusions, as for example in this passage:

> If the child is a male, a movement is usually felt on the right side of the groin, in about forty days; if a female, a movement occurs on the left side in about ninety days. We must not suppose, however, that an accurate judgment can be formed in this way, for it often happens that the movement is felt on the right side when a female child, and on the left side when a male child is conceived. All these and such like things vary in a greater or less degree.

Aristotle also observed and classified monstrosities. Rejecting various superstitions as to their origin, he established a rational teratology by explaining the various malformations as developmental defects. He also discusses at length the nature of heredity, opposing an earlier theory resembling the later "pangenesis" of Darwin. It is not possible, he says, that the semen could be derived from all parts of the body, each to reproduce its corresponding part, for then it would be impossible for a crippled man to beget a normal child.

Many other interesting observations and doctrines of Aristotle must be passed over, but the foregoing will illustrate the range and importance of his work. In spite of numerous errors and crudities that were inevitable in such pioneer work, he established biology on a scientific basis, and formulated many of the problems that have occupied attention down to the present day.

Although embryology was thus established on a good foundation, the conditions in the following period were unfavorable for its further development. The Grecian and Roman civilizations were overwhelmed by successive wars and final invasions by the barbarians. During the middle ages, the all-powerful church directed attention to theological matters, and the study of science was discouraged and neglected. In embryology, a few scattered observations on minor details were made from time to time (by Galen, Fabricius and others), but the teachings of Aristotle on this subject remained virtually unchanged and unchallenged for eighteen or nineteen centuries, down to the time of Harvey.

DISCOVERIES BY HARVEY

Even Harvey (1578-1657), the keen-minded discoverer of the circulation of the blood (1628), frankly adhered for the most part to the embryologic doctrines of Aristotle, to whom he refers respectfully as the "Prince of Philosophers." Nevertheless, Harvey's work "On Generation" (1651) is a very important contribution, based on many years of observation and study, especially on the development of the chick and the deer.

In the chick, Harvey followed the formation of the ovarian egg and the development of the chick during incubation. To the accounts of Aristotle and of Fabricius (Harvey's teacher), he added much of importance. He correctly located the origin of the embryo in the whitish yolk-spot, or cicatricula. In the center of this area, he noted the pulsating heart at the close of the third day, but believed that the blood arose still earlier. He concludes that "the blood is the generative part, the fountain of life, the first to live, the last to die, and the primary seat of the soul." The various organs were found to arise successively by epigenesis, as noted by Aristotle, but are described more accurately and in greater detail.

In one respect Harvey differed from Aristotle, and in this case erroneously, by denying an actual contact of the male semen with the egg during fertilization. Harvey found it impossible to pass a probe or an injection of water up the female tract in either birds or mammals; and he therefore concluded that such a passage is likewise impossible for the male semen. He was thus driven to the assumption of a fertilizing action by the sperm at a distance, which he compared with the action of a contagion, or of a magnet on iron.

In the deer, Harvey had unusual opportunity to study the process of reproduction in the hunting parks of his royal patient, King Charles I. Harvey corrected Aristotle's view as to the source of the male semen, and traced it to the testis; but, like Aristotle, he failed to locate the origin of the mammalian ovum (which was later traced to the ovary by De Graaf). Harvey disproved the doctrine of a female semen, showing by careful dissections in the deer and other mammals that nothing of the kind is observed in the female either before or after copulation. He found the (mammalian) ovum first apparent in the uterus, being unable to trace any connection between the ovum and the ovary or the male spermatic fluid.

Thus, on account of the inherent difficulties of the subject, which baffled him despite his most careful observations, Harvey fell into serious errors. Even his greatest generalization, that all life comes from the ovum ("ex ovo omnia"), is imperfect in some respects. In mammals, by "ovum" he meant the intra-uterine sac, within which the embryo (as we now know) is already relatively advanced in development. And in lower forms of life (insects, etc.) he still admitted that the ovum may arise by putrefaction or by the spontaneous generation of Aristotle. He also had an erroneous idea concerning the nature of the metamorphosis of the insect in the "egg" (cocoon).

Yet Harvey's work was of great importance in the advancement of embryology. He was able to trace both the earlier and the later development of the higher animals in much greater detail than was hitherto known, not only in the chick and deer, but also in man. He discerned the principal features of development, month by month, in the human embryo and fetus. Most important of all, he led the way to a renewed study of embryology by direct observation and experiment, the only road by which the truth can finally be reached.

The work of Harvey, in which only a simple magnifying glass was used, practically terminates what may be called the premicroscopic period. The introduction of the compound microscope, even the very imperfect instrument of the seventeenth century, gave an indispensable means and a great stimulus to the further investigation of embryology.

PROGRESS MADE POSSIBLE BY THE MICROSCOPE

Malpighi (1628-1694), by the use of the microscope, was able to add many details of importance to the observed process of development. Although a better observer than Harvey, Malpighi nevertheless made one serious error. In the chick he found the embryo already formed in the unincubated egg (owing to the hot weather of the Italian summer), and hence he proclaimed the doctrine of preformation of the embryo, in opposition to the doctrine of epigenesis previously taught by Aristotle and Harvey, and hitherto universally accepted.

This doctrine of preformation (or "evolution," as it was then termed) was further supported by the observations of Malpighi (also of Swammerdam and others) which revealed an unsuspected complexity of structure in the insect "eggs" (cocoons) and larvae, hitherto believed to be virtually unorganized. Bonnet taught that the embryo preexists in the egg as an invisible network of minute tubes, through which the heart pumps blood, furnishing nutriment to fill up the meshes of the net during the process of development. Haller and others during the eighteenth century, inspired by the philosophy of Leibnitz, pushed the preformation theory to the extreme limit, holding that nothing is really formed anew; that the ovum contains in miniature not only the adult which will develop from the embryo, but also, concentrically encased, similar germs of all succeeding generations. Thus it was seriously calculated that the ovary of Eve must have included 200,000 million minute human beings!

Another amusing corollary of this theory, illustrating also the theological tendency of the time, was furnished by Vallisnieri.[3] He argued that the parasitic intestinal worms (whose life history was then unknown) must likewise have been preformed within the human body and handed down from the first man, Adam. It was thought, however, that they were probably harmless until after the sin of Adam; and that they might have been transmitted in the form of eggs through Adam's rib in the creation of Eve, thus reaching the female.

Another phase of the embryologic problem was initiated by the discovery of the spermatozoa, first seen under the microscope by a medical student, Hamm (Hamen), at Leyden about 1675. He pointed them out to his teacher, Leeuwenhoek, who described them and claimed that they, rather than the egg, represent the real source of the embryo. Then arose a spirited controversy between the "ovists" and the "animalculists." The ovists claimed that the spermatozoa are merely parasitic organisms of no genetic significance, while the animalculists urged that the spermatozoa represent the essential elements in reproduction, the egg merely furnishing a nest or nutriment. Spallanzani proved that the spermatozoa are indispensable, since filtered semen was found to be impotent.

Furthermore, since preformation (or predelineation) was the prevailing doctrine, some investigators (Dalenpatius, Hartsoeker and others) claimed to have observed a miniature adult ("homunculus") in the spermatozoon under the microscope, and figures were actually published of such, showing the head, arms and legs. The climax was reached by Andry,[3] whose fanciful descriptions included a small trap-door in the ovum, large enough to admit only one spermatozoon of the many swarming around and seeking entrance. Savage conflicts were said to occur among the contesting spermatozoa; and if the victor had been injured, by the loss of a limb, for example, the embryo would present a similar defect, resulting in a congenital malformation!

A new era in embryology arose with the work of C. F. Wolff (1733-1794), who described the embryonic organs of the chick as arising from leaflike sheets, similar to those of embryonic plants. Wolff revived the epigenetic theory of Aristotle and Harvey, but his work was overshadowed by the prevailing preformation doctrines of the eighteenth century. Only later, in the early part of the nineteenth century, did his observations receive merited attention, when they were confirmed by Pander and especially by von Baer, by whom they were extended to form the modern germ-layer theory.

Von Baer (1792-1876), who discovered the mammalian ovum (1827), is generally considered the founder of modern embryology. The subsequent establishment of the cell theory and its application to embryology have largely revolutionized our ideas of the subject and have extended it in many ways, especially in its relation to heredity and to evolution. While these modern phases of embryology are not within the scope of the present paper, it may be noted that some of the older problems, notably the question of preformation versus epigenesis, still confront us, though in a somewhat different form. That the regions of the future organism are already determined while the embryo is still an apparently homogeneous disk was shown by His (1874), and has since been experimentally proved.

The earlier process of fertilization and segmentation has been worked out in great detail for various classes of animals, though not as yet in man. The sperm and ovum usually show no trace of preformation in the original sense of the term, although the polarity of the unfertilized egg in many cases appears to determine the axis of the future embryo. The time when definite organ-forming areas can be recognized varies in different species. The early development appears to be essentially epigenetic, probably consisting in a definite series of reactions between the fertilized ovum and its environment. But we know that the parental germ plasm, probably the chromosomes, must carry over *something* which predetermines the future organization. What this something may be, we do not yet know. Some biologists consider the problem insoluble. But others, encouraged by the increasing knowledge in the fundamental sciences of chemistry and physics, and by the recent rapid progress in the realm of experimental embryology, are hopeful that some day it may be possible to explain the riddle of embryology—how does the egg produce the organism?

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[3] Rádl, E.: Geschichte der biologischen Theorien seit dem Ende des siebzehnten Jahrhunderts, Leipzig, 1905-1909.

THE CAUSE OF EPILEPTIC SEIZURES IN TUMORS OF THE TEMPOROSPHENOIDAL LOBE

A CONTRIBUTION TO THE STUDY OF EPILEPSY

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AND
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With varying degrees of emphasis, textbooks proclaim almost unanimously the importance of generalized epileptic seizures as a symptom of brain tumor. One author places them second only to headache in importance. Another states that they occur in as many as 50 per cent. of the cases. It had been our impression that such statements were misleading, and on studying a series of 165 cases of brain tumor coming to operation at the Neurological Institute in the last few years, we found that generalized epileptic seizures occurred in only four of the cases.

It is perhaps not difficult to understand why such high estimates of the frequency of epileptic seizures in brain tumor have been made. Some of them are due to impressions obtained by writers years ago, at a time when jacksonian spasms were the best known localizing sign of a brain tumor and a usual indication for operation. As it was customary at this time to refer to such spasms as epileptic seizures, it follows that the latter should figure numerously in statistics.

Another possibly confusing element in this connection is the loss of consciousness which occasionally accompanies localized jacksonian spasms. This is an important practical point which has been mentioned elsewhere by one of us, but which we wish to emphasize here. Localized jacksonian spasms indicate the exact area of the brain cortex which is most unstable. If a tumor is the cause of the instability, it will almost always be in the immediate vicinity of this area. The loss of consciousness which occasionally occurs with such an attack, as in four of the eleven cases in our series, by no means puts the attack in the category of generalized epileptic seizures or destroys its distinct localizing value. Indeed, loss of consciousness does not seem to have an especial significance in such cases, and may precede, accompany or follow the attack. One of our patients would regain consciousness while the limb was still jerking. Another would lose consciousness only at the conclusion of a severe attack.

Nevertheless, typical generalized epileptic seizures have often been definitely described as occurring in cases of brain tumor. In this series we found that they were a frequent accompaniment of tumors of the temporosphenoidal lobe. There were five such tumors: three caused typical epileptic seizures, and the other two caused attacks somewhat similar.

We have compared the frequent occurrence of epileptic seizures in our temporosphenoidal tumors with their occurrence in other cases that have been reported. In contributions to the subject of temporosphenoidal symptomatology by Ferrier and by Mills, twenty-seven different cases are recorded. In thirteen of these, almost 50 per cent., generalized epileptic seizures occurred. In a report of nine cases of temporosphenoidal lobe tumor by Foster Kennedy, four patients had typical major epileptic seizures, and three others, he says, "suffered at some time or other from sudden attacks of loss of consciousness associated with cyanosis and stertorous respirations." The occurrence of epileptic seizures seems, therefore, to be a consistently frequent feature of the symptomatology of temporosphenoidal tumors.

Epileptic seizures were not only a frequent result of a tumor in the temporosphenoidal lobe, but in our series occurred almost exclusively in the tumors that had this particular location; for in the remaining 160 cases in our series in which the tumors were variously located in other regions of the brain, only one, a tumor in the postparietal region near the angular gyrus, caused epileptic seizures.

To some, the proximity of the temporosphenoidal lobe to the precentral gyrus or motor area of the brain cortex might seem sufficient explanation for epileptic seizures occurring with tumors situated in this lobe. We wish, therefore, to call attention to the fact that there were six of the twenty-two frontal lobe tumors in the series, and five at least of the eighteen parietal tumors, which were not only proximate to the motor area but at operation were considered definitely to implicate it, and in not one of these cases did generalized epileptic seizures occur.

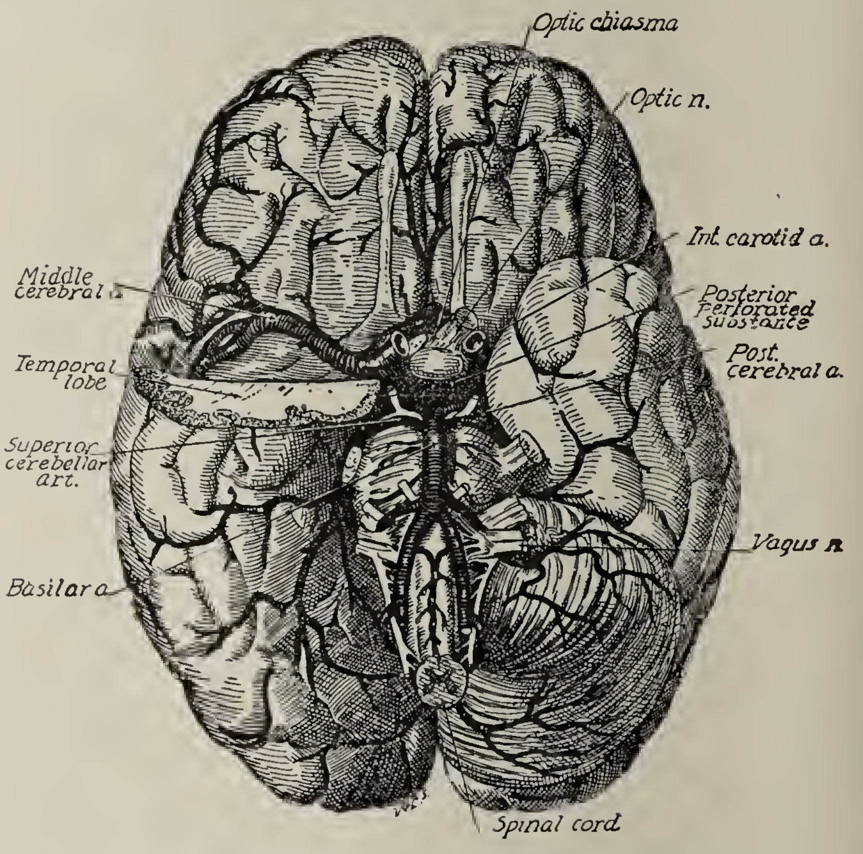

Fig. 1.—Location of the middle cerebral (sylvian) artery in the sylvian fissure between the temporosphenoidal and frontal lobes (from Sobotta-McMurrich).

It will be remembered that convulsions may be due to a sudden reduction of the cerebral blood supply. The convulsions of Stokes-Adams disease, the Kussmaul-Tenner convulsions provoked by ligation of the internal carotid arteries, and the spasms consequent on electrical stimulation of the peripheral end of a cut vagus nerve are all attributed to this cause.

If both common carotids are suddenly compressed, the pupils widen, respiration deepens, and dizziness and loss of consciousness follow. Epileptiform spasms frequently occur. Leonard Hill, writing on the experimental pathology of the cerebral circulation, describes graphically the effect of digital compression by himself on one of his carotid arteries.

> The first effect of compression was a tingling sensation in the eye on the same side; then followed a march of a sensation of pins and needles down the opposite side of the body: this began in the fingers, spread up the arm, then down the leg. Finally clonic spasms of the flexors of the forearm occurred, accompanied by a feeling of vertigo and alarm.

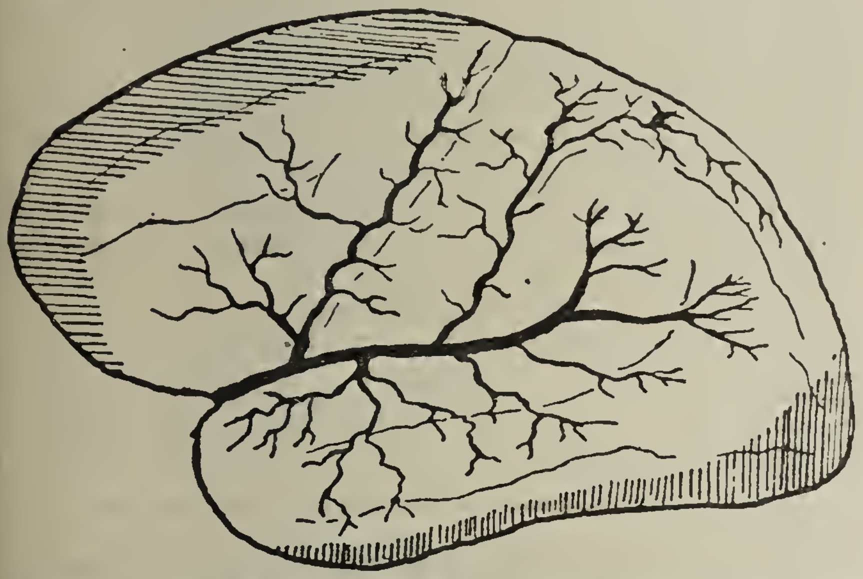

Fig. 2.—Arterial supply of the lateral cerebral surface. The middle cerebral artery and its divisions are shown on the area left white (from Bing).

A glance at Figure 1 will serve to remind the reader how the internal carotid artery, after its arrival at the base of the brain and its assistance in the formation of the circle of Willis, divides into an anterior cerebral and a larger middle cerebral artery. The latter vessel, often called the sylvian artery, pursues a course outward in the sylvian fissure to the island of Reil, where it divides into branches which spread over and supply almost the whole lateral surface of the cerebral cortex.

We wish to call attention to the fact that, in its course in the sylvian fissure, this important arterial trunk lies across the superior surface of the temporosphenoidal lobe with the frontal lobe above it. Therefore, it might be considered that an abrupt transient compression of the sylvian artery because of an increase in the congestion or edema surrounding the tumor, by suddenly reducing the cortical blood supply, could be responsible for the epileptic seizures that occur in the course of such a large percentage of temporosphenoidal tumors.

There is an explanation, however, which we believe more properly accords with all the facts of the situation. Frequently the clinical picture of these tumors is at first just that of ordinary epilepsy. The attacks may occur at intervals for a long time, even for years, before definite signs of an intracranial growth appear.

A slowly enlarging temporosphenoidal tumor, perhaps long before it is of sufficient size to cause a generally increased intracranial pressure, will exert local pressure on neighboring parts. On account of the bony cranium beneath the temporosphenoidal lobe, the tumor will expand upward. One of the earliest results of expansion upward, we believe, would be a partial compression of the sylvian artery, causing a narrowing of its lumen and a decreased blood flow through it to the cortex. The vulnerability of the arteries of the brain to pressure may be considered increased by the fact that "in contrast to the arteries of the extremities with their muscularis and adventitia, the cerebral arteries show strikingly thin walls with relative poverty in elastic elements."[1]

An illustration (Fig. 3) from Pierre Marie is included here to show the large degree of cortical softening which is possible in complete obliteration of the sylvian artery, in spite of what is usually considered a fairly free anastomosis of the large cerebral vessels. It seems likely that a partial obliteration of this vessel, occurring in the manner we have just indicated, will limit the blood supply of a large area of the cortex to a degree that must at best be poorly compensated for by anastomotic vessels.

OCCURRENCE OF CONVULSIONS IN ONE HUNDRED AND SIXTY-FIVE BRAIN TUMORS

Character	Cases	Location of Tumor	Cases
Major epileptic seizures	4	*Temporosphenoidal*	3
		Postparietal arca	1
Localized jacksonian spasms	11	Frontal, involving motor area	6
		Parietal, near motor area	5
Generalized convulsions without unconsciousness	3	*Temporosphenoidal*	2
		Intraventricular with extreme hydrocephalus	1
Localized jacksonian spasms occasionally accompanied by unconsciousness	4	Frontal, involving motor area	4

It is the slight degree of anemia of the cortex rather than the large, according to such an authority on the cerebral circulation as Leonard Hill, that is most effectual in producing that state of cortical instability which is recognized by a greatly augmented excitability.

We accept the view that recurring epileptic seizures always imply the existence of a more or less generalized cortical instability. Therefore the comparatively great liability of a tumor in the temporosphenoidal lobe to cause epileptic seizures led us to believe that there must be some anatomic peculiarity of this region which made it extremely likely that a tumor here would produce wide cortical instability.

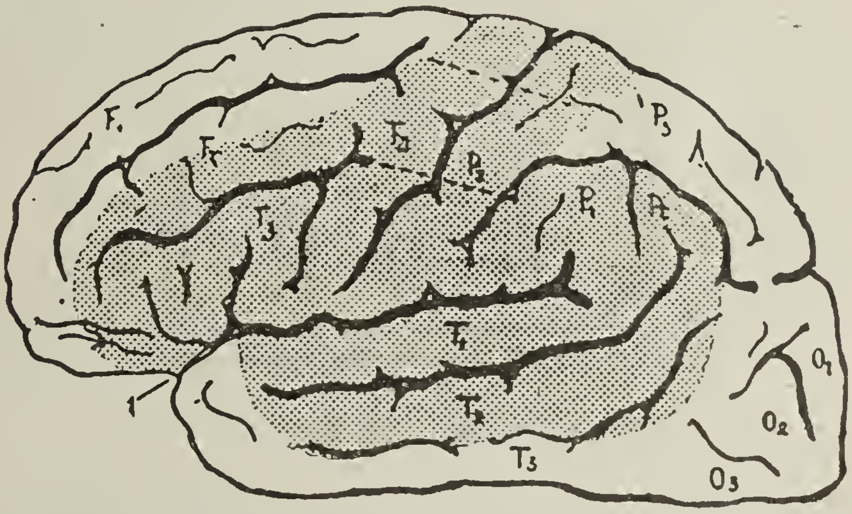

Fig. 3.—Area of softening of the cortex due to obliteration of the middle cerebral (sylvian) artery at its commencement (from Pierre Marie, Campbell Thomson's Diseases of the Nervous System).

It seems to us, in the light of the foregoing facts, that it is almost impossible for a tumor to grow to any considerable size in the temporosphenoidal lobe without producing through interference with the arterial circulation to the cortex, such an amazingly vast area of cortical instability as to make the occurrence of epileptic seizures seem an almost inevitable consequence.

In addition, perhaps it might be considered that extensive pressure from within and above downward on the sylvian artery, such as might occur with a large internal hydrocephalus, would also, in the same manner as a temporosphenoidal tumor, produce a wide area of cortical instability leading to epileptic convulsions. In this connection it is interesting to note that dilated ventricles, the postmortem evidence of internal hydrocephalous, are observed to occur in almost one in three of the necropsies on epileptics at Craig Colony.

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[1] Bonnet and Triepel, in Curschmann's Text-Book of Nervous Diseases, Philadelphia, P. Blakiston's Son & Co. 2: 669, 1915.

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CREATIN AND MUSCLE TONUS IN MAN *

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Among the data accumulated for the study of the chemical composition of human blood [1] there occurred a series of analyses of blood taken from two individuals, first during catatonic stupor and later as release from the condition began.

Particular interest is attached to these analyses because of the fact that they alone show deviations from the average normal limits obtained from the group as a whole, and because creatin was the constituent whose variability is significant in view of its normal relative uniformity. This deviation consisted in each of the two cases of both an absolute and a relative increase in the blood creatin coincident with the reestablishment in the skeletal musculature of an evident condition of tone which heretofore had been absent. The increased creatin of the blood continued long after the inception of perceptible muscular movements.

At the time the observations were made it was planned to investigate the phenomenon more thoroughly; but since further work along this line by the author is now problematical, it seems worth while to make a report of the findings and briefly to correlate them with the present status of the creatin problem.

Turning first to the analytic results, there is found in the tables the amounts of the various constituents determined in terms of nitrogen and as percentages of the total nonprotein nitrogen. All analyses were made according to the methods of Folin and Wu [2] and Van Slyke.[3]

Table 1 gives the values obtained from two specimens of blood, taken seven days apart, from a woman in a catatonic stupor at both times. This patient had already passed from the condition of imperceptible or absent tonicity of the skeletal musculature into a more normal state where tonus was beginning to be reestablished. The part played by the respiratory musculature in modifying the general picture is unknown. If the figures of this table are compared with Table 2, which represents the range and average amounts of the various constituents previously reported as normal values,[1] it will be seen that the creatin is increased both absolutely and relatively to the total nonprotein nitrogen. Unfortunately, it was impossible to obtain further samples of blood from this person for analysis.

TABLE 1.—ANALYSES OF THE BLOOD FROM A WOMAN IN CATATONIC STUPOR

Date	Total Gm.	Nonprotein N, Mg.	Urea N		Creatinin N		Creatin N		Uric Acid N		Amino-Acid N		Residual N		Sugar, Mg.
			Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	
11/14/19	2.34	49.8	25.7	51.6	0.41	0.8	**2.45**	**4.9**	1,3	2.6	6.5	13.1	13.4	26.9	132
11/21/19	2.56	39.3	17.7	45.0	0.44	1.1	**2.69**	**6.8**	0.8	2.0	...	....	....	....	138

TABLE 2.—RANGE OF VARIATIONS, AVERAGE AMOUNTS AND AVERAGE PERCENTAGE IN TERMS OF NONPROTEIN NITROGEN (NORMAL VALUES)

Constituent	Range, Mg.	Average Amount, Mg.	Average per Cent.
Creatinin N..................	From 0.37 to 0.60	0.47	1.3
Nonprotein N................	From 27.3 to 45.5	35.6	100.0
Total N......................	From 2560 to 4290	3070	.....
Creatin N....................	From **0.62** to **1.78**	**1.30**	**3.7**
Sugar........................	From 85 to 166	112.0	.....
Uric acid N..................	From 0.50 to 1.16	0.78	2.2
Amino-acid N................	From 3.1 to 7.2	4.9	13.8
Urea N.......................	From 9.7 to 25.1	17.1	47.8
Residual N..................	From 3.7 to 18.3	11.1	31.1

Table 3 gives the values obtained from the blood analyses of a man in catatonic stupor over a period of eight weeks, during the first five of which there was an evident marked lack of muscular tonicity, and during the last three weeks of which a more normal condition of tone was shown by the fact of the occurrence of movements of the limbs and trunk.

TABLE 3.—ANALYSES OF THE BLOOD FROM A MAN IN CATATONIC STUPOR

Date	Total Gm.	Nonprotein N, Mg.	Urea N		Creatinin N		Creatin N		Uric Acid N		Amino-Acid N		Residual N		Sugar, Mg.
			Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	Mg.	%	
10/30/19	3.26	40.0	22.6	56.4	0.4	1.1	**1.7**	**4.3**	0.6	1.4	5.9	14.8	8.8	22.0	125
11/ 6/19	3.30	34.5	17.7	51.2	0.4	1.2	**1.5**	**4.2**	0.6	1.8	5.6	16.1	8.8	25.6	122
11/13/19	2.73	37.3	19.2	51.6	0.4	1.2	**1.4**	**3.9**	0.6	1.5	6.0	16.0	9.6	25.9	166
11/20/19	2.73	33.7	16.7	49.5	0.5	1.4	**1.5**	**4.4**	0.7	2.2	6.6	19.5	7.8	23.1	145
11/27/19*	3.06	35.7	17.9	50.0	0.4	1.2	**1.4**	**3.9**	0.7	2.1	5.1	14.3	10.1	28.5	138
12/ 4/19	3.09	28.6	13.3	46.7	0.4	1.4	**2.1**	**7.3**	0.6	2.0	4.0	14.0	8.2	28.6	133
12/11/19	3.17	31.6	15.8	50.1	0.4	1.4	**2.0**	**6.3**	0.6	1.8	5.2	16.3	7.6	24.2	110
12/18/19	2.82	27.4	13.5	49.3	0.4	1.6	**2.0**	**7.3**	0.5	1.9	5.1	18.7	5.9	21.4	97

* Change of condition between 11/27/19 and 12/4/19.

It will be noted that some time between the week beginning November 27 and the week beginning December 4, a fundamental change of some sort occurred that resulted in an increase of the creatin of the blood both absolutely and relatively to the nonprotein nitrogen. The only perceptible change in this period was that the patient was muscularly active two days before the last specimen was taken for analysis for the first time in several months, and that the complete relaxation heretofore obtaining was absent.

I attribute this increase in the blood creatin to the establishment of a condition of tone in the general skeletal musculature which had previously been absent. The studies of Pekelharing [4] and of Pekelharing and

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* From the Wistar Institute of Anatomy and Biology.

[1] Hammett, F. S.: J. Biol. Chem. **41**: 599 (April) 1920.

[2] Folin, Otto, and Wu, H.: J. Biol. Chem. **38**: 87 (May) 1919.

[3] Van Slyke, D. D.: J. Biol. Chem. **12**: 278, 1912.

[4] Pekelharing: Ztschr. f. physiol. Chem. **75**: 207, 1911.

Van Hoogenhuyze[5] have shown that the amount of creatin in the muscle is correlated with the muscle tone, and that conditions which tend to increase the tone tend to increase its creatin content. Henderson[6] had found an increased muscle creatin in paratyphoid tetany in dogs, and Powis and Raper[7] and Denis[8] have observed an increased creatin excretion in the urine voided by day over that voided at night, which can be attributed to a difference in muscular tone at these times, although Denis[8] interprets the results on the degree of protein intake. Moreover, Denis[9] reported a creatin excretion in cases of exophthalmic goiter; Salant and Rieger[10] found that the injection of caffein into rabbits caused an increased creatin excretion; and Krause[11] asserts that there is a relation between creatinuria and the sexual cycle in women, all of which are conditions well known to be accompanied by increased nerve activity and consequent increased muscle tonus. On the other hand, when tonus is prevented in a group of muscles by section of their nerves, the creatin content of the group so affected diminishes, as was found by Weber,[12] and by Cathcart, Henderson and Paton.[13]

My results also indicate that creatin, at least in these cases, is not a postmortem product of muscle tissue in the sense of Folin and Denis.[14] Nor do they support the principle of the exogenous source of the urinary creatin, as stated by Denis[8] as the immediate cause of the creatinemia, since the dietetic regimen was uniform throughout the period of observation. Moreover, the results of Cathcart, Henderson and Paton, already cited, speak against such a conception, and it is highly improbable that the action of the reestablishment of a more normal condition of tone in the muscles in squeezing creatin out of its storage in the muscles into the circulation is sufficient explanation for the continuance of the creatinemia over a period of weeks.

In view of these correlated facts, I would rather accept the interpretation of Steenbock and Gross[15] of the creatinuria obtained by Denis and Minot[16] and Denis and Kramer[17] when feeding high protein diets as due to a stimulation of the endogenous metabolism leading to the production of creatin. This may, indeed, be of the nature of a stimulation of skeletal musculature to a condition of increased tone and hence only indirectly contributing to creatin production. I would therefore incline to the opinion that creatin represents a product of the normal metabolism of the muscle protein in its condition of tone, and agree with Steenbock and Gross[15] that the substance is an "end-product in the catabolism of certain precursors in the protein molecule, just as urea is of others."

With regard to the correlation of carbohydrate metabolism and creatinuria, as studied by Mendel and Rose,[18] Rose, Dimmitt and Bartlett,[19] and others, it would seem worth while to consider the problem from the point of view of that phase of carbohydrate metabolism associated with muscle tonus rather than with carbohydrate metabolism in general, as the great utilizers of carbohydrates are the muscles, and since it has been shown that creatin is so intimately associated with muscle tonus.

SUMMARY AND CONCLUSIONS

The results reported, of a condition of creatinemia coincident with the emergence from catatonic stupor when the normal muscle tone is beginning to be reestablished, are interpreted as supporting the opinion that creatin is an end-product of the catabolism of certain precursors in the protein molecule, and particularly that phase of muscle-protein catabolism associated with the condition of muscle tonus.

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[5] Pekelharing and Van Hoogenhuyze: Ztschr. f. physiol. Chem. **64**: 266.
[6] Henderson, P. S.: J. Physiol. **52**: 1 (April) 1918.
[7] Powis, F., and Raper, H. S.: Biochem. J. **10**: 362, 1916.
[8] Denis, W.: J. Biol. Chem. **29**: 447 (April) 1917.
[9] Denis, W.: J. Biol. Chem. **30**: 47 (May) 1917.
[10] Salant, W., and Rieger, J. B.: J. Biol. Chem. **14**: 35, 1913.
[11] Krause, R. A.: Quart. J. Exper. Physiol. **4**: 293, 1911.
[12] Weber: Arch. f. exper. Path. **58**: 93, 1908.
[13] Cathcart, E. P.; Henderson, P. S., and Paton, D. N.: J. Physiol. **52**: 70 (April) 1918.
[14] Folin, Otto, and Denis, W.: J. Biol. Chem. **17**: 493, 1914.
[15] Steenbock, H., and Gross, E. G.: J. Biol. Chem. **36**: 265 (Nov.) 1918.
[16] Denis, W., and Minot, A.: J. Biol. Chem. **31**: 561 (Sept.) 1917.
[17] Denis, W., and Kramer, J. G.: J. Biol. Chem. **30**: 189 (June) 1917.
[18] Mendel, L. B., and Rose, W. C.: J. Biol. Chem. **10**: 213, 255, 1911-1912.
[19] Rose, W. C.; Dimmitt, J. S., and Bartlett, H. L.: J. Biol. Chem. **34**: 601 (June) 1918.

TRAUMATIC SUBCUTANEOUS EMPHYSEMA AND REVIEW OF THE LITERATURE *

REPORT OF CASES

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AND
JAMES G. JONES, B.S., M.D.
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In reviewing the literature, we have been unable to find any reports of traumatic emphysema. Berkley and Coffen,[1] in reviewing the cases of subcutaneous emphysema and spontaneous pneumothorax, which occurred during the influenza epidemic at Camp Lewis, say:

> The clinical picture of this emphysema, extending up over the neck, face and scalp, and down over the chest and trunk to the pelvis, and even to the external genitalia, is of such rarity and interest that the cases are here reported. Spontaneous pneumothorax has developed in two patients having extensive bronchopneumonia. That there is a relationship between these two conditions and that they are produced by similar pathologic processes has seemed likely. One case, in fact, presented, at different times, both of these complications.

Their explanation of the production of emphysema and pneumothorax is this:

1. *Intrapleural Route.*—For air to pass from the lungs to the chest wall by this route, it must pass through both the visceral and the parietal pleura. To do this without causing a pneumothorax, it must be assumed that adhesions exist between the pleurae at this point.

2. *Extrapleural Route.*—Air sacs on the periphery of the lung rupture. The air follows the line of least resistance and travels beneath the visceral pleura to the hilum, and then follows the reflection of the pleura on the big vessels and enters the mediastinum and then follows the fascial planes into the tissues. These ruptured air sacs have been found at necropsy. Leading off from these were "air streaks" following the course of the big vessels.

Dissection of the lungs demonstrated that these air streaks could be traced along the vessels to the hilum. By exposing the hilum extrapleurally without rupturing the bronchus and submerging it in water, it was possible, by gently squeezing the lung, to force bubbles of air to the hilum, the bubbles rising from around the vessel walls.

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* From Mount Sinai Hospital.

[1] Berkley, H. K., and Coffen, T. H.: Generalized Interstitial Emphysema and Spontaneous Pneumothorax as Complications of Bronchopneumonia, J. A. M. A. **72**: 535 (Feb. 22) 1919.

Alexander and Follett,[2] in reviewing traumatic emphysema, state that stab wounds, puncture wounds produced by the exploratory needle, rupture of any part of the alimentary tract, as the esophagus, the stomach or the rectum, rupture of air passages, as the nose, trachea or sinuses, or any erosion as the result of foreign bodies in the bronchi may cause it.

Fracture of a rib may occasion emphysema. The rib injures the parietal and visceral pleurae and lung tissue. During inspiration, the lung expands and air rushes into the pleural cavity, and on expiration the lung collapses and the laceration is closed, so the air cannot be drawn back—this is a very apparent cause. Emphysema after laparotomy is probably caused by air getting into the peritoneal cavity, and if the patient strains or coughs, it may be forced out into the subcutaneous tissue.

Meyer and Lucke,[3] in reporting cases of subcutaneous emphysema complicating influenza and pneumonia, could not demostrate a pneumothorax in any of their cases, and no point of rupture of the lung could be found at necropsy. Their theory of the mode of origin was that either chemical changes in the blood occurred, permitting the air to escape in the tissues, or rupture of the air vesicles at the apex of the lung or through the intrapleural route occurred—provided adhesions exist at the point of rupture, or through the extrapleural route, provided the air dissects its way to the hilum of the lung.

REPORT OF CASES

Case 1.—J. S., aged 8, on September 15, fell from a truck and was struck by a box on the left side of the chest. He was not unconscious and felt fairly well at that time. Two days later his mother noticed that the skin over the chest and the left side of the face was puffy, and the child had difficulty in breathing. He did not cough nor was there any bloody expectoration. On examination, subcutaneous emphysema was found over both clavicles, neck, face and down the chest on both sides as far as the third rib. Roentgen-ray examination of the lungs was negative, as was the physical examination. There was some dyspnea on inspiration and expiration, and slight cough. The patient continued to improve from the date of entrance, and was discharged on the ninth day, the air having entirely disappeared from the tissues.

Case 2.—N. V., aged 25, fell from a truck and came to the hospital complaining of pain in the dorsal region of the spine and left shoulder. There was no bloody expectoration, but there was a slight cough. Physical examination of the lungs was negative. Air was found in the tissues over the entire left chest. The roentgen ray revealed no fracture of the spine, ribs, nor any pathologic condition of the lungs. It disclosed plainly the emphysema in the tissues. On the second day, the patient vomited frequently and felt very uncomfortable. He was discharged on the fifth day in good condition, but there was still some air in the tissues.

Case 3.—F. T., aged 32, gave a history of being an alcoholic. On admission, the lungs were found negative. The patient was operated on, October 20, for double hernia, gas and anociassociation being used. October 22, the patient developed pain in the chest, cough and bloody expectoration, air hunger and cyanosis. At this time, there were two conditions thought of: hemorrhage and pulmonary embolus. On physical examination, the chest was found to be hyperresonant throughout. Breath sounds were audible but diminished on the right side. Distinct friction sounds were audible and palpable in the left axillary line. Subcutaneous emphysema was present over the right side of the chest, especially marked in the midaxillary region. October 23, the patient died. No necropsy was obtained.

Case 4.—J. S., aged 32, entered the hospital suffering from two gunshot wounds, one bullet entering the back about 3½ inches to the right of the spine between the tenth and eleventh ribs, the other entering his left arm, posterior to the humerus, about 2½ inches from the shoulder joint, and appearing in the subcutaneous tissues on the anterior chest wall in the midclavicular line in the seventh interspace. The roentgen ray demonstrated the first bullet about 1 inch to the left of the spine beneath the diaphragm, probably in the left kidney, as the urine contained blood for two days. The roentgen ray also demonstrated shadows in the left chest, probably due to blood and the emphysema in the subcutaneous tissues of the left chest. The patient was in profound shock when he entered the hospital and complained of difficulty in breathing. Examination revealed the air in the tissues over the left chest from the third to the seventh interspace, dulness at the left base and hyperresonance above. The patient improved rapidly, and on the third day the bullet was removed from the chest wall. The area of emphysema was gradually growing smaller, and on the fifth day when the patient was removed from this hospital, he was in good condition, suffering only from a slight cough.

Case 5.—G. K., aged 25, fell, causing a rupture of a vein in the left arm, with extensive extravasation of blood. After several days' treatment, it was seen that this could not be absorbed, so small incision was made and about one-half teacupful of blood clot was evacuated. As the last clots were expressed, air bubbles were noticed.

This air or emphysema is probably explained by Velpeau's theory of emphysema in hematomas, as gases produced by action of acids, such as lactic acid on the contained blood. He demonstrated these acids in contused tissues and has produced emphysema experimentally by injecting lactic acid into hematomas produced experimentally in animals.

Our theory of the cause of the emphysema in Cases 1 and 2 is that of a sudden increase in intrapulmonic pressure, which can be caused by severe coughing, a sudden blow on the chest, etc., with rupture of superficial air vesicles, the air reaching the subcutaneous tissues by traveling beneath the visceral pleura to the hilum of the lung and then along the reflection of the pleura from the big vessels into the mediastinum, thence along fascial planes to subcutaneous tissues. In Case 3, the emphysema was probably caused by rupture of the air vesicles on the surface of the lungs due to coughing, the air probably traveling by the extrapleural route, and the hyperresonance and diminished breath sounds probably indicating an emphysema of the entire surface of the lung previous to extravasation of air into the tissues. In Case 4, the emphysema was probably due to a bullet's perforating the lung and allowing the air to escape immediately through the wound in the chest wall into the subcutaneous tissues. The wound then became closed, preventing further escape of air from the lung.

CONCLUSION

Traumatic subcutaneous emphysema of the tissues of the chest and neck is usually, in our opinion, due to a sudden increase in intrapulmonic pressure, and the air usually travels by the extrapleural route. Case 3, in which subcutaneous emphysema followed an operation for double hernia, is not a true case of traumatic emphysema, but it is reported in this article because it was deemed of unusual interest.

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[2] Alexander, M. E., and Follett, E. C.: Subcutaneous Emphysema with the Report of Several Cases, Particularly One with Very Extensive Generalized Emphysema, J. A. M. A. **72**: 930 (March 29) 1919.

[3] Meyer, Jacob, and Lucke, B.: Subcutaneous Emphysema, Am. J. M. Sc. **159**: 417 (March) 1920.

The Hospital Pathologist.—There is no reason—none which will appeal to the pathologist—why his income must remain stationary in contradistinction to all the rest of his professional brethren. It should be commensurate with his ability in the first place and should increase pro rata. This will depend on himself, his hospital and its staff.—R. A. Kildduffe, *Hospital Progress* **3**:45, 1921.

THE PROGNOSIS OF NEPHRITIS IN CHILDHOOD

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This study was undertaken to determine: (1) how many patients that had had acute nephritis recovered entirely; (2) how many developed the chronic type; (3) the present condition of the chronic type; (4) the ultimate prognosis.

Little has been written on the prognosis of nephritis in children, especially on the chronic type of nephritis. In a review of the literature on this subject, it is seen that Ernburg [1] located and examined forty out of 106 adults who had had nephritis, in most cases following some infection before the age of 15, and found normal urines in all. In sixteen out of fifty adults, in whom acute nephritis had occurred between the ages of 15 and 30, he found all the urines normal except four: two of these were cases of recent origin and, in the others, the original attack had been subacute rather than acute and showed albuminuria. He concludes that "if these figures give us a true picture, we certainly have been unduly pessimistic about the prognosis of acute nephritis."

Apert [2] believes that a kidney, once injured, is prone to have acute exacerbations of that injury, and that many of the cases of nephritis that we see in adult life may have originated in early childhood.

Hutinel [3] says that nephritis in childhood always tends toward recovery, whereas in adults it tends the other way.

Hill [4] believes that the most obscure prognosis is connected with the mild chronic cases, in which the child seems well, has normal functional tests and has merely, as evidence of nephritis, small amounts of albumin, a few casts and a few red blood cells in the urine. He believes that with normal functional tests it is possible for the kidney to recover entirely, but that with low functional tests, a severe chronic nephritis has probably developed. In the severe chronic cases with anemia, much edema, low functional tests and a large amount of albumin in the urine, the patients rarely live more than three or four years, hence the functional tests are here important in determining the expectation of life.

Opinions differ regarding cardiac hypertrophy and increased blood pressure. Hutinel says that the blood pressure may be raised in the acute stage, and may drop with the subsidence of the infection. Baginsky,[5] by clinical methods, could find no evidence of cardiac enlargement in any of the cases of acute nephritis. Friedlander [6] found cardiac hypertrophy in a number of cases of scarlatinal nephritis in children that came to necropsy. Wessler,[7] by the use of the fluoroscope and percussion, found cardiac hypertrophy in all his cases of nephritis, both acute and chronic. Nobecourt [8] concludes in a study of fifteen cases that: (1) in acute cases the blood pressure was raised; (2) in the chronic cases, the blood pressure was less than the pressure in normal children of the same age; (3) in acute nephritis there is likely to be cardiac dilatation, and in the chronic cases there may or may not be hypertrophy. Gordon,[9] from a study of nine cases, concludes that the blood pressure is usually raised in both acute and chronic nephritis of children. Berkley and Lee [10] conclude from a study of ninety-three cases of acute and chronic nephritis in children that: (1) The blood pressure is raised in nephritis of childhood, and occasionally to a marked degree. This applies to both acute and chronic nephritis. (2) Diastolic and systolic pressure are not increased to the same extent, the former varying about 20 mm. of mercury and the latter about 10 mm. above normal. (3) The pulse pressure is increased, but the factor is not constant. (4) The blood pressure in chronic nephritis shows no constant elevation above that in acute nephritis. (5) The blood pressure may, in rare instances, be of prognostic value. (6) No relation has been found to exist between the blood pressure and the urinary findings. (7) Patients with marked edema show a slightly higher blood pressure than those with none. The difference is not great enough to warrant any definite conclusion. (8) Albuminuric retinitis is probably not common even in cases showing a marked blood pressure.

TABLE 1.—ETIOLOGY OF NEPHRITIS

Disease	Nephritis	
	Acute	Chronic
Tonsillitis	22	4
Otitis media	5	..
Unknown etiology	11	..
Scarlet fever	4	4
Impetigo	1	..
Influenza	2	..
Measles	1	1
Lobar pneumonia	3	..
Cervical adenitis	3	..
Turpentine given for worms	1	..
Gastro-intestinal	1	..
Following appendectomy	1	1
Pyorrhea	1	..
Purpura	2	2
	58	12
Total	70	

Hill [11] believes that in acute nephritis a raised blood pressure does not necessarily carry with it a bad prognosis, nor does a normal blood pressure indicate a good prognosis. He also believes that in chronic nephritis a normal blood pressure does not mean that the case is a mild one; and that a constant and considerably raised blood pressure in chronic nephritis means that the case is a severe one.

I have examined seventy children who had had nephritis in the Children's Hospital during the last sixteen years. The examination included the cardiovascular system, hemoglobin, urinalysis, present health of the child, record of the patient's condition while under treatment and the etiology.

From Table 1 it would seem that nephritis has its etiology chiefly in such acute diseases as may be caused by infections with organisms of the streptococcus, staphylococcus or pneumococcus type.

Sixty-seven patients were admitted originally with a diagnosis of acute nephritis and three with chronic nephritis. Nine of the sixty-seven cases, or 13.3 per cent., terminated in the chronic type, and of these only two could be considered severe. The average age on admission was 6½ years, the oldest patient being 12, the youngest 2. At the time of the examination, the average age was 10; the oldest patient was 19, the youngest 4. The average length of time observed after discharge from the hospital was five years; the maximum, sixteen years; the minimum, three months.

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[1] Ernburg: Nord. med. Ark. **44**: 109, 1911.
[2] Apert: Bull. méd. **21**: 961-963, 1907.
[3] Hutinel: Bull. méd. **24**: 95, 119, 159, 1910.
[4] Hill, L. W.: Studies in the Nephritis of Children: Clinical Considerations of Classification, Etiology, Prognosis and Treatment, Am. J. Dis. Child. **17**: 270-294 (April) 1919.
[5] Baginsky: Arch. f. Kinderh. **33**: 91, 1902.
[6] Friedlander: Arch. f. Anat. u. Physiol., 1881.
[7] Wessler, H.: Latent Hypertrophy of the Heart in the Nephritis of Children, Arch. Int. Med. **14**: 517 (Oct.) 1914.
[8] Nobecourt: Arch. de méd. d. enf. **12**: 881-919, 1909.
[9] Gordon: Arch. Pediat. **28**: 343, 1911.
[10] Berkley, H. K., and Lee, J. M.: Hypertension in Nephritis in Childhood, with a Study of Ninety-Three Cases, Am. J. Dis. Child. **13**: 354 (April) 1917.
[11] Hill, L. W.: Studies in the Nephritis of Children, Am. J. Dis. Child. **17**: 270-294 (April) 1919.

All of the sixty-seven patients who had had acute nephritis are living under normal conditions, on ordinary diet; and in every case the urine was found to be negative. This fact is of importance in that it signifies that kidneys that have been injured are no more susceptible to infection than normal kidneys. I have selected five cases which are reported herewith to show the possible time that elapsed during which there was no recurrence despite the fact that several of the patients had acute infections during that period.

REPORT OF CASES

CASE 1.—O. N., boy, aged 3¼ years, was admitted Dec. 31, 1904, with acute nephritis, edema of the face and extremities. The urinary picture showed a large amount of albumin with many fine and coarse granular casts. The patient had uremic symptoms severe enough to require a hot pack.

He was seen April 17, 1920, sixteen years after discharge. There was no evidence of cardiovascular disease and the urine was negative. He was in good health and working as a farmer.

CASE 2.—K. K., aged 3 years, admitted Feb. 16, 1910, with acute nephritis following pneumonia, had uremic symptoms and a urine typical of severe acute nephritis. The blood pressure was not raised above normal.

He was seen April 10, 1920, ten years after discharge. His physical examination and urinary findings were negative. The blood pressure was practically normal. He had an attack of pneumonia in 1917 and a severe attack of influenza in 1918 with no kidney complications. His general health has always been good.

CASE 3.—R. N., aged 2½ years, admitted March 7, 1905, with acute nephritis following influenza, had uremic symptoms and edema of a marked degree. The eyes were almost closed and the urine showed a large amount of albumin, many hyaline, granular and epithelial casts. The hemoglobin was 50 per cent. He remained in the hospital forty-six days.

When seen April 15, 1920, fifteen years after discharge, he showed no evidence of cardiovascular disease and the urine was negative. His health was good and he was employed as a bookbinder.

CASE 4.—D. G., aged 5 years, admitted Sept. 10, 1906, with acute nephritis of unknown etiology, had marked edema and bloody urine with a large amount of albumin and casts. The blood pressure was slightly raised. He remained in the hospital twenty-three days.

When seen in April, 1920, the patient showed no evidence of cardiovascular disease and the urine was negative. He had a severe attack of influenza during the epidemic in 1918 with no kidney complications. He is in good health and working at his trade of wood-worker.

CASE 5.—A. R., boy, aged 10 years, was admitted Sept. 16, 1911, with acute nephritis following cervical adenitis. The urine was bloody and contained a large amount of albumin and casts. He was in the hospital one month and the urine showed the slightest possible trace of albumin and a few casts at the time of discharge.

When he was seen April 30, 1920, the cardiovascular system and the urine were negative. He has always been in good health and at present is employed as a mica-packer.

Briefly, then, two of the five patients (Cases 2 and 4) had acute infection following discharge from the hospital, 8 and 12 years later, respectively; and neither during the course of the subsequent infection nor at the present time do they show any sign of kidney impairment.

MORTALITY OF ACUTE NEPHRITIS

These determinations are based on a review of 188 cases from 1904 to the present year.

The mortality rate as shown in Table 2 was 6.4 per cent.

TABLE 2.—MORTALITY OF ACUTE NEPHRITIS

		Type of Nephritis	
Result		Acute Exudative	Acute Hemorrhagic
Died in the hospital	10	10	0
Died after leaving hospital	2	2	0
Total deaths	12	12	0

Of the twelve fatal acute exudative cases, one patient had an associated tuberculous peritonitis and one died of terminal pneumonia. Ten had general edema, two died of uremic convulsions; one patient having acute suppression of urine died following a decapsulation; one had associated acidosis. The point to be noted is that in none of the cases of the hemorrhagic type without edema the patients died in the acute stage.

CHRONIC NEPHRITIS

In the group of twelve chronic cases, the etiology was as follows: tonsillitis, 4; following appendectomy, 1; measles, 1; purpura, 2; scarlet fever, 4. The two most severe cases followed purpura.

The average age on admission was $7\frac{9}{12}$ years; the oldest patient was $11\frac{7}{12}$ years, the youngest 2 years. The average age at the time of examination was 11 years, the oldest patient was 14½, the youngest $6\frac{5}{12}$ years. The average length of time seen after discharge was two and one-twelfth years; four were seen five years and two between one and two years after discharge. The blood pressure of seven patients with albuminuria at the time of examination is given in Table 3.

TABLE 3.—BLOOD PRESSURE OF PATIENTS WITH ALBUMINURIA

	Blood Pressure	
Age	Systolic	Diastolic
10	102	65
5	92	56
7	100	45
10	139	110*
10	100	80
12	104	70
13	115	40

* Aortic.

This table shows that the blood pressure was not elevated. This corresponds to Berkley and Lee's findings (sixth conclusion). The patient whose blood pressure was 139 systolic and 110 diastolic had cardiovascular changes and aortic regurgitation. None of the patients showed any edema or anemia. Cardiac hypertrophy was found in only one case by clinical methods.

Of the twelve patients examined, eight had albuminuria, four did not. The albumin findings were as follows: a trace in two cases; very slight trace in one; slight trace in two, and slightest possible trace in three. In the urine of two patients, seen two years after discharge, a few red blood cells were found under high power.

REPORT OF CASES

CASE 6.—E. L., girl 8½ years, admitted May 26, 1919, with acute nephritis following acute tonsillitis and acute bronchitis, had nausea and vomiting and a moderate amount of edema. The blood pressure was 88 systolic, and 60 diastolic; hemoglobin was 85 per cent. and the phenolsulphonephthalein test was 90 per cent. The two hour renal test revealed an abnormal fixation. The urinalysis demonstrated at times a large trace of albumin. On the date of discharge, there were a few granular and hyaline casts and a few red blood cells.

She was seen Oct. 1, 1920, one year after discharge. There was no evidence of change in the cardiovascular system, she had no edema or anemia. The urinalysis showed a slight trace of albumin, granular and hyaline casts, but no red blood cells. She was apparently in good health.

Impression: If infection can be avoided by proper climatic and hygienic conditions, she will probably recover. It is hard to tell when an acute nephritis ends and a chronic nephritis begins. Having lived a year, one is safe in saying that she has a mild chronic nephritis and will have to be watched over a long period of time before a definite conclusion can be reached.

Case 7.—J. B., girl, aged $5\frac{1}{12}$ years, was admitted Aug. 7, 1919, transferred from the surgical department where she had been operated on for appendicitis. The urine showed a slight trace of albumin and a moderate number of casts, many red blood cells; phenolsulphonephthalein 45 per cent., and hemoglobin 60 per cent. She was admitted again April 26, 1920, for observation. At this time she had a slight upper respiratory infection. Her blood pressure was systolic, 92, and 60, diastolic. Hemoglobin was 90 per cent., the phenolsulphonephthalein test 70 per cent.; the two hours renal function test revealed a fixation of specific gravity. The urine showed only a very slight trace of albumin; there were no casts but many red blood cells.

This child is one of a family of eight, living in a poor district. There is no sunlight and the hygienic conditions are poor.

Impression: This case is interesting because of its mild onset and mild course throughout. In spite of this, the patient has had acute exacerbations of nephritis, probably due to unhygienic conditions. The two hour renal test reveals slight impairment of renal function. By change of environment and proper mode of living, she will probably recover.

Case 8.—F. O. N., boy, aged $9\frac{5}{12}$ years, was admitted Jan. 11, 1918, with a diagnosis of chronic nephritis and asthma, cause undetermined. The urine contained a large amount of albumin, hyaline, granular casts and many red blood cells. There was marked edema. January 15, the blood pressure was 165 systolic, 76 diastolic. On that day, he had a severe convulsion, lasting forty minutes. Venesection was necessary, and 500 c.c. of blood was taken. On the date of discharge, February 28, the blood pressure was 108 systolic, and 48 diastolic; the urine showed the slightest possible trace of albumin, a few hyaline and granular casts and a few red blood cells. He was admitted again Aug. 12, 1919, with an acute exacerbation of nephritis, complaining of slight frontal headache. There was no marked evidence of nephritis in the urinary picture. The two hour functional test was normal, but the phenolsulphonephthalein output was very low, averaging 30 per cent., at various times rising to 50 per cent. before discharge. He was seen April 6, 1920, two years after the first severe onset and was apparently in good health, except for occasional attacks of asthma. His appetite was good and he was on ordinary diet. The blood pressure was 100 systolic, and 45 diastolic; the urine was negative.

Impression: This case is cited in contradistinction to Case 7. A boy, with a violent onset of nephritis followed in a year by an acute exacerbation, when seen had a normal urine. The immediate prognosis is good, but what will happen in the future no one can say.

Case 9.—J. T., boy, aged $11\frac{7}{12}$ years, was admitted Feb. 27, 1918, with a diagnosis of chronic nephritis following scarlet fever. There was much edema and the urinary output was greatly diminished. A decapsulation operation was performed May 21, 1918, because improvement did not follow ordinary therapeutic measures. May 29th, the urinary output increased remarkably and the phenolsulphonephthalein test showed 83 per cent. The two hour renal test was normal.

He was seen April 29, 1920, two years after discharge, apparently in good health. He had an attack of influenza in 1919, with no kidney complications. There was no anemia. The blood pressure was 120 systolic and 65 diastolic, and the urine was normal.

Impression: This is a patient on whom a decapsulation had been performed two years before and who is now doing well. The blood pressure is rather high and if followed longer with continuous high readings one may be able to determine whether he will develop the hypertension type of chronic nephritis seen in adults.

Case 10.—L. S., boy, aged $7\frac{3}{12}$ years, admitted July 17, 1913, with purpura and angioneurotic edema presented a urinary picture that was not that of nephritis. He returned to the hospital in 1915, and at this time the urine showed a small amount of albumin, granular casts and many red blood cells. The phenolsulphonephthalein output was 70 per cent. He was discharged relieved and readmitted May 7, 1917, with marked edema and the urinary findings of a severe nephritis. There was marked fixation of the specific gravity and a low amount of night urine. The phenolsulphonephthalein test was 30 per cent.

He was seen April 16, 1920, aged $11\frac{3}{12}$ years, three years after discharge. He was apparently in good health and had gone through an attack of influenza in that year without kidney complications. He was active and going to school daily. The heart borders measured 2 by 7 cm.; the aortic second sound was slightly accentuated; the blood pressure was 125 systolic and 85 diastolic; the urine was normal.

Impression: This is a case of severe chronic nephritis. The patient is doing well, there is evidence of cardiovascular change and he will probably acquire a contracted kidney.

Case 11.—E. T., girl, aged $8\frac{1}{2}$ years, admitted Feb. 26, 1919, had measles and bloody urine in 1918, and since then has had a recurrence of bloody urine with edema. Her recent attack was similar. There was slight edema and the urinary picture was that of a severe nephritis. Blood pressure was 90 systolic and 72 diastolic; hemoglobin was 70 per cent., phenolsulphonephthalein test was 55 per cent.; the two hour renal test demonstrated abnormal fixation. The patient was readmitted Dec. 11, 1919, with an acute exacerbation of nephritis. The urine showed much blood, a large amount of albumin and many casts. The phenolsulphonephthalein output was 55 per cent. The two hour renal test revealed slight fixation and the blood urea nitrogen 16.7 mg. per hundred c.c. of blood. When seen eight months after discharge, the patient was in fair health, although she had occasional backaches. She was on a meat free diet and going to school. Hemoglobin was 70 per cent. Blood pressure was 102 systolic, 65 diastolic. The urine contained a trace of albumin, a few hyaline and coarse granular casts and a few red blood cells.

Impression: The fact that the condition has existed for two years with repeated exacerbations, the present urinary findings with a low phenolsulphonephthalein output entail a very guarded prognosis as to health and life.

Case 12.—D. L., boy, aged 2 years, admitted in 1913 with nephritis following acute tonsillitis, bloody urine, a large amount of albumin and many casts, was discharged relieved. He was readmitted in August, 1915, with a similar attack, marked edema and blood pressure 110 systolic, and 85 diastolic. The edema continued to increase and a decapsulation was performed Oct. 18, 1915. He had two convulsions, on the eighth and fifteenth days following the operation. The urine was negative on the day of discharge, Dec. 12, 1915. He had no more convulsions until the attack following which he was admitted Oct. 12, 1920. At this time, the physical examination was negative, the blood pressure was not raised and the urine contained no albumin nor casts (intake 40 ounces, output 38 ounces). The phenolsulphonephthalein output was 65 per cent.; the fixation test was doubtful on account of vomiting. In the absence of positive findings pointing to convulsions of a renal origin, a diagnosis of petit mal was made.

Impression: This case illustrates the duration of chronic nephritis. The patient has had it for more than nine years with no change in the cardiovascular system and no albuminuria. These facts would point to a favorable prognosis were it not for the fact that there was an acute exacerbation, which, requiring a decapsulation, compels a guarded prognosis.

Case 13.—F. L., girl, aged $5\frac{1}{2}$ years, admitted July 13, 1915, with severe chronic nephritis, following purpura, was very edematous. The blood pressure was 140 systolic, and 90 diastolic, with marked fixation of specific gravity by the two hour test. Hemoglobin was 68 per cent.; the phenolsulphonephthalein test was 25 per cent. The fluid intake was 32 ounces; the output was from 20 to 24 ounces. A decapsulation operation was performed May 4, 1916. One kidney was small and atrophic, about one-half normal size; the other was large and pale.

She was seen May 14, 1917. She was still edematous and the urine showed a large amount of albumin and casts. The phenolsulphonephthalein output remained the same. The patient played about the ward, as actively as a normal child. She was last seen April 10, 1920. Since her discharge, she has seemed well, going to school every day and she has been normally active. She has edema and bloody urine at times. On examination, her heart borders were 2.5 by 11 cm., and the murmurs were characteristic of an aortic regurgitation, the diagnosis being confirmed by a capillary pulse and pistol shot sound in the femorals. Her blood pressure was 139 systolic, and 110 diastolic. The fundi were normal; hemoglobin was 70 per cent., and phenolsulphonephthalein output was 30 per cent. The two hour renal function test demonstrated a marked fixation of specific gravity. The urinalysis showed a large amount of albumin, casts and rare red blood cells. Blood urea nitrogen was 36 mg. to 100 c.c. of blood.

Impression: This case shows the great damage that a kidney may suffer and yet be restored to sufficient functional capacity to allow the patient to carry on an active life. Any one seeing this child would not realize that she has nephritis. She is bright, active and happy. What is the ultimate prognosis? She has lived for five years since the onset of nephritis and may live for a considerable time longer. She may not reach puberty and certainly could not bear the ordeal of motherhood. A sudden attack of uremia may be the termination at any time.

A case analogous to this is reported in detail by O'Hare,[12] which he summarizes thus:

> Nephritis which started presumably from scarlet fever at 9, had gone on for eighteen years, passing through various phases. Nine and ten years after the assumed onset the patient had what we believed to have been acute exacerbations of a chronic nephritis. Coincidently with, or subsequently to, these attacks the vascular apparatus of the body—including the kidney—began to play an increasing part. When the patient first came under our observation, fourteen years after the onset of the disease, she had a markedly sclerosed kidney with a very poor renal function. Just how poor this was can be readily seen. Three years before her death, the two hour renal test showed very advanced disease of the kidney. Her excretion of phenolsulphonephthalein in these years had only once been as high as 18 per cent., and for the last year of her existence has been practically 0. Her blood urea nitrogen has always been over 50 mg., about four times the average value. During the last year her blood creatinin has always been around 10 mg. and yet, in spite of this extreme renal impairment, she got along very well with these kidneys for three and one-quarter years. This was undoubtedly due to the fact that the process in the parenchyma had become inactive and that nothing happened to light it up. The only possible changes within the kidney were the slow intravascular ones which could not be measured. By living carefully within the low limits set by the few functioning glomeruli and tubules, our patient lasted much longer than could have been expected.
>
> The important thing to bear in mind is that for the last ten years of the patient's life, the disease had been almost entirely a vascular one with greater vascular changes outside the kidney than within. The renal function, while low, was sufficient until infection broke the narrow thread by which it maintained itself.

SUMMARY AND CONCLUSIONS

1. In acute nephritis the greater percentage of patients recover absolutely, yet no one is justified in saying a child is well by one or several negative urinary findings, until after the child has lived under ordinary environment and on a regular diet for a considerable period. Then, with the urine negative, chemically and microscopically, one can say the child is cured. The prognosis in the acute exudative type, with edema and a diminished urinary output, is less favorable than in the acute hemorrhagic type without edema. My statistics show that only 13.3 per cent. of the sixty-seven acute cases developed a chronic type in the disease.

2. There is no specific guide to prognosis in the chronic type. All modern laboratory methods should be employed and the prognosis should be based on those findings. I believe that many patients with mild chronic nephritis recover. Diseased portions may recover even if there is considerable degeneration, and neighboring portions of the kidney may hypertrophy and carry on the extra work. In other words, an anatomically imperfect kidney can function efficiently. In this respect, nephritis is analogous to heart disease. It has become recognized that the functional capacity of the heart to perform its appointed task is of more importance than its structural defects. If the exercise reaction of the heart is good and there is little or no enlargement, the prognosis is good. A diseased kidney like a diseased heart, must be under observation for a long period of time before definite conclusions can be drawn. It is surprising to see the amount of damage a kidney may receive and yet apparently recover.

3. Many will stand severe infections without acute exacerbations of nephritis, but they are more prone to follow upper respiratory infections. For this reason all foci of infection should be treated, such as diseased tonsils, carious teeth and otitis media (acute or chronic). They act as a reservoir of toxic material which the kidneys drain.

706 Huntington Avenue.

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[12] O'Hare, J. P.: Compatibility of Long Life with Low Renal Function, J. A. M. A. **73**: 248-250 (July 26) 1919.

TINCTURE OF DIGITALIS AND THE INFUSION IN THERAPEUTICS *

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Our knowledge of the pharmacology of the digitalis group is increasing rapidly, and its therapeutic use now begins to approach an exact science more nearly, perhaps, than that of all excepting a few drugs. But there are still many minor points, and not a few major ones, that require further study.

Clinicians have long held the opinion that the action of the tincture of digitalis differs qualitatively as well as quantitatively from that of the infusion. This difference is usually explained on the ground that the several active principles found in the leaf are not extracted in the same relative amounts by the menstruum used in making the tincture and the water used in making the infusion.

Pharmacologists have shown a disposition to give too little consideration to the views of the older therapeutists when these appear to be in conflict with the deductions drawn from the results of modern experi-

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* This investigation has been made with the assistance of a grant from the Committee on Therapeutic Research, Council on Pharmacy and Chemistry, American Medical Association.

ments, even as many therapeutists have a tendency to dismiss pharmacologic deductions when they fail to support opinions based on clinical observations. Obviously, we can accomplish no more through the clinical use of a drug, however extensive our knowledge of its pharmacology may be, than was accomplished formerly by one who chanced to discover the correct way of employing it, and it is probable that William Withering used digitalis with success equal to that of many of the clinicians of today.

Nothing could be farther from our purpose than to attempt to belittle exact pharmacologic investigations; but it is true that pharmacologists and chemists are responsible for much of the misunderstanding that exists today regarding this drug. On the other hand, many of the older clinicians were acute observers; and, while their deductions may have been faulty at times, these were often founded on fact. This should serve as a warning to us against dismissing long established clinical opinions without attempting to understand the basis for their existence, and to explain wherein the error lay when such is proved to exist. With the clearing away of misconceptions, the use of the drug will approach the state in which the general practitioner will be able to use it even more wisely than Withering employed it. We shall therefore discuss briefly the basis for the view that the constituents of the infusion of digitalis differ in kind from those of the tincture.

It is not our purpose to discuss the chemical nature of the active principles of digitalis, or their solubilities except as may be necessary for an understanding of the question of the composition of the tincture and the infusion.

COMPOSITION OF TINCTURE OF DIGITALIS

Digitoxin, digitalin and digitalein, the three principles generally supposed to represent the activities of the leaf, are soluble in alcohol, and all of these (if, indeed, they exist in the leaf) are present in the tincture; and it may be stated at once that the official tincture represents the activity of the leaf completely, that is to say, that the tincture contains all except traces of the active principles of the dried and powdered leaf from which it is made.

There is no way of estimating the total amounts of the several active principles in the leaf or in the tincture directly; therefore the following method was used in order to determine whether the tincture represents the leaf fully:

A tincture was prepared according to the directions of the United States Pharmacopeia, and the marc (the drug left in the percolator after extraction) was dried and weighed. The dried marc weighed just half as much as the drug weighed previous to extraction; this was odorless and tasteless, or nearly so. This in itself points strongly to the removal of all the active principles during percolation, for all of them are very bitter, and nothing is destroyed during the simple process of extraction with the menstruum consisting of three volumes of alcohol and one of water.

An infusion was then prepared by pouring 1,000 c.c. of boiling water on 7.5 gm. of the dried marc, representing 15 gm. of the original digitalis from which the tincture had been made, and this infusion was tested in order to determine whether it contained any active substance.

The intravenous injection of 150 c.c. of this infusion of the marc per kilogram of body weight was without perceptible effect, though this dose was equal in volume to about twenty-five times that required of an infusion of this specimen of digitalis to cause death. The cat then received a further intravenous injection of the full average fatal dose of ouabain before death resulted, showing conclusively that the infusion of the marc (and the marc itself) contained not more than traces of water-soluble active digitalis principles.[1]

The presence of saponin-like bodies (digitonin or digit-saponin) in digitalis has given rise to much discussion. These substances are devoid of the therapeutic action of digitalis, but, on the other hand, they may be deleterious when large amounts are injected intravenously, and their significance in digitalis therapy is frequently misunderstood. The gastric disturbance which sometimes follows the oral administration of tincture of digitalis has been attributed largely, but erroneously, to these substances, though Cushny [2] states that the tincture contains less of these than the infusion. Presumably Cushny means the tincture made from a given weight of drug contains less than the infusion, which represents an equal weight of the drug.

We are not aware of any direct experimental evidence on which this statement is based, but one frequently sees it coupled with the explanation that these saponin bodies are insoluble in alcohol. This deduction is misleading in that while they are insoluble in absolute alcohol, the official tincture is made, as previously stated, with a menstruum of about 70 per cent. alcohol. We have therefore attempted to determine whether the marc left after preparing the official tincture contains saponin-like bodies or not, and if so, the approximate amount as compared with that present in the official infusion, though the matter did not appear to us to be of great practical importance, because it is well known to pharmacologists that the leaf contains only small amounts of these bodies, and even these amounts are not absorbed readily from the gastro-intestinal tract, nor do they cause local irritation in amounts at all comparable to those that can ever be administered during the therapeutic use of digitalis.

PRESENCE OF DIGITONIN

Kiliani,[3] who is probably the greatest living authority on the chemistry of digitalis, states that digitalis leaves contain only traces of digitonin, and he also says [4] that Boehm found that digitonin causes gastric irritation in dogs only after the oral administration of enormous doses. These results attributed to Boehm have been confirmed by experiments in this laboratory. Unfortunately for the cause of scientific therapy, the fallacy regarding the supposed rôle of digitonin in the production of gastric disturbance following the administration of the tincture of digitalis in therapeutic doses appears to us to have been kept alive largely from motives of financial interest; at least, we have been unable to discover any evidence to support the theory mentioned, and an advantage sometimes claimed for proprietary substitutes for the official preparations of digitalis is that they lack the irritant or disturbing effect of these saponin-like bodies.

We undertook to compare the laking action of an infusion prepared from the powdered leaf with that of one made from the marc of the tincture, but the laking action exerted on partially washed corpuscles (obtained by mixing blood with 100 parts of physiologic sodium chlorid solution and allowing the corpuscles to settle to the bottom of the vessel) was so feeble in both cases that we abandoned further effort in this direction.

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[1] The use of ouabain in this experiment is based on what is termed the "combined ouabain" method for the estimation of small amounts of digitalis bodies, which was described by Hatcher and Brody (Am. J. Pharm. **82**: 360, 1910). This method consists in determining the difference between the average fatal vein dose of ouabain for the cat per kilogram of weight and that required to kill after the previous injection of a dose of any digitalis body. The difference represents the percentage of the fatal dose that is attributable to the digitalis body under investigation.

[2] Cushny: Pharmacology and Therapeutics or the Actions of Drugs, 1918, p. 399.

[3] Kiliani: Arch. d. Pharm. **243**: 7, 1905.

[4] Kiliani: Arch. d. Pharm. **230**: 260, 1892.

We found that the intravenous injection of digitonin (Merck's) in doses of 20 mg. per kilogram of body weight caused hematuria in three experiments on cats, and, on the other hand, the intravenous injection of an infusion of the marc of the tincture in doses of 150 c.c. per kilogram of weight produced no perceptible effect. From this we may conclude that very little digitonin remains in the marc of the tincture and whether or not the tincture contains more than traces of it, the difference between the amounts of it present in the tincture and in the infusion of corresponding amounts of the drug are of no therapeutic or toxicologic importance.

The subject does not seem to us worth further consideration in view of what has been said, especially since we have such high authority as Kiliani for stating that the leaf contains only traces of digitonin.

The Pharmacopeia gives directions for the biologic assay of digitalis with the standard of activity required for the leaf, the fluidextract and the tincture, but none for the infusion; it is far more important to the clinician, therefore, to know to what extent the infusion represents the leaf from which it is made than to know whether the tincture contains more than traces of saponin bodies.

DIGITALEIN AND DIGITALIN

Digitalein is very soluble in water, and it may be accepted that any that may be present in the leaf passes into the infusion. Digitalin (the true digitalin of Schmiedeberg and of Kiliani) is also extracted by water, possibly with the aid of the saponin bodies; but neither digitalein nor digitalin is absorbed readily from the gastro-intestinal tract of animals or that of man.

Oral doses of digitalein equal to the fatal vein dose were administered to cats daily for periods of a week, and it was then found by means of the combined ouabain test that there was little persistence of action. Amounts of digitalein equal to four or five times the single fatal vein dose were administered to each of several cats through a stomach tube in single doses without inducing perceptible effects.[5]

Schmiedeberg[6] states that the absorption and behavior of digitalein are such that it is difficult to obtain therapeutic effects with it, and that digitalin is absorbed slowly and irregularly from the gastro-intestinal tract. Naunyn[7] states that German digitalin (which consists of true digitalin in part) exerts only a weak and uncertain action after its oral administration to man; and Eggleston[8] found that both digitalein and digitalin are absorbed so poorly from the gastro-intestinal tract of man (as judged by the lack of therapeutic effects) that they are unsuitable for therapeutic use.

ABSORPTION OF DIGITOXIN

Digitoxin is practically insoluble in water, and it is commonly stated that the infusion contains only traces of it,[2] or that it contains more or less of the digitoxin held in suspension by the saponin bodies. Sollmann[9] states that a 1 : 10 infusion (note that this is not the official) contains two thirds of the digitoxin of the leaf.

The evidence that is available to us appears to show incontrovertibly that digitoxin is absorbed from the gastro-intestinal tract of man with a far greater approach to uniformity than is either digitalin or digitalein. It is only proper to state that Schmiedeberg[6] states that the insoluble digitoxin is absorbed even less regularly than digitalin, the administration of a given amount causing pronounced effects in one case and none in another. This is apparently an example of erroneous deduction, following the view so commonly held that insolubility in water exerts a profound influence on the absorption of even those drugs which are given therapeutically in doses of a milligram. Solubility does play an important rôle in the absorption of drugs which are given in doses of a gram or more, but this factor is of minor importance with reference to the absorption of such minute amounts as one gives of digitoxin.

Naunyn[7] used digitoxin, and states as the result of clinical experience that it is absorbed completely, despite its insolubility (in water). Huchard[10] comments on the frequent lack of therapeutic success with different specimens of digitalis and says that he always gives the preference to crystalline digitaline (digitoxin) because it is uniform in its therapeutic effects. Eggleston[8] also found the absorption of digitoxin from the gastro-intestinal tract of man to be more nearly uniform than that of digitalin or digitalein; at least, he found the dose required to be less variable.

AMOUNT OF DIGITOXIN IN THE INFUSION

Having submitted evidence that appears convincing to us that digitoxin is absorbed from the gastro-intestinal tract of man, with a far greater approach to uniformity of action that is the case with digitalein or digitalin, it is increasingly important to determine whether the infusion contains only traces of digitoxin, as Cushny[2] states, or much larger amounts, as Sollmann[9] claims, for it is evident from the foregoing that the therapeutic value of the infusion must depend on the presence in it of digitoxin, if there are only these three active principles in the leaf in important amounts, or on the presence of some other readily absorbable principle not described heretofore.

There is no way of separately estimating the several active principles of the infusion, and we have approached the solution of the question in the same way that we determined that the tincture represents the leaf completely, that is, we examined the marc left after the infusion had been made.

VARIOUS METHODS OF MAKING INFUSION OF DIGITALIS

Before presenting the results of these experiments, we wish to discuss the several methods that we have employed in making the infusion, including that official in the United States Pharmacopeia, and a modification that we have used in this laboratory for several years for the preparation of infusions for use in experimental studies.

United States.—The United States Pharmacopeia directs that the infusion shall be prepared by pouring 500 c.c. of boiling water on 15 gm. of bruised digitalis and allowing it to macerate for one hour, after which the liquid is strained,

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[5] Unpublished experiments performed in this laboratory some years ago and recently confirmed by us in part. The digitalein of commerce is said to consist of a mixture of glucosids from Digitalis purpurea, prepared according to the process of Schmiedeberg, and containing digitoxin, digitalin and digitalein (New and Nonofficial Remedies, 1920, p. 88); and since the proportions of these three appear to vary in different specimens of commercial digitalein, we do not pretend to say that all specimens show the same behavior. In fact, it is our opinion that digitalein has no place in the materia medica while it remains so uncertain in composition and activity.

[6] Schmiedeberg: Arch. f. Path. u. Pharm. **62:** 305, 1910.

[7] Naunyn: Therap. d. Gegenw. **1:** 193, 1899.

[8] Eggleston, Cary: Digitalis Dosage, Arch. Int. Med: **16:** 1 (July) 1915.

[9] Sollmann, Torald: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1917, p. 383.

[10] Huchard: Les maladies du cœur, 1908, p. 164.

500 c.c. of cinnamon water is added to the strained liquid, and enough water is passed through the strainer (and the marc) to make 1,000 c.c.

It would be interesting to know why the Pharmacopeia directs that the drug be "bruised" instead of directing that the powdered digitalis be used. According to the pharmacopeial requirements, the leaf must be "carefully" dried, but there is no statement as to the amount of moisture allowed. The lamina of digitalis is brittle, when properly dried, and one does not speak of "bruising" a brittle substance; it is only the tough and useless midribs that resist trituration, and their presence serves to prevent the reduction of the lamina to a uniform powder, unless the trituration is prolonged; hence the degree of fineness of the "bruised" digitalis will vary widely, depending on the interpretation put on the direction to bruise the drug, and also on the amount of the contained moisture and the relative amount of midribs.

It will be observed also that only 500 c.c. of water is used in the extraction of the drug in making 1,000 c.c. of the official infusion, since the cinnamon water, constituting half of the total volume, is added to the strained liquid and not passed through the marc on the strainer. Furthermore, not all of the infusion held in the marc is removed by the water which is passed through the strainer to make up the required volume.

British.—The British pharmacopeia directs that the infusion be prepared by pouring 1,000 c.c. of boiling water on 7 gm. of digitalis in No. 20 powder, allowing it to stand for fifteen minutes, and straining while hot. It will be observed that this process involves the use of less than half as much drug as that of the United States Pharmacopeia: that a uniform powder is directed; that the solvent action of all of the liquid is utilized, though for a shorter time, and that the finished infusion is not diluted by passing water through the strainer.

Authors' Method.—The infusion that has been used so frequently in this laboratory for experimental purposes has been prepared essentially as follows: One thousand c.c. of boiling water is poured onto 10 gm. of digitalis in No. 60 powder in a flask or beaker, which is allowed to stand for one hour in a boiling water bath with frequent stirring of the infusion, in order to expel the air from the cells, thus facilitating extraction, water being added to replace that lost by evaporation; the infusion is cooled, and filtered through paper, or filtered while hot, when it is desired to maintain it in a sterile condition.

PRACTICAL TESTS OF VARYING METHODS

Infusions were prepared in the official way and in that just described, after which the marc was washed free of the adhering infusion, or this was gotten rid of by pressing the marc between layers of filter paper, adding a small volume of water and again expressing. The marc was then dried and weighed, after which tinctures were prepared and examined for their activity by testing them on cats. We are aware that the washing of the marc with about 200 c.c. of water involves a slight error; but if 1,000 c.c. of boiling water fails to extract the active principles, we do not believe that the error involved in washing this marc with 200 c.c. of cold water is of any importance. In some instances we estimated the activity of the infusions directly, in order to compare the activity of those prepared in different ways.

RESULTS

The results of these experiments may be presented briefly without giving the protocols in detail.

An infusion made according to the official (U. S. P.) formula was not quite so active as one made in the same way, except that 1,000 c.c. of boiling water was poured on the "bruised" leaf. The activity of the official infusion was such that 6.3 c.c. was required for each kilogram of body weight of the cat to cause death (average of two fairly concordant experiments), while an average of 4.4 c.c. was required of the second infusion per kilogram of weight (average of two fairly concordant experiments). It will be seen that the activity of the official infusion was only about 70 per cent. of that of the second, which represented about 90 per cent. of the activity of the leaf; at least, the tincture prepared from the marc of the second specimen was about one-tenth as active as an average tincture, while the tincture prepared from the dried marc of the official infusion was about one-fifth as active as the average tincture of good quality. These tinctures were evaporated to expel the alcohol, after which they were diluted with physiologic sodium chlorid solution before being tested on cats in the usual manner.

When the infusion was prepared by pouring 1,000 c.c. of boiling water on 15 gm. of digitalis in No. 60 powder, its activity, indicated by the direct tests on cats, was equal to that of the tincture prepared from the same amount of this specimen of drug, and, since we have seen that the tincture exhausted the drug completely, it would appear that the infusion also represented the full activities of the powder in this case. However, the activity of the tincture made from this marc was equal to about 4 per cent. of the activities of the leaf, the discrepancy being within the limits of error, so far as the direct test of the infusion (two experiments) is concerned; but the test of the tincture of the marc showed conclusively that at least a very small part of the active principles actually remained in the marc.

The infusion made by pouring 1,000 c.c. of boiling water on 10 gm. of the No. 60 powder represented the drug even more completely than in the case just mentioned, and the tincture prepared from the dried marc of this infusion was practically inert; at least, the injection of the tincture (after evaporation of the alcohol) representing the marc of 3 gm. of the drug was without effect, and the animal then required 90 per cent. of the average fatal dose of ouabain to cause death, indicating that the marc was about one three-hundredth part as active as the drug before infusion. This affords satisfactory evidence that 100 parts of boiling water suffice for the extraction of all of the active principles of the drug in No. 60 powder when maceration is continued for an hour.

In one case the drug was used in the form of No. 80 powder in the proportion directed by the Pharmacopeia, 15 gm. for 1,000 c.c. of infusion, after which the activity of the marc was equal to about 3 per cent. of that of the original powder. This indicates that the finer powder is somewhat more nearly exhausted by that volume of water than is the coarser, since the activity of the marc of 15 gm. of No. 60 powder was slightly greater than this;[11] but when a smaller proportion of drug is used, the finer powder is not necessary, and an infusion made from the latter is tedious to strain or filter.

VARIABILITY OF OFFICIAL INFUSION

It hardly required the present study to arrive at the conclusion that the official infusion lacks uniformity. The long standing and extreme diversity of competent clinical opinion alone would suggest this strongly, and the method of completing the required volume of the finished product by passing water through the strainer must result in some variation in the activity of the infusion, even though the formula were faultless in other particulars. A given volume of infusion is made from 15 per cent. of the weight of the drug that is used in making such a volume of the tincture, but the activity of the average infusion is probably equal to less than 10 per cent. of that of the tincture, as indicated by the biologic test, and the difference in therapeutic effectiveness is probably much greater as a rule, because the deficiency in extraction in making the infusion falls wholly on the least soluble but the most absorbable fraction, the digitoxin or the digitoxin-like substance.

From this a somewhat paradoxical situation arises. It is well known that many druggists prepare a so-called infusion by diluting the tincture or fluidextract, while those who take pride in their profession make the infusion according to pharmacopeial directions, and it may happen frequently that the so-called infusion prepared from the fluidextract will contain more of the digitoxin than a strictly official infusion prepared with great care, and the preparation that should be condemned by all rules of scientific pharmacy will then give better therapeutic results than the one prepared conscientiously. This is in no sense an argument for slipshod pharmacy, but it is an argument for improvement in the official formula for preparing the infusion.

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[11] We have found that the removal of air from the cells of the drug by means of a vacuum pump facilitates extraction with water. The particles of a No. 60 powder have a diameter of 0.23 mm., and those of a No. 80 powder, 0.17 mm.; hence the latter are less than half as large as the former.

ADVANTAGES OF INFUSION PREPARED BY METHOD HEREIN DESCRIBED

The infusion prepared in the manner described, in which 1 part of digitalis in No. 60 powder is treated with 100 parts of boiling water and kept for one hour in a boiling water bath with frequent stirring, contains all of the active principles of the leaf. When this infusion is filtered and used therapeutically, the effects are the same as would be induced by the tincture in doses just one tenth as large. If one desires the cinnamon flavor, this may be secured by adding 1 c.c. of oil of cinnamon to 10 gm. of the powdered digitalis previous to the addition of the boiling water. Very little of the volatile oil is lost during the process of preparing the infusion.

An infusion thus prepared has these advantages over one made according to the present Pharmacopeial method:

1. There is better extraction, whereby the infusion represents the activities of the drug completely.
2. There is uniformity of activity, in place of the variability of the official.
3. With a given degree of activity it contains a larger proportion of the slightly soluble, but more readily absorbable, digitoxin or digitoxin-like substance, or substances.
4. The dosage is just ten times that of the tincture in volume.
5. The filtered infusion is transparent.
6. It may be kept indefinitely without loss of activity.

STABILITY OF INFUSION

We are not at present concerned primarily with the question of the stability of the infusion, but we wish to correct some erroneous views that are prevalent concerning the question, for it is useless to show the way to make an infusion properly if the preparation is valueless, because of the rapidity with which it decomposes, as some believe.

No one denies that the infusion of digitalis decomposes under adverse conditions—like all other infusions of drugs that contain no antiseptic—but the question that concerns the clinician who, for any reason, prefers to employ the infusion, is whether it can be prepared conveniently in a reasonably stable form. Hatcher and Eggleston[12] have shown that the infusion of digitalis prepared in the manner recommended here, and filtered while hot, retains its activity with little change for several weeks when kept with reasonable care. We are able to offer evidence confirmatory of this conclusion.

One of us (R. A. H.) prepared an infusion of digitalis in the manner described, using 1 part of the powdered leaf to 100 parts of boiling water, filtering the infusion while hot, putting it into bottles which it filled completely, corking these, and sealing them with paraffin, Feb. 5, 1918. Specimens of this infusion have been tested on cats from time to time, and no perceptible loss of activity could be detected at the time of the last examination. A slight precipitate has formed in every bottle, leaving the supernatant fluid perfectly transparent, and in a few there has been a growth of mold, owing to imperfect sterilization of the corks.

THERAPEUTIC EFFECTIVENESS

Dr. Cary Eggleston used a specimen of this infusion clinically, July 28-29, 1920, and found the dose required to induce the typical therapeutic effects to be the equivalent of that which he[8] had established for the tincture as measured in terms of cat units. A condensed report of the essential facts are presented here through the courtesy of Dr. Eggleston. The apex rate was 145, and the radial pulse rate was 73, the pulse deficit being 72 after two days' rest in bed; the infusion was then administered at 12 midnight, 6 a. m. and at 12 noon. The apex rate was reduced to 104; the radial pulse rate rose to 86, the deficit being 18, shortly before the last dose. The condition steadily improved and the pulse deficit had nearly disappeared within four hours after the last dose, and on the following morning this deficit had disappeared completely, the rate being 66.

The condition of the heart, as shown by the pulse deficit, was worse at the time the first dose of the infusion was administered than it had been twenty-four hours before, showing that rest in bed alone was not producing any improvement. The striking improvement that occurred within less than twelve hours hardly leaves room for doubt concerning the therapeutic effectiveness of this specimen of infusion that had been prepared nearly two and a half years previously. The infusion was filtered before being used, showing that the precipitate had not carried down the active principles in an insoluble form.

SUMMARY

1. Tincture of digitalis was prepared, the marc of which was dried and used in the preparation of an infusion; this infusion of marc was tested on cats and found to be inert, showing that all of the active water-soluble principles of the leaf are extracted during the percolation for making the tincture.

2. This method of testing the marc affords a delicate means of testing the degree to which the active water-soluble principles are extracted during the percolation of the drug.

3. There is no essential difference in the amounts of the saponin bodies present in the tincture and in the infusion prepared from equal weights of the leaf, and therapeutic doses of digitalis do not contain enough to induce any undesired effects.

4. Infusions of digitalis were prepared in different ways. In each case the marc was washed and dried, after which it was used for the preparation of tincture, and this tincture was tested on cats in order to determine to what extent the active principles had been extracted during the preparation of the infusion.

5. The official infusion does not represent the drug completely; hence the standardization of the leaf does not insure uniformity in activity of the infusion. The variability of the infusion is at the expense of the more absorbable of the active principles.

6. The infusion prepared according to the simple method described represents the activities of the leaf completely; hence it permits of uniformity when a standardized powder is used for making it. It may be

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[12] Hatcher, R. A., and Eggleston, Cary: The Stability of the Infusion of Digitalis, J. A. M. A. **65**: 1902 (Nov. 27) 1915.

used in place of the tincture in doses just ten times the volume of those of the latter, and it becomes a matter of indifference, so far as therapeutic effects are concerned, which is used.

7. We have been unable to discover any experimental evidence to support the view, still held by many, that there is a necessary qualitative difference between the actions of the tincture and those of the infusion of digitalis, even when the latter is prepared properly.

8. An infusion of digitalis prepared in the manner recommended, and kept in completely filled and hermetically sealed bottles for more than two years and five months, retained its activity unimpaired, as shown by the results of tests on cats and by the therapeutic effects on man.

THE ACTION OF CASCARA SAGRADA *

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The object of the present note is to call attention to some important untoward actions of a much misunderstood, perhaps overpopular drug. If one reads, without great care, some textbook dissertations on the action of cascara, he is led to believe that it is an ideal drug and fool proof. Such, however, is far from the fact, and its use should be confined to those cases in which from 1 to 2 c.c. of the fluidextract has a definite action. Larger doses would seem to do more harm than good.

Some of the recorded effects of cascara are: It is a bitter and a stomachic. It improves appetite and digestion. It stimulates and is a tonic for the intestine. The susceptibility to it is not lost by long use, and it does not cause constipation as many other such drugs; on the contrary, the establishment of regular habits permits it to be gradually withdrawn. In addition to these standard or accepted actions, it has been recommended for a number of other conditions in which its benefits, if any, depend on its cathartic action. For example, it has been lauded as a cholagogue; "in headache due to retention of cholesterin"; in chronic gastric catarrh; as a cure for dysentery, and in syphilitic ulcerations, enuresis, etc. Many of these influences were observed only in what we may term the acute, testimonial or enthusiastic stage of the evidence. The dose of the fluidextract is given at one-quarter to 2 teaspoonfuls (from 1 to 8 c.c.) or the smaller dose three times a day, which is by far the more preferable method. It is classified as a vegetable "cathartic." This classification is exceedingly misleading, since the drug should never be used except as a laxative. It is especially the dosage and the cathartic action to which I wish to draw attention.

In a limited number of cases of constipation in which I administered a dosage of 2 c.c. there was a relatively large percentage of patients who complained of griping accompanied by nausea before the drug acted. I find that this is so common an experience that some physicians have practically discontinued the use of cascara.

Wiltrout [1] was among the first to give a written opinion on the action of cascara. This opinion seems to have been generally accepted by the profession, but requires reinvestigation. One cannot doubt some of the facts, however. I will give an abstract of this opinion, so far as it deals with cascara sagrada alone:

> The samples met my highest expectation. I used them in cases of constipation characterized by atony or paresis of the muscular coat of the bowels. They gave free evacuations in doses of from 30 to 50 drops, with no pain and materially improved appetite. The common experience was that a diminished dose was needed to assure the daily purpose. . . . It wonderfully accelerates the action of sodium phosphate and arrests sick headache promptly, and does not deplete the system. . . . I have used it in a large number of cases . . . as a laxative and cathartic, but it is a little nauseating.

The "squeamish" action noted by Dr. Wiltrout has also been observed following the administration of preparations of the bark of *Rhamnus frangula*.[2]

Recently I have made a number of experiments (more than twenty) on medical students and assistants, and on myself, which I think worthy of record. We used the fluidextract of two leading manufacturers. The aromatic fluidextract is much less effective.

RESULTS OF EXPERIMENTS

One c.c. will cause a laxative effect, usually one movement of the bowels, in from eight to twelve hours. There is little if any griping in these cases. Occasionally this amount of the drug is without noticeable effect.

Two c.c. will cause two movements of the bowels in from five to twelve hours. There is usually considerable griping from this dose, which begins in about four hours and may last twenty-four hours.

Four c.c. causes three or four movements of the bowels, always accompanied with painful griping and some nausea. This griping may persist for two or three days, and the abdomen is somewhat tender; there is a desire to go to stool when no necessity exists. An indefinite uncomfortableness persists for several days.

COMMENT

All these points are recorded in some textbooks, especially if one reads between the lines; but the supposed virtues of this drug are so unduly emphasized and impressed on the mind that the average practitioner forgets the undesirable actions. The fact is that cascara should never be used as a cathartic but only as a laxative. When more than 2 c.c. is needed, some other drug should be used. Many of the supposed virtues of cascara are possessed by liquid petrolatum and by phenolphthalein. The correct dosage of cascara has been emphasized by Hare,[3] who states that more than 2 c.c. of the fluidextract often produces irritation of the bowel, and enteritis and intestinal catarrh. Its continued use tends to produce hemorrhoids in some persons. In my own case, confirmed by others, I am willing to accept this as the true statement of the action. The abdominal tenderness and griping, and indefinite abdominal symptoms indicate a congested or inflammatory condition. I did not feel justified in administering larger doses of this drug, and none of those taking 4 c.c. volunteered for this purpose. In fact, they did not wish any more cascara. However, I have studied the effect of massive doses on dogs. Before recording these, I should mention Bastedo's [4] patient, who swallowed 30 c.c. of the fluidextract by mistake. There was excitement, hallucination, weakness of the legs, and collapse, from which the patient recovered. Bastedo does not record griping or other untoward symptoms. With such a large dose one might expect vomiting, but this rarely occurs. It should be noted that preparations of recent bark have a tendency to produce vomiting and epigastric pain; large doses of the matured preparations still retain some of this property. Busey [5] reports a case in which 4 drams was given to a patient by mistake, instead of ergot. No especial toxic symptoms are recorded, but the patient was in such a state of great depression that only pronounced changes would have been noted.

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* From the Laboratory of Pharmacology and Therapeutics, University of Illinois College of Medicine.

[1] Wiltrout, I. D.: Am. J. Pharm. **57**: 498, 1885.

[2] Wiltrout, I. D.: Am. J. Pharm. **57**: 499, 1885.

[3] Hare: Practical Therapeutics, Ed. 18, 1920. The National Dispensatory, 1916, p. 414.

[4] Bastedo: Materia Medica, Pharmacology and Therapeutics, 1915, p. 122.

Fenn [6] reports several cases of the untoward effects of cascara after "moderate doses" in which there was vomiting; heat and griping; traces of blood in the evacuations; increase of flatulence; abdominal tenderness, and mental aberration. In one case death followed the taking of cascara. In none of these cases, however, does he give the dose taken. The cases of mental aberration and death occurred in old people who had prepared their own decoction from the dried bark. Cotter [7] reports a case in which a dram dose, given at night and repeated in the morning and at noon, evoked symptoms resembling cholera morbus. In a second case in which a woman took a dram dose at night and repeated it in the morning, there was great prostration and feebleness.

A few practitioners have told me they have used this dose three times a day over long periods with good results. This is against the verdict of the literature, and better results for long continued use seem to be obtained with smaller doses. Wood [8] gives the dose of the fluidextract preparation as from 2 to 8 c.c., which is manifestly far too great, especially since we have better cathartics when such large doses are needed.

The dose of cascara sagrada for a dog as a laxative is from 0.5 to 4 c.c.[9] If from 30 to 60 c.c. is given to a dog it produces excessive diarrhea, often vomiting, and an inflammatory condition of the whole gastro-intestinal tract. From 4 to 8 c.c. will also cause profuse diarrhea; but I have not observed vomiting with this dose. The profuse and persistent diarrhea indicates some inflammatory reaction. Great congestion was found by Tangeman [10] also in dogs after this dose.

SUMMARY

Large doses of cascara sagrada may produce an inflammatory condition of the bowel, with pronounced nausea and griping. The nausea may be produced by the therapeutic doses recommended in some textbooks. It only rarely leads to vomiting. Cascara should be used only as a laxative, never as a cathartic. When more than 2 c.c. of the fluidextract is needed to produce a laxative effect, another drug should be added or substituted. Small doses several times a day seem to give better results than the sum of these doses given in a single dose.

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[5] Busey: Am. J. Obst. **20**: 929, 1887.

[6] Fenn, C. M.: Therap. Gaz. **12**: 522, 1888.

[7] Cotter, R. O.: Atlanta M. & S. J., March, 1888, quoted by Fenn (Footnote 6).

[8] Wood: Therapeutics, Its Principles and Practice, Ed. 14, p. 507.

[9] Dun, Finlay: Veterinary Medicines, 1910, p. 448.

[10] Tangeman: Therap. Gaz.: **7**: 485, 1883.

Cost Per Patient in London Hospitals.—According to the statistical report of the King Edward's Fund, the average cost per occupied bed in 1919 worked out at £163 13s. 6d., or approximately £3 5s. per week for the hospitals having medical schools (with the exception of St. Bartholomew's), and at £140 10s. 3d., or approximately £2 14s. per week, for the larger general hospitals without medical schools.—*Med. Officer* **24**:232, 1920.

MASSIVE INFECTION OF A VACCINATED PERSON WITH BACILLUS TYPHOSUS *

BROOKS C. GRANT, M.D.
First Lieutenant, M. C., U. S. Army
FORT SAM HOUSTON, TEXAS

That typhoid vaccination produces a high degree of immunity is proved by army statistics, and the fact is generally accepted today. However, no proof has been available that such vaccination could protect against massive infection.

This case of massive infection with *B. typhosus* is reported on account of the rarity of such an occurrence.

REPORT OF CASE

Oct. 16, 1920, Private First Class F. L., a technician in the Laboratory, Eighth Corps Area, while working with a heavy suspension of living *B. typhosus* (K 110, Army Medical School strain) sucked a quantity of this culture suspension through the cotton plug of the pipet into his mouth, the quantity being approximately 0.5 c.c. He immediately reported the fact and washed his mouth thoroughly, three times, with 50 per cent. alcohol.

This soldier had had measles, whooping cough, diphtheria and scarlet fever, but denies having had typhoid fever or any continued fever that might have been typhoid. He was last vaccinated with triple typhoid (saline) vaccine, Aug. 16, 1919, or one year and two months prior to his infection. He was at once given 0.5 c.c. of triple typhoid vaccine in the hope of increasing his immunity.

October 21, four days after infection, the soldier complained of slight headache, but had a normal temperature. No further symptoms appeared until October 24, the eighth day after infection, when he complained of slight headache and weakness. His temperature was normal. A blood culture was negative. This greatly relieved the soldier's anxiety and he had no further symptoms of note.

October 28, a specimen of feces was collected and plated on Endo medium in the usual manner. The typhoid-like colonies appeared in a proportion of about 1:10 of *B. coli.* These were picked and proved to be *B. typhosus* by the customary sugar and serum reactions. This fact was not revealed to the soldier, and other symptoms did not appear. He was watched closely from this time on and was allowed to continue working in the laboratory. His stools were repeatedly examined, and they have continued to be negative for typhoid since October 31.

SUMMARY AND COMMENT

A person giving no history of ever having had typhoid fever, but having been vaccinated with triple typhoid vaccine, received a massive dose of living *B. typhosus.* Four days later he had a headache and feeling of malaise, and on the eighth day headache and weakness. No further symptoms ever developed. On the twelfth day after infection, *B. typhosus* was present in his stools, but by the fifteenth day they had disappeared and have not been found since that time.

This case is interesting since it demonstrates that, in certain cases at least, typhoid vaccination will protect against even massive infection. The dose was enormous and must have been many thousand times the usual infecting dose. That the man was actually infected was proved by the recovery of the typhoid bacillus from his stools. But it could not be found in his blood, and at no time did he have fever. He has remained well for seventy-five days. No similar case is known to be on record.

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* From the laboratory, Eighth Corps Area.

HYDROSALPINX WITH TWISTED PEDICLE

REPORT OF CASE

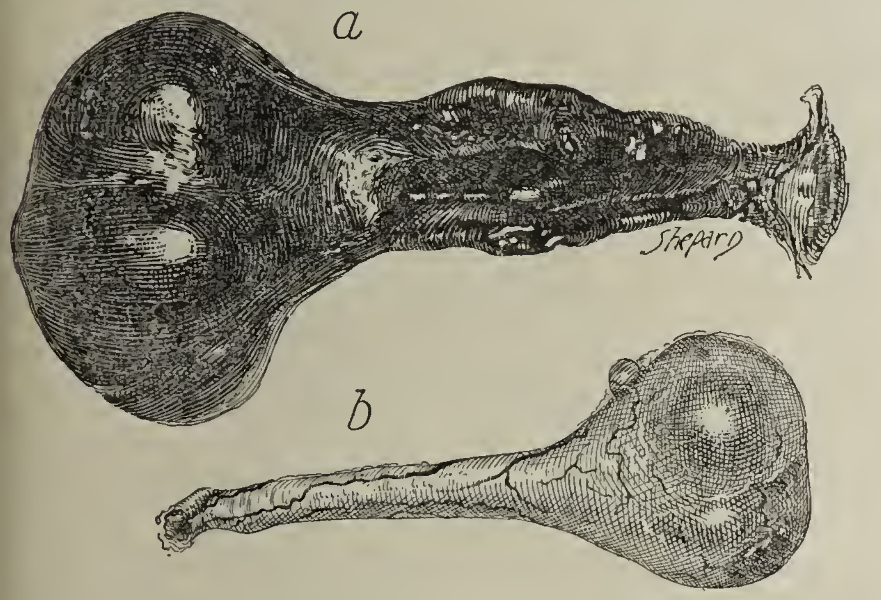
C. A. ROEDER, M.D.
OMAHA

I report this case because of its unusual occurrence.

REPORT OF CASE

A woman, aged, 27, married twelve years, with no children, no miscarriages and no history of any infection in the past, was seen in consultation because of a continuous pain in the right inguinal region for the preceding twelve days, which began suddenly, with moderate severity, until four days after the onset, when the pain suddenly became severe, accompanied by spells of nausea followed by vomiting. No possibility of a venereal infection could be elicited from the patient or her husband. Menstruation began at 14 and was always regular; distress was very slight, with a moderate loss of blood averaging ten days.

Examination revealed a cystic mass in the culdesac, about 3 inches in diameter, tender but movable. It could also be palpated through the abdominal wall. The temperature was 98.6, pulse 68, urine negative, but a blood count was not made.



Twisted right hydrosalpinx and left hydrosalpinx.

At operation the right tube was filled with dark blood, forming a tumor about 5½ inches long and 2½ inches wide, which was entirely free from adhesions, but twisted on its pedicle about 1 inch from the uterus. On first glance it resembled an extra-uterine pregnancy. On the left side was a hydrosalpinx about 4½ inches long and 1½ inches wide at the distal end, not adherent and with no signs of ever having been infected. There were no fimbriae on either tube, the distal extremities being smoothly healed. The ovaries and tubes were apparently normal. Both tubes were removed, and the patient made a good recovery.

COMMENT

In the absence of adhesions, no evidence of infection at any time and the smooth closure of the distal extremities, a congenital malformation was strongly suggested which had resulted in a simple hydrosalpinx. No doubt a unilateral hydrosalpinx of a congenital or acquired type is liable to become twisted, as shown by several reports in the literature.

Such tubes, no doubt, are subject to infection through the uterine cavity and the blood stream. Perhaps a certain percentage of cases of double pyosalpinx were previously of this type, the infection destroying all evidence of a previously congenital double hydrosalpinx.

Hydrosalpinx with a twisted pedicle has been reported only nine times, so far as my search of the literature[1] could determine. Pyosalpinx with a twist and ovarian tumors including the tube with a twist I am not considering in this report. The clinical picture appears much less alarming than the one presented by a twisted ovarian tumor. It is a distinct entity to be considered when the history and physical findings suggest a very recent cystic pelvic tumor, which has persisted over a number of days without alarming symptoms.

Brandeis Theatre Building.

THE RETINITIS OF DIABETES MELLITUS

PRELIMINARY REPORT

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AND
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The occurrence of retinal lesions in cases of diabetes mellitus is an established fact; but retinitis characteristic or diagnostic of diabetes, comparable with the retinitis of nephritis, must still be regarded as unproved. Many writers have asserted that there is a retinitis pathognomonic of diabetes, while others have emphasized the apparent identity of the retinitis of diabetes and of nephritis, at least in their ophthalmoscopic features. It seems probable that this difference of opinion has arisen because of the many clinical forms of retinal changes seen in diabetes and partly because of the many clinical types of diabetes itself. Unfortunately, most writers on ophthalmology discuss diabetes and the retinitis of diabetes as single entities.

Hirschberg,[1] in 1890, suggested the division of the retinal lesions of diabetes into three groups:

1. An entirely characteristic inflammation of the central region of the retina with small bright spots, usually also with hemorrhagic points (retinitis centralis punctata diabetica).
2. Hemorrhages of the retina with the resulting inflammatory changes and degenerations (retinitis hemorrhagica diabetica).
3. Rarer forms of retinal inflammation and degeneration, the connection of which with the primary disease is yet to be demonstrated (such as pigmentary retinitis).

Hirschberg[1] believed that central punctate retinitis is due to the diabetes alone; the occasional presence of albumin in the urine, in his opinion, has no bearing on the retinitis. He recognized, however, that, in certain cases, in addition to the punctate retinitis, edema and exudates suggestive of nephritis appear. These he spoke of as mixed forms. They really constitute a fourth group. He believed that diabetic hemorrhagic retinitis is associated with arteriosclerosis, probably of the smaller retinal vessels, retinal vascular changes not being commonly demonstrable ophthalmoscopically in diabetic patients. He did not regard the forms of retinal inflammation in the third group as truly diabetic in origin. It is of interest to note that all of Hirschberg's patients with retinitis were more than 40 years of age.

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[1] Albertin: A propos des hydro-salpinx et de la torsion du pédicule, Bull. Soc. de chir. de Lyon **8**: 292-295, 1905; one case. Alfieri, E.: Idrosalpinx con torsione complicato del peduncolo, Boll. d. Soc. med. chir. di Pavia **22**: 17-26, 1902; one case. Cathelin, F.: De la torsion des hydro-salpinx, Rev. de chir. **21**: 253-282, 406, 1901; one case. Lop: Hydrosalpinx; torsion du pédicule; ictère; laparotomic; pleurésie, hémorrhagique bi-laterale; autosératérapie; guérison, Gaz. d. hôp. de Paris **84**:1496-1498, 1911; one case. Stein: M. Rec. **43**: 702, 1918; two cases. Whitacre, H. J.: Hydrosalpinx with twisted pedicle, J. A. M. A. **66**: 1614 (May 20) 1916; two cases. Hedley, J. P.: Hydrosalpinx with Torsion of the Pedicle, Proc. Roy. Soc. Med., Obst. Sect. **1**: 95, 1907-1908; one case.

[1] Hirschberg, J.: Ueber diabetische Netzhautentzündung, Deutsch. med. Wchnschr. **16**: 1181-1185, 1236-1239, 1890.

To these types of retinitis, Schöbl[2] added a fifth type, which he termed "albuminuric retinitis in eyes of diabetics." He included in this group cases in which he considered the retinitis to be due to a complicating nephritis and to have no dependence on the previously existent diabetes.

Dodd,[3] in 1895, reviewed the literature to that date and tabulated all the reported cases, forty-seven in number, of "pure diabetic retinitis," using as the basis of this diagnosis the absence of albumin from the urine. Forty-one of the forty-seven patients were more than 40 years of age, and the average duration of the diabetes was 4.6 years. All of Hirschberg's groups were represented, and no effort was made to determine the difference in the etiology in the various cases.

AUTHORS' INVESTIGATION

In the spring of 1920, in the course of a statistical study of the clinical types of diabetes mellitus encountered in the Mayo Clinic, it was observed that retinal lesions had been found only in patients with the mild form of diabetes, usually associated with arteriosclerosis. This observation led to a more careful examination of diabetic patients for retinal lesions.

After this investigation had been begun, it was found that Onfray[4] had published the results of a similar research from which he had concluded that the diabetes causing retinitis is often benign and frequently associated with vascular hypertension and nephritis. Twenty-five per cent. of his patients showed normal kidney function and no vascular hypertension; 50 per cent. had hypertension and some renal damage, and 25 per cent. had definite nephritis. He considers the "central dot-like retinitis" to be the purely diabetic retinitis. He does not consider Hirschberg's other forms in detail. In 1920, Garrod[5] stated before the Congress of the Ophthalmological Society of the United Kingdom that diabetic retinitis and albuminuric retinitis are associated with high blood pressure and arterial changes, and that most of his diabetic patients with retinitis showed evidences of renal disease. It the same meeting Moore[6] stated that in his diabetic patients retinitis had been confined to patients more than 39 years of age and was usually associated with arteriosclerosis.

Our series is composed of forty-four cases of retinal disease observed in the Mayo Clinic since Jan. 1, 1920, in the course of a study of 300 patients with diabetes. In about eighty cases of diabetes characterized by acute onset and progressively increasing severity, so-called diabetes gravis, no patient showed retinal changes. Retinitis occurred exclusively in diabetic patients with mild, easily controlled glycosuria in whom evidence of vascular disease was always present. We were nevertheless impressed by the fact that the retinal lesions were in some respects different from those seen in nondiabetic vascular disease. All of Hirschberg's types of retinitis undoubtedly occur, and any one of them except the third should suggest the diagnosis of diabetes. We have been able at least twice to make such a diagnosis from the ophthalmoscopic findings alone in the temporary absence of sugar from the urine. We believe, therefore, that the retinitis of diabetes is the retinitis of cardiovascular-renal disease, modified in appearance and in stage of occurrence, possibly by the metabolic disturbances associated with the diabetes.

DATA REGARDING FORTY-FOUR PATIENTS WITH RETINAL DISEASE

		Age		Diabetes		Systolic Blood Pressure		Phenolsulphonephthalein Excretion				Blood Urea	
Ophthalmoscopic Diagnosis	Cases	Below 40	Above 40	Less Than 3 Yrs.	More Than 3 Yrs.	Below 150 Mm.	Above 150 Mm.	Below 30 per Cent.	Between 30-40 per Cent.	Between 40-50 per Cent.	Above 50 per Cent.	Below 40 Mg. per 100 C.c.	Above 40 Mg. per 100 C.c.
Hypertension arteriosclerosis	13	..	13	6	7	2	11	..	1	5	4	4	2
Arteriosclerotic retinitis	2	..	2	1	1	1	1						
Central punctate retinitis	2	..	2	..	2	1	1	..	..	1			
Diabetic hemorrhagic retinitis	9	..	9	2	7	1	8	..	..	5	2	2	
Vascular hemorrhagic retinitis	2	..	2	2	..	1	1	..	1	1			2
Diabetic albuminuric retinitis	8	..	8	..	8	3	5	2	4	..	..	3	2
Albuminuric retinitis	2	..	2	..	2	..	2	2	..	..	..	..	2
Total	38	..	38	11	27	9	29	4	6	12	6	9	8
Atypical Cases:													
Inactive chorioretinitis	1	1	..	1	..	1	..	1					
Hyperemia of optic disk	1	1	..	1	..	1							
Optic neuritis	1	..	1	1	..	1							
Pigmentary retinitis	1	..	1	..	1	..	1						
Retinal edema	2	..	2	1	1	2							
Total	6	2	4	4	2	5	1	1					

In cardiovascular-renal disease there are degrees of retinal involvement which indicate stages of the vascular and of the renal process. In a similar manner, the various types of diabetic retinitis mark the degree of vascular and of renal pathology complicating the diabetes. They do not, however, indicate the severity of the diabetes, the more severe forms of retinitis occurring frequently in the mildest types of this disease. In the presence of diabetes, retinal changes seem to appear at an earlier stage of the vascular or renal disease than in uncomplicated arteriosclerosis or nephritis. Hirschberg's "central punctate retinitis" corresponds to "arteriosclerotic retinitis" (Moore[6]) with little or no renal insufficiency, and has thus been spoken of by some writers as "pure diabetic retinitis," since albumin may readily be absent from the urine. In the most common type of diabetic hemorrhagic retinitis, the hemorrhages are of the small or large round nuclear layer variety and resemble those of pernicious anemia and of leukemia. Their cause is still obscure. Altered chemical or physical composition of the blood has been suggested as an explanation. Moderate vascular and renal involvement is a constantly associated factor.

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[2] Schöbl, J.: Diseases of the Retina, in Norris, W. F., and Oliver, C. A.: System of Diseases of the Eye, Philadelphia, J. B. Lippincott Company, 1898, **3**: 413-577.

[3] Dodd, O.: Diabetic Retinitis, Arch. Ophth. **24**:206-223, 1895.

[4] Onfray, R.: Retinitis in Diabetes, Ann. d'ocul. **155**: 533, 1919; abstr. Am. J. Ophth. **2**: 764, 1919.

[5] Garrod, quoted by Dickinson, H.: Ophthalmological Society of the United Kingdom, Am. J. Ophth. **3**: 606-611, 1920.

[6] Moore, R. F.: The Retinitis of Arteriosclerosis, and Its Relation to Renal Retinitis and to Cerebral Vascular Disease, Quart. J. Med. **10**: 29-51 (Oct.) 1916, (Jan.) 1917.

There is another type of hemorrhagic retinitis seen in diabetic patients in which superficial flame-shaped hemorrhages predominate. This seems to be dependent on more advanced vascular and renal changes, and has therefore been termed vascular hemorrhagic retinitis. Hirschberg's mixed type, or as Schöbl calls it, diabetic albuminuric retinitis, indicates a well-marked renal insufficiency; while albuminuric retinitis, which naturally can occur in diabetics as well as in nondiabetics, appears only with a still more marked vascular and renal disease, accompanied by a definite reduction of renal function.

The accompanying tabulation of our forty-four cases, with reference to age, duration of the diabetes, blood pressure and renal function, affords these data: All except two patients were more than 40 years of age. One of the two was a patient with definite nephritis and an inactive chorioretinitis, the other had a simple hyperemia of the optic nerve which probably had no connection with the diabetes. Twenty-seven of the patients were known to have had diabetes for more than three years. In a group of thirteen in whom an ophthalmoscopic diagnosis of hypertension-arteriosclerosis had been made, eleven had systolic blood pressures above 150 mm., one had a phenolsulphonephthalein excretion below 40 per cent., five between 40 and 50 per cent., and the others more than 50 per cent. Only two had blood urea above 40 mg. for each 100 c.c. One of two patients with arteriosclerotic retinitis had a systolic blood pressure above 150 mm., both had well marked peripheral arteriosclerosis; neither had evidences of renal insufficiency. One patient with a definite diagnosis of central punctate retinitis had a systolic blood pressure of 150 mm. and a phenolsulphonephthalein excretion of 45 per cent. Eight of the nine patients with diabetic hemorrhagic retinitis had systolic blood pressures above 150 mm., and six had phenolsulphonephthalein excretions between 40 and 50 per cent. One of the two patients with vascular hemorrhagic retinitis had a systolic blood pressure above 150 mm.; the phenolsulphonephthalein excretion was 40 per cent. in one; it was not recorded in the other; the blood urea was above 40 mg. for each 100 c.c. in both. All the eight patients with diabetic albuminuric retinitis had had diabetes for more than three years; five had systolic blood pressures above 150 mm.; in all the phenolsulphonephthalein excretions were below 40 per cent., and in two, below 30 per cent. Both of the patients with albuminuric retinitis had systolic blood pressures above 150 mm.; in both the phenolsulphonephthalein excretion was below 30 per cent.; one had a blood urea of 46 mg. and the other 96 mg. for each 100 c.c.

We have not included in this tabulation two cases of low grade retinal edema, the significance of which we have not as yet determined. We regret that functional determinations are not complete for every case. This is due to the fact that, in the early stages of our investigation, we had not formed the conception of the part played by renal insufficiency.

CONCLUSIONS

1. The study of this series of cases has led us to believe that retinitis in uncomplicated cases of acute diabetes, diabetes gravis, does not occur. It was not present in eighty consecutive cases of this severe type of the disease in our group of 300 diabetic patients.

2. Cases of diabetes with retinitis of diabetic type are always or almost always complicated by vascular or renal disease, and the diabetes tends to be mild and chronic. This was true in all of the twenty-three consecutive cases of this kind found in the study of the 300 patients.

3. The primary cause of the retinitis of diabetes seems therefore to lie in the accompanying pathologic changes in the vascular system, the more essentially metabolic disturbances of the disease playing, at most, a secondary part.

INTRACRANIAL PRESSURE IN DISEASE

CHARLES E. KIELY, M.D.
CINCINNATI

The pressure of the spinal fluid is often a matter of definite importance in clinical syndromes, but is usually not measured with accuracy. The length of the spurt when the stylet is withdrawn or the rate of flow is used as a criterion. Accurate measurement requires a manometer; but in the ordinary procedure this is adapted to the mouth of the puncture needle after withdrawal of the stylet. This involves a loss of fluid which, particularly in higher pressures, reduces the reading.

With the hope of remedying this error I devised with Dr. John A. Caldwell a lumbar puncture needle which we believe eliminates such objections.[1] This is merely the usual O'Brien needle to which a by-pass has been added. To quote from our original report:

> The needle free of the glass tubing is inserted in the usual way until the operator feels certain that he has entered the spinal canal. The measuring tube is then adapted, and the stylet of the needle withdrawn to the length of the attached chain. Unlike the standard needle, this one is of a constant bore through its entire length, so that when the stylet point has passed far enough out to permit egress of fluid into the perpendicular tube there is still no avenue of escape through the end of the needle. . . . The pressure will, of course, be read directly in millimeters of spinal fluid in the graduated glass tube. When the specimen of spinal fluid is to be withdrawn it will be necessary only to remove the stylet entirely. . . . We feel that this device offers several advantages: simplicity with consequent sterilizability; freedom from the annoyance of spilling mercury; greater accuracy of reading, as the column of fluid will be thirteen and six tenths times as long as that of mercury. Finally, it is to be noted that even in the highest pressures that will be encountered, the amount of fluid set free in the device will not reach 2 c.c., which will never be a dangerous withdrawal even in tumor cases.

The makers have simplified our plan by adding a threaded butt and a shoulder to the pointed end of the stylet which prevents the latter from passing farther than is necessary to unmask the by-pass.

I am now in a position to report readings made with this instrument in thirty-one cases. In all cases puncture was made without anesthetic, and the patient was lying on his side.

Analysis of the accompanying table, which is arranged according to pressure, leads to certain conclusions:

Cases 1 and 2 probably represent technical errors due to occlusion of the needle by tissue.

Eleven cases of paresis give most variable readings. The pressure of alcoholics is decidedly low. In 1916, the neurologic service of the Cincinnati General Hospital experimented therapeutically with delirium tremens. The pathologic condition was theoretically an edema of the brain from acidosis due to alcohol. The brain enclosed in a rigid casing could swell only by squeezing its own vessels, and as the consequent impairment of the circulation produced further acidosis, a vicious circle was established. Treatment aimed at the acidosis, i. e., alkalization with Fisher's solution intravenously, or aimed at relief of pressure—lumbar puncture—should be successful. In practice both were successful, and by combining the procedures we reduced the mortality from delirium tremens from 27 per cent. in 1916 to 7 per cent. in 1917. It is surprising, therefore, to find in two alcoholic cases pressures under that usually regarded as normal, and but one elevated.[2]

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[1] Caldwell, J. A., and Kiely, C. E.: A Simple Method of Measuring Intracranial Pressure, J. A. M. A. **74**: 951 (April 3) 1920.

READINGS OF INTRACRANIAL PRESSURE

No.	Sex *	Age	Diagnosis	Pressure
1	♀	52	Taboparesis	25
2	♀	37	Paresis	63.5
3	♂	37	Alcoholism	110
4	♂	50	Senile dementia	111
5	♂	39	Taboparesis	115
6	♂	32	Paresis	125
7	♀	51	Postepileptic insanity	130
8	♂	41	Paresis	130
9	♀	36	Cerebellar tumor	136
10	♂	34	Delirium tremens	140
11	♂	40	Tabes	150
12	♀	21	Obsolescent cerebritis	150
13	♂	50	Paresis	154
14	♂	65	Paresis	155
15	♀	65	Cerebral tumor? Nephritis	160
16	♂	61	Paresis	161
17	♂	27	Paresis	176
18	♂	37	Paresis	192
19	♀	39	Confusional insanity	195
20	♂	52	Cerebrospinal syphilis with convulsions	200
21	♂	60	Cerebral arteriosclerosis	208
22	♂	?	Alcoholism	210
23	♂	20	Tuberculous meningitis	215
24	♀	39	Paresis	218
26	♀	38	Paresis	236
27	♀	34	Paresis	240
28	♂	?	Syphilitic endarteritis	280
29	♂	43	Paresis	393
30	♀	22	Cerebral tumor? Syphilis	400+
31	♂	43	Syphilitic myelitis	400+

*In this column, male is indicated by the symbol ♂ and female by ♀.

Two cases of tumor are reported, but in neither is the diagnosis entirely confirmed.

COMMENT ON INDIVIDUAL CASES

In Case 30, a woman, aged 22, had headache with nausea and vomiting since childhood. About three months before consulting me she had a sudden increase in the violence of the headache, and had diplopia. Both optic disks were badly choked. The spinal fluid overflowed the tube of our device, which is 400 mm. in length. She admitted intercourse, and as the spinal fluid Wassermann was + + + +, syphilitic medication was pushed vigorously. Nevertheless, the optic edema continued to increase, and decompression was advised. This was to be performed in two stages by Dr. Caldwell, but after the first operation the relatives refused consent for the second stage and removed her from our observation.

In Case 9, a woman, aged 36, with the entire clinical syndrome of a cerebellopontile angle tumor, underwent decompression by a competent brain surgeon, and the cerebellum and posterior fossa were exhaustively explored without result. Five months later her symptoms returned and the lumbar puncture reading was made at that time. The low pressure may be explained by the previous operation. The appearance of spontaneous vertical nystagmus with the relapse indicated a slightly different localization, and explains the operative failure.

Two convulsive cases are tabulated. Case 7 is one of "idiopathic" epilepsy with mental deterioration. In Case 20, the patient first came under observation for a tremor of the right hand suggesting Parkinson's disease. Physical examination revealed the Argyll Robertson pupil, and the blood Wassermann test was + + + +. Infection was denied, but subsequent information proved the denial insincere. Under repeated injections of arsphenamin the blood became negative. Soon after this the patient went to a sanatorium where the Wassermann test was again reported positive and arsphenamin resumed until the blood was again negative. The patient passed from my observation for five months, and I was again called because of convulsions. During the first day he had eight major seizures. Albuminuria was no greater than the convulsions would explain, and disappeared in twenty-four hours. The systolic blood pressure was 100 (forty-eight hours after the last convulsion.) Lumbar puncture was performed five days after the last convulsion, the patient being conscious, but dull and a little disoriented.

Case 15 is undiagnosed. The patient is a woman, aged 65. The chief complaint is intractable headache, which has not been relieved by any anodynes short of codein. Twelve years ago she had an operation for gastric ulcer. The operator stated that there was no malignancy, but microscopic examination was not made. There is no bradycardia, no vomiting, no papilledema or localizing signs that would confirm the suspicion of cerebral metastasis. The urine is always strongly acid to methyl red, and remains so in spite of vigorous alkalization. Only 0.6 gm. of sodium bicarbonate by mouth hourly for eight hours ever made the urine alkaline to methyl red, and the headache did not subside. The urine has never contained albumin or casts, but only 28 per cent. of phenolsulphonephthalein administered intravenously was eliminated in an hour. The spinal fluid reading of 160 mm. is unexpected whether the diagnosis is cerebral tumor or nephritis.

The highest reading is furnished by a case of myelitis (Case 31). Here, too, the fluid overflowed the top of the manometer. The symptoms are entirely in the legs, and there is no papilledema.

All of these patients were adults and not struggling. I wish to record, in conclusion, a reading made on an infant and not tabulated here. The child was crying, but was held too firmly to struggle. The fluctuation with each cry was 80 mm., a surprisingly large figure, more than half the pressure regarded as normal. In all cases fluctuations synchronous with the heart beat are noticed, but they are of insufficient amplitude to interfere with the reading.

628 Elm Street.

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[2] Hoppe, H. H.: The Treatment of Delirium Tremens by Spinal Puncture, Stimulation and the Use of Alkali Agents, J. Nerv. & Ment. Dis. **47**: 254 (April) 1918.

PNEUMATIC RUPTURE OF THE INTESTINE

J. R. BUCHBINDER, M.D.
CHICAGO

The first complete review of this relatively rare injury was published by Andrews,[1] in 1911, who described a case in which he operated, and who reported fifteen additional cases. The seriousness of the lesion, as well as its picturesqueness, prompts me to report the subjoined case:

REPORT OF CASE

History.—F. T. was admitted to Wesley Memorial Hospital, Oct. 13, 1920, at 5 p. m., with the history that two hours before, shortly after finishing lunch, another worker had placed the nozzle of an air hose close to his rectum, while he was stooping over. This was done as a joke, as it was in nearly every other accident of this nature reported. The nozzle had an inside diameter of 1¼ inches, and delivered a pressure of 85 pounds. The man immediately screamed with pain and fell to the floor in collapse.

Examination.—When he entered the ward, the patient's general appearance was that of profound shock. His face was slightly cyanosed, his respiratory efforts were scarcely noticeable. While being lifted into bed and thereafter until his removal to the operating room, he was seized with violent clonic spasms involving the muscles of the trunk.

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[1] Andrews, E. W.: Pneumatic Rupture of the Intestine, a New Type of Industrial Accident, Surg., Gynec. & Obst. **12**: 63 (Jan.) 1911

The heart sounds were scarcely audible. There was subcutaneous emphysema over the chest. The abdomen was tremendously distended, but the distention was vastly different from that usually seen in peritonitis. The tension within the abdomen was so great that the palpating hand could make no impression on it. It was not merely rigid, it was extremely hard. The skin of the abdomen, scrotum, penis and perineum was emphysematous.

The history and the appearance of the abdomen made the diagnosis obvious. The man's condition, however, was so critical that it was doubtful whether he would survive the necessary preoperative preparation. The convulsions increased in severity and the cyanosis deepened. He was brought to the operating room in an almost moribund condition after a rectal tube had failed to relieve the tension.

Operation and Result.—Under procain anesthesia, a left rectus incision was made. The transversalis fascia was not incised, but sharp nosed forceps were pushed through in order to control the escape of air. The fascia immediately tore like wet paper under the great tension; the air rushed out with a report, and the abdominal wall dropped in. The sudden escape of air nearly proved fatal, but after a few moments the patient rallied, and his general condition seemed much improved.

Exploration revealed a tear in the convexity of the sigmoid, which admitted three fingers. For a distance of from 6 to 8 inches, the serosa was stripped off and ribboned. The colon was collapsed and practically empty. The mucosa had herniated through the tear in the serosa, and was frayed out as though it had been scraped. The mesosigmoid was studded with small hemorrhages; but there was very little blood and no loose fecal material in the peritoneum. No other lesion was demonstrable.

The tear in the sigmoid was closed and the peritoneum was sutured as well as could be with what was left of it. A loop of descending colon well above the injury was pulled out for a colostomy. The patient was put to bed and treated for shock, but died apparently without fully recovering therefrom, four hours later.

Necropsy.—This was performed by Dr. J. P. Simonds. It revealed several additional facts. The anus and rectum escaped injury, probably because of pelvic support. The colon, from the sigmoid to the splenic flexure, had become totally gangrenous, probably owing to destruction of its blood supply from the impact of the air. The remainder of the intestinal tract showed no injuries.

COMMENT

In his article, Andrews[1] reported a case of his in which operation was performed resulting in complete recovery. The damage to the sigmoid was so great that he resected it and performed a lateral anastomosis. He gathered the reports of fifteen additional cases, all of them unpublished, which showed a mortality of thirteen deaths, 81.2 per cent. Bendixen and Blything[2] reported a case of their own, in which operation was performed with recovery. They reported six additional unpublished cases. Combining their statistics with those of Andrews, the mortality averages 69.1 per cent. When no operation was performed, 8.6 per cent. of the patients recovered.

SUMMARY AND CONCLUSIONS

In most of the cases reported, the pathologic condition presents certain constant features:

1. The anus and rectum escape injury because of their outside support.
2. The sigmoid in nearly every case was the site of the injury, probably because its loop and kinked juncture with the descending colon momentarily traps the inrushing air.
3. The peritoneal coat is torn to ribbons and the mucosa protrudes.
4. There is commonly no other bowel lesion.
5. There is great intraperitoneal pressure.

The essential features of the surgical treatment are:

1. The intraperitoneal pressure should be relieved immediately, allowing the air to escape slowly, preferably by means of a rectal tube.
2. Immediate laparotomy under local anesthesia with repair of the ruptured bowel is indicated. The question of colostomy must be considered when there is extensive destruction at the site of rupture, or as in the case herein reported in which the blood supply of a considerable length of the colon is compromised, because I do not believe that resection and anastomosis can often be performed.

104 South Michigan Avenue.

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[2] Bendixen and Blything: Pneumatic Rupture of the Bowel, Surg., Gynec. & Obst. **12**: 73 (Jan.) 1914.

THE PREPULSE DISTURBING STAGE OF ENDARTERITIS OBLITERANS *

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NEW YORK

It can be said that endarteritis obliterans is conspicuous by the frequency with which it is overlooked in the early stages. This is made more serious by the fact that failure to recognize the disease early may prove exceptionally annoying to the physician. To illustrate: In the early stages, this intractable disease often simulates minor foot troubles. When a physician has treated a case of supposed strained arch or infectious arthritis or an ingrown toe nail and has naturally given a favorable prognosis, and the same patient loses a leg a couple of years later owing to gangrene produced by endarteritis obliterans, the result to the physician may be unpleasant, to say the least.

I am glad to say that so far as I know I was the first to advocate that a routine examination of the arteries of the foot be made in every case of foot trouble in the male.[1] "The first thing to do in such an examination is to put the finger on the dorsalis pedis," I urged. Either because of this warning or because the same thought occurred to other observers, a routine examination of the arteries of the foot is now made by most orthopedists.

From a practical standpoint a routine examination was the greatest accomplishment made in the progress of the entire disease. It has made possible a diagnosis of the bulk of cases early, whereas heretofore the diagnosis was invariably late. Still, years of further observation have convinced me that a disturbance in the pulses of the foot is not at all a sign of an early stage of the disease, as was formerly supposed, but rather a sign of a late stage. By the time the physical change in the artery can be detected, the disease has already made terrific inroads.

In order to cause the cessation or even the disturbance of a pulse, the pathologic condition must be gross and the disease must have advanced to the point at which there is occlusion either of the entire lumen or at least of the major part of the lumen of the artery; for endarteritis obliterans means not a thrombus formed suddenly, but rather a gradual proliferation of the endothelial coat. By the time the disturbance in the artery can be detected by the mere finger, the disease has become so gross as seriously to cut off the blood stream. A bad pulse is therefore a sign of a late stage in endarteritis obliterans and must be eliminated from the scope of diagnosing this disease in its incipiency. This is undoubtedly the reason why in spite of the practiced routine examination of the arteries of the foot in painful foot troubles in the male, patients are still being referred to us with a history of having been treated with arches or for supposed ingrown toe nail or for infectious arthritis, whose real trouble has always been endarteritis obliterans. What makes the situation more glaring is that some of these patients were treated by excellent orthopedic surgeons. The fault is not entirely theirs, but it is the wrong teaching on the subject which accepts the pulse as the criterion of the disease.

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* Read before the staff of the Hospital for Deformities and Joint Diseases, Oct. 3, 1920.

[1] Strunsky, Max: To Avoid Mistakes in the Diagnosis of Foot Troubles, New York M. J. **93**: 221, 1911.

That there are patients who have good pulse and still have endarteritis obliterans is well known to us. Empirically we have learned the fact that there are other signs for telling this disease, even before the pulse becomes disturbed.

The disease not only manifests itself by a local lesion in the arteries and veins, but also has a central lesion in the nervous system. The central lesion expresses itself through the vasomotor nerves causing a disturbance in the vasomotor balance. The function of the vasomotor nerves is to keep the coats of the vessels in tension, so that a normal volume of blood is retained in the lumen of the blood vessels. In endarteritis obliterans the vasomotor balance is disturbed. In the later stages when the arteries have already become occluded, the vasomotor mechanism is so unbalanced as to render the coats of the blood vessels in a state of paralysis. At that stage, should the leg of a patient be hanging down, it immediately becomes blue and congested; and on being elevated, the limb instantaneously becomes blanched and cadaverous looking. In this stage, the blood volume has become the slave of gravitation.

Evidences of vasomotor disturbances come on early in this disease; and with good light, good eyesight and careful examination, this sign can be brought out as one of the earliest manifestations. In comparison with the healthy and normal foot, we can detect a slight pallor of the skin when the limb is elevated, or a slight bluish tint when the limb hangs down. This sign is one of the earliest manifestations of this disease, sometimes appearing years before the pathologic condition in the arteries has progressed to such an extent as to make the interference become appreciable to the examining finger. I would therefore urge that, besides making a routine examination of the arteries of every painful foot in the male, a routine examination of the vasomotor balance should also be made.

The vasomotor balance, besides being an earlier sign than the bad pulse, is also of service as a confirmatory evidence of this disease. In borderline cases it is frequently difficult to tell whether it is the patient's pulse one feels or only the pulsation in the fingers of the examiner. The test for vasomotor balance checks up the other signs and clinches the diagnosis. The subjoined case report illustrates how the vasomotor test came to my rescue in the making of a correct diagnosis:

REPORT OF CASE

L. D., a man, aged 29, had had gonorrhea and influenza simultaneously, and was supposed to be suffering from infectious arthritis of the foot due to one or both of these causes. He was first treated with a plaster cast, and later with baking, massage and electricity. When he was referred to me there was no stiffness or inflammation in the foot. The dorsalis pedis, however, was faint. The arteries in the healthy foot were also faint, though stronger than in the affected foot. In this case it would be impossible to tell whether the faint arteries were pathologic or an individual peculiarity. However, the examination of the vasomotor balance decided the diagnosis. The foot became pale as soon as it was elevated, and bluish when it was lowered. This to my mind established the diagnosis.

236 West Seventieth Street.

Clinical Notes, Suggestions, and New Instruments

STAB WOUND THROUGH BOTH VENTRICLES OF THE HEART, WITH RECOVERY

E. M. Freese, M.D., Columbus, Ohio

History.—W. B., colored, was stabbed about 8 p. m., Sept. 2, 1920. He was brought to Grant Hospital at 8:30 and taken at once to the operating room, where I saw him a few minutes later. He was unconscious. Respirations were feeble and very shallow. No pulse was perceptible in the radial or the carotid artery. The pupils were widely dilated and the skin was in a cold perspiration. A spot of blood on the shirt over the heart indicated the site of the wound. Closer examination revealed a wound one-half inch long, in the fourth interspace 2 inches to the left of the sternum. Only a small amount of blood had escaped from the wound, not enough to account for the condition of the patient; it seemed likely that there was a severe internal hemorrhage. There was no spitting of blood or coughing of bloody mucus, but the area of cardiac dulness was much increased, so that the diagnosis of penetrating wound of the heart with hemorrhage into the pericardium seemed evident.

Operation.—The chest was painted with tincture of iodin and under light ether anesthesia, with the wound as the center, I made a U shaped incision with the base outward. The skin and pectoral muscles were laid back, the fourth and fifth costal cartilages cut through, and the corresponding ribs carefully separated from the pleura for about 3 inches, and then bitten with bone forceps and broken back out of the way without injury to the underlying structures. This gave a very satisfactory exposure of the field, and a wound of the pericardium was at once seen. A small stream of blood came from this wound, which was now enlarged upward and to the right. The reason for the lack of pulse, even in the carotid artery, was now perfectly apparent, as the pericardium was filled by a clot which produced almost a complete tamponade. When this clot was scooped out the heart began at once to beat violently, spurting a stream of blood on the anesthetist and over the field. The heart wound was instantly plugged with the tip of the index finger of the left hand and kept plugged, as well as possible, until a suture was passed and tied. This nearly checked the flow, but it was necessary to pass a second suture. Much blood was lost during these manipulations; but the heart still continued in fair shape, and the anesthetist reported that he could feel the pulse. It was now found, however, that a good deal of blood was welling up from behind the heart. Grasping the heart in the left hand, with the index finger hooked down over the apex, I raised the organ enough to expose a wound in the posterior wall nearly as large as the one which had been closed in the anterior. Owing, however, to the thickness of the left ventricle, it was not bleeding so rapidly. Two sutures were used to close this wound.

The heart had almost stopped beating, and no pulse could be felt by the anesthetist. My assistant started an intravenous injection of physiologic sodium chlorid solution. The pericardium was sponged out and closed with continuous iodin catgut, the ribs replaced, and the musculocutaneous flap sutured in place without drainage. A little less than a quart of solution was put into the vein.

The patient was now taken to his room, the foot of the bed elevated, hot water bottles and blankets placed around him, a hypodermic injection of morphin and atropin given, and a rectal drip started. The morphin was repeated in an hour, as the patient was very restless. On his return to his room his pulse was 72 but very small. The slow pulse was regarded as being due to the handling of the heart. He arrived at his room at 9:15.

Postoperative Course.—The after-history of the case was satisfactory, and at no time was there any great cause for alarm. Bronchitis developed on the second day which was annoying on account of the painful cough; this was controlled with heroin. On the fourth day a loud friction murmur developed over the cardiac area because of a pericarditis. This lasted for two weeks, but there was never any sign of fluid sufficient to demand interference. The highest temperature, 102 F., was reached on the third day, with a pulse of 150; it was during this time that the bronchitis was most severe. The temperature rose to 100 every afternoon until the eighteenth day, when the patient was allowed to be taken out in the wheel chair; from that time it never rose above normal.

October 5, he was discharged from the hospital. The wound had long since healed perfectly. Physical signs did not show anything wrong. Roentgen-ray examination disclosed only some thickening in the pleura, with perhaps a little enlargement of the heart shadow. Blood examination was negative.

INTRA-ABDOMINAL PREGNANCY

REPORT OF CASE

Thomas L. Sullivan, M.D., Indianapolis

History.—Mrs. E. A., aged 25, born in Indiana of French and German descent, was admitted to the obstetric service of the City Hospital, Aug. 10, 1920, because of a severe pain in the abdomen. Although of slender build and not very robust, her health had always been moderately good. She had begun to menstruate when 14 years old; and, until her present pregnancy, menstruation had always been regular and normal. She had never suffered from leukorrhea nor had a miscarriage. She was married, Aug. 28, 1919, and on Nov. 8, 1919, menstruated for the last time. Since then there had been a progressive enlargement of the abdomen, with development of milk in the breasts, fetal movements, etc.

The patient says that during the latter months of pregnancy the baby moved about constantly and that she herself, through the abdominal wall, could easily palpate different parts of the fetus. During the early months of pregnancy she complained of morning sickness and severe constipation, and had suffered from an occasional severe pain in the right side of her abdomen but thought that this pain was due to indigestion. August 10, she had a severe pain in the left side of the abdomen and had entered the hospital. This pain quickly subsided when she was put to bed. At 8:30 p. m., September 5, the patient was seized with an acute pain in the left lower abdomen and vomited greenish fluid. Shortly afterward an attempt was made to perform an external version, as the diagnosis of a transverse presentation had been made previously, and this diagnosis had apparently been substantiated by the roentgen ray. She was given codein sulphate, one-half grain hypodermically, and shortly afterward the pain entirely ceased. As labor had apparently begun and then stopped, and since no appreciable dilatation had occurred, the presentation was thought to be transverse; and as the patient was a primipara, it was decided that a cesarean section was indicated.

Operation and Result.—The operation was started at 11 p. m. with a midline incision above the umbilicus. When the peritoneum was opened, a thick, greenish fluid, slightly tinged with blood, welled up into the wound. The intestine was pushed aside, and a greenish, wormlike body was seen which, on being palpated, gave a distinct arterial throb. It was recognized as the cord. The baby was then seen lying a trifle deeper in the abdomen. He was lifted out, and the cord was clamped and cut. Blood gushed up rapidly after the baby had been delivered. I reached down in the midline with the expectation of grasping the uterus, as I then thought the case was one of ruptured uterus; but the uterus was not there. On running my hand down into the pelvis, I could feel a small, normal uterus.

We followed the cord and found the placenta adherent over the right tube and ovary, the posterior surface of the right broad ligament, and the right horn of the uterus. My assistant partially controlled the hemorrhage by grasping portions of the amniotic sac and placenta and twisting them as one might a towel, while I put several clamps on the broad ligament and cut away the placenta, including the right tube and ovary. In addition to the arteries of the right broad ligament there was a large vessel attached to the placenta which apparently came from the left broad ligament. There was also bleeding from two small vessels in the mesentery which had become adherent to the amniotic sac and were probably torn when it was moved.

Several cigaret drains were used in closing the abdomen, as I feared that portions of the amniotic sac remained and because of the great amount of blood and meconium which had been spilled over the peritoneum. Although the latter is said to be sterile, we felt it safer to drain thoroughly. A blood transfusion, which proved of great benefit, was given shortly after the operation. The cigaret drains were removed on the fifth day, and the patient went on to an uneventful recovery.

The baby weighed about 8 pounds and was well developed in every way except for a malformation of one side of the skull. He cried lustily for a short time, but died about an hour after birth.

COMMENT

A review of the literature of intra-abdominal pregnancy shows that most of the cases were diagnosed from the ease with which the fetal parts could be palpated through the abdomen, the loudness of the fetal heart sounds, and the fact that on vaginal examination a mass or parts of the baby could be felt extraneous to the uterus. In nearly every case the patient complained of severe pain in the abdomen at various times during her pregnancy. The size of the uterus was not at all uniform, in some instances being large and in others very small. In the case reported here it was no larger than the average nonpregnant uterus. The placenta in most of the cases was attached to the broad ligament or to the intestine. In several instances the operator was afraid to remove it on account of its attachment, and resorted to sewing it as near to the abdominal wound as possible and then packing with gauze. In one case it sloughed out at the end of thirty-six days, and in another at the end of forty-one days. The death rate in these cases was 45 per cent., whereas in the cases in which it was entirely removed it was much less. No doubt, however, the latter operations were far easier to perform. Most of the babies were either poorly developed or born dead. A few cases have been reported in which the child was normal.

Willoughby Building.

Surgical Judgment and Its Relation to Treatment.—Good judgment depends on an intimate knowledge of disease in all its aspects, its causation, its development, the natural reaction to it, and the final results which accrue. The better this knowledge the better the judgment is likely to be. It involves the questions of diagnosis and prognosis, and on these the line of treatment to be advocated follows of necessity. If a choice were to be made between a surgeon of superior judgment and one who was only a good operator, the balance would be very markedly in favor of the former. In the absence of good judgment, therefore, with its entailed good diagnosis and prognosis, good treatment cannot be systematically carried out. Good diagnosis carries with it a clear knowledge of the pathologic process present and the various means of treatment available, whereas good prognosis, with a perfect understanding of the eventualities, leads to the selection of the best line of treatment for the particular case in question.—C. F. M. Saint, *Brit. M. J.*, Oct. 30, 1920.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, FEBRUARY 19, 1921

TYPHUS IN UNITED STATES

On February 1, the *Presidente Wilson* arrived at the port of New York, fifteen days out from Trieste, with three cases in the sick bay which the quarantine officer diagnosed as bronchopneumonia but which, later on, were proved to be typhus. The physician was experienced in the detection of typhus, but the cases presented no eruption and the mistake was therefore by no means inexcusable. The patients were sent to the hospital for immigrants and the correct diagnosis later became apparent. Fortunately the error was discovered before the other passengers in the steerage had been released, and the vessel and immigrants were remanded to quarantine, where appropriate measures were applied to prevent the spread of the infection. On February 10 an Italian liner arrived with twenty well-developed cases of the disease, and with the report that three passengers had died of typhus while *en route*. At that time a total of thirty-four cases had arrived from Italy.

The metropolitan press was promptly filled with stories of the typhus menace from Europe, of the alleged inefficiency of the quarantine safeguards, and so hysterical was the agitation that request was made for the suspension of travel from Europe—a backward step of one hundred years—utterly disregarding the fact that all factors involved in the spread of typhus are well known and that rational preventive measures can be applied without any material interference with commerce. As a first step in prevention of the disease, it is reported, incoming steamers are to be held in quarantine so that a minimum of twelve days will elapse from the time of leaving a foreign port until immigrants are permitted to disembark in this country.

From the popular alarm one would have supposed that the appearance of typhus at the port of New York was as a bolt from a clear sky. As a matter of fact, public health officials, even before the ending of the war, anticipated that with the resumption of trans-Atlantic travel and a tremendous immigration from typhus infected areas of Central Europe, the exclusion of typhus, plague and cholera would constitute a serious strain on our home quarantine system. Officers of the Public Health Service were, therefore, assigned to the consulates at chief European ports, and steamship companies were urged to provide suitable disinfecting plants at ports of embarkation. While the application of preventive measures on the other side during the last year have been far from perfect, the fact remains that several hundred thousands of immigrants have come from typhus areas, on hundreds of ships, and prior to February 1 typhus appeared on only six ships, and was detected on arrival at the United States and effectively treated.

The system of quarantine protection developed consists of a double line of defense: medical officers at foreign ports to supervise the application of preventive measures that are specifically provided for in the United States quarantine regulations, and, secondly, the facilities of the United States quarantine stations. If infection should evade the first barrier, the ship would still have to undergo inspection at her American port of arrival.

While not generally known, typhus prevailed in Mexico from 1916 to 1918 quite as extensively as in Europe, and its extension in epidemic form to the United States was prevented, despite the handicap incident to a long stretch of unprotected border which afforded opportunity for clandestine entry of travelers.

However, the New York Quarantine Station is still under state control and has not the amount of equipment or accommodation which should be provided for a port of the size of New York. Authorization and funds have been provided for the transfer of the station to the control of the federal government, and as soon as certain legal technicalities incident to the searching of the title have been completed, transfer undoubtedly will be consummated.

It is well to remind ourselves that typhus fever of a mild type has been endemic in New York City for a number of years. About 1910 Dr. Nathan Brill recorded a series of somewhat less than two hundred cases which he had observed in the previous ten years. For the most part they were of isolated occurrence and indicated that the conditions in New York City were not conducive to any serious spread of the disease. Goldberger and Anderson, in 1911, demonstrated by laboratory tests that the so-called "Brill's disease" was identical with old world typhus, and that the clinical manifestations were very similar but much milder in type. From 1910 to date these sporadic cases of Brill's disease, or mild typhus, continue to occur. Typhus fever is essentially a "poverty and filth" disease, and is transmitted from person to person by the body louse. From a consideration of its epidemiologic features, authorities are convinced that it is transmitted in no other way. It may be readily deduced from this fact that danger of infection exists only when a patient with typhus is infested with lice which carry the infection to his associates. With this knowledge it is reasonable to believe that there is little if any danger of an epidemic appearing throughout this country. It is quite possible, however, that the slums of great cities, especially those with ports of entry for immigrants, may suffer with local outbreaks, and these can be easily controlled. Certainly there is no cause for a typhus phobia or for hysteria.

THE DANGER OF BEING TOO FAT

The secondary increment of body weight which is so commonly observed, particularly among the well-to-do classes, toward middle life is often looked on as a natural or physiologic gain which is to be expected after the age of 40. As a rule it causes little concern to those who are thus adding to their size, unless the gains are of sufficient magnitude to produce discomfort in certain types of activity or, more frequently, to occasion disfigurement from the standpoint of prevailing views on the human physique. Nevertheless, the life insurance companies have long insisted, on the basis of the elaborate statistical data which they have collected, that overweight is a physiologic liability rather than an asset. Actuarial experience shows that an increase in weight as age advances is not a sign of ideal conditions for health and efficiency. It is, in fact, deduced that the admitted handicap of gain in weight with advancing years should be combated. We should endeavor, a recent writer [1] states, to keep our weight at approximately the average weight for the age of 30, the period of full maturity, as experience shows that those so proportioned exhibit the most favorable mortality.

What are the burdens of obesity and why does it shorten life? Various answers, mostly indefinite in character, may be forthcoming in reply to this question. Tissue fat must be carried about like any other incubus. We are reminded that overweight puts a "strain on the heart and on the joints," [2] and that it "pushes up the diaphragm and cramps the lungs." A gaining adult who is already overweight may find his physical activities restrained and bodily exertion made labored. Accordingly, with an unchanged food intake the surplus of unused energy accumulates and a vicious cycle is presently established. The obese person inevitably limits his exercise; he grows heavier from the unused reserves, and his activity thereupon becomes even more restrained and limited. Overfeeding, obesity and lack of exercise interplay until "big" becomes "bigger."

In a recent issue of THE JOURNAL, Joslin [3] uttered a more specific incrimination against overweight as a menace to well being. In a well directed argument based on elaborate statistical material, he has reached the conclusion that diabetes is largely a penalty of obesity, and the greater the obesity, the more likely is nature to enforce it. There is a widespread tendency on the part of many clinicians to explain—perhaps one should say to excuse—obesity as the result of constitutional causes independent of mere overeating in ultimate analysis. Undoubtedly there are such instances, notably in connection with disorders of the endocrine organs or sex glands. Granted there is one person in a thousand, Joslin writes, who has some such inherent peculiarity of the metabolism which has led to obesity, there are 999 for whom being fat implies too much food or too little exercise or both combined.

It will not be denied that other predisposing factors or degenerative stigmas may play a part in the genesis of diabetes. Joslin's thesis helps, however, to explain its incidence in many recognized ways. Conjugal diabetes becomes an instance of simultaneous "exposure to good food"; the comparative frequency of diabetes among the well-to-do classes is readily understood in the light of their liberality of diet; diabetes as a sequel to infectious diseases may be an expression of the overfeeding of convalescence. These striking suggestions impose the duty of serious reflection on the medical profession. "You are too fat" may become a wise prophylactic utterance to a corpulent patient. Whereupon the physician again becomes confronted with the professional query: "What shall I do to become lean?"

THE CAUSE OF INFLUENZA

Influenza has been well described as "a local infection of the upper respiratory tract, the general symptoms of such infection probably being referable to absorption of toxic substances." Our readers scarcely need to be reminded that the possible etiologic significance of the Pfeiffer micro-organism, *Bacillus influenzae,* is still under debate, and particularly its relation to the pathology of influenzal pneumonia. *B. influenzae* can usually be isolated from the secretions, but it is commonly found in company with other objectionable micro-organisms of the streptococcus and pneumococcus type. Furthermore, the catarrhal inflammatory changes in the upper respiratory tract do not display characteristics that enable one to differentiate them from such as occur with other types of infection in the same locality.

The outcome of attempts to produce typical influenza experimentally by procedures in some way resembling the presumable natural mode of infection has, on the whole, been unconvincing. Inoculations of the nasal and nasopharyngeal mucous membranes of healthy men with strains of *B. influenzae* have given negative results.[1] Pfeiffer was unable in his earlier investigations, more than a quarter of a century ago, to secure convincing evidence of the transmission of typical influenza to animals by inoculation with his bacillus,

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[1] Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1919, p. 258.

[2] Cabot, R. C.: A Layman's Handbook of Medicine, Boston, Houghton, Mifflin Company, 1916.

[3] Joslin, E. P.: The Prevention of Diabetes Mellitus, J. A. M. A. **76**: 79 (Jan. 8) 1921.

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[1] Some Interesting Though Unsuccessful Attempts to Transmit Influenza Experimentally, Pub. Health Rep. **34**: 33 (Jan. 10) 1919.

though he undoubtedly produced severe disorders in several instances. Later investigators have apparently been somewhat more successful in individual instances. Blake and Cecil[2] of the Army Medical School have now published the details of their elaborate research in which the production in normal monkeys of an acute respiratory disease by inoculation of the mucous membranes of the upper respiratory tract with *B. influenzae* and of bronchopneumonia by intratracheal injection seems to be an accomplished fact. The disease which they thus have called forth they believe is essentially identical with influenza in man with respect to its clinical course, symptoms and complications. The latter may include acute sinusitis, tracheobronchitis, hemorrhagic edema of the lungs and bronchiolitis as well as bronchopneumonia; so that, as the army investigators assert, the possible etiologic relationship of *B. influenzae* to all of these complications is clearly established.

Pneumonias have been shown in recent years to be producible by a variety of experimental procedures. Cecil and Blake[3] remind us of the now demonstrated characteristics that help to differentiate *Bacillus influenzae* pneumonia in man from the pneumonia excited by other bacteria and render it more readily recognizable by the pathologist. Numerous elaborate studies of the necropsy findings in influenzal pneumonia have been contributed from various parts of the world as the outcome of the unexpected opportunities afforded by the epidemics of the disease that have been widespread since the World War began. By reference to the records of MacCallum,[4] for example, the intense engorgement, hemorrhage and edema, the purulent bronchiolitis, the scattered foci of peribronchiolar consolidation, and the ensuing emphysema and bronchiectasis represent lesions of the lungs that have been emphasized as anatomic marks which would distinguish the infection from ordinary lobar and lobular pneumonia of pneumococcus and streptococcus origin. Acccording to Cecil and Blake,[3] experimental *Bacillus influenzae* infections of the upper respiratory tract in monkeys are frequently accompanied or followed by bronchiolitis, peribronchial infiltration, and bronchopneumonia with hemorrhage and edema in the early stage, and emphysema and bronchiectasis in the later stages. The close resemblance of the pathologic picture to what has been observed in uncomplicated influenzal pneumonia in man is thus apparent. Furthermore, in the experiments of Cecil and Blake the influenza bacillus could usually be recovered during the acute stage by culture, either pure or in association with other bacteria. Blake and Cecil[2] hesitate, however, to make any final pronouncement regarding the specific cause of human influenza. So long as it is impossible to determine beyond dispute whether the respiratory disease produced in monkeys with *Bacillus influenzae* is identical with influenza or merely similar to it, a discreet investigator will not insist that *B. influenzae* is the specific cause of influenza.

Current Comment

MEDICINAL USE OF WHISKY

Things are not always what they seem, says the poet. And in the world of practical affairs, general statements, even oft repeated and popularly accepted, do not always check up with the facts. Much has been made of the claim that the adoption of federal prohibition has seriously interfered with the use of whisky for medicinal purposes by physicians. The Anti-Saloon League of Delaware, in a recently issued circular, presents an interesting table on this question, based on information furnished by federal and state officials and statistics taken from the American Medical Directory. According to this tabulation, there were, at the time the federal prohibition amendment was adopted, twenty-four states —one half of the entire number—whose laws forbade either the writing or the filling of prescriptions for whisky or brandy. In these states, naturally, no permit under the federal law could be issued to physicians. In the remaining twenty-four states, in which there is no such law and in which, under the Volstead act, permits to prescribe whisky may be issued to physicians, there are, according to the American Medical Directory, 112,238 practicing physicians. Yet in these twenty-four states, only 33,379 physicians—29 per cent.—have taken out permits. Evidently, the remaining 71 per cent. do not regard whisky as of enough value in the practice of medicine to go to the trouble of taking out a permit.

BACTERIA AND THE SKIN IN INFANCY

There was a time not many years ago when microorganisms were believed to play a far more significant part in the etiology of those abnormal skin manifestations broadly designated as eczema than is accorded them today. At present, however, dietary factors and nutritive perturbations are held responsible for this group of cutaneous disturbances, which has been estimated to constitute as much as one third of the cases of skin disease. Precisely what the primary dietary mistake responsible for eczematous manifestations is has been debated. One may read of the alleged effects of too much, too little, or improper food in connection with it. Even the propriety of using the term eczema has been ardently discussed of late. Despite the current emphasis on the nutritional features, it would be unwise to forget the common presence of bacteria on the external surfaces of the body. Experience shows that despite dietary regulations which are often most helpful and sometimes effect a cure without other intervention, local treatment often seems called for. The micro-organisms of the skin may become pronouncedly objectionable in certain types of eczema, and notably so when staphylococci appear in large numbers. What determines the appearance of the infectious agents? Observations of Loebenstein[1] in Berlin indicate that the bacterial content of the skin of the new-born is so low as to be negligible. Subsequently micro-organisms begin to inhabit the external surfaces of the body, but rarely in large numbers under normal conditions of health. In cases of eczematous tendency—the so-called "exsudative Diathese" of the continental writers—larger aggregations of bacteria are found locally in the affected areas. As the latter heal, the bacterial flora decreases promptly and may even become less prominent than during good health. From his investigations of the affected skin, Loebenstein believes that the bacterial invasion is not the primary factor, the causal agency in the eczemas described; on the contrary, it follows the deterioration of the cutaneous surfaces. The damaged skin becomes a favorable location for the development of bacteria; hence they thrive there secondarily, because the pabulum is favorable to them. The sequence of events includes first the unhealthy skin and then the invading micro-organisms. The consequent secondary phenomena, manifested as "moist eczema," pustulosis and impetiginous outbreaks, are thus readily understood.

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[2] Blake, F. G., and Cecil, R. L.: Studies in Experimental Pneumonia, IX, Production in Monkeys of an Acute Respiratory Disease Resembling Influenza by Inoculation with Bacillus Influenzae, J. Exper. Med. **32**: 691 (Dec.) 1920; The Production of an Acute Respiratory Disease in Monkeys by Inoculation by Bacillus Influenzae, J. A. M. A. **74**: 170 (Jan. 17) 1920.

[3] Cecil, R. L., and Blake, F. G.: Studies on Experimental Pneumonia, X, Pathology of Experimental Influenza and of Bacillus Influenzae Pneumonia in Monkeys, J. Exper. Med. **32**: 719 (Dec.) 1920.

[4] MacCallum, W. G.: The Pathology of the Pneumonia in the United States Army Camps During the Winter of 1917-1918, Monograph 10, Rockefeller Institute for Medical Research, New York, 1919.

"TRUTH IN ADVERTISING"

It has been well said that advertising is the life-blood of quackery. With equal truth it could be said that quackery may be the death blow of advertising. For years the manufacturers and advertisers of meritorious products made no organized attempt to curb the confidence-destroying mendacity of the nostrum advertiser. The majority of newspapers opened their advertising pages to any one that was willing to pay their advertising rates, and not a few publications—especially among the religious weeklies and monthlies, to their shame be it said—defended the blatant lies of the "patent medicine" swindler and even went so far as to claim that periodicals, as "common carriers," had no discretion in the matter and could not discriminate against advertisers. There were, of course, as is always the case, a few voices in the wilderness lifted against the evil of fraudulent nostrum and quack advertising, but they were few and far between; they were viewed as visionaries and their protests were largely unheeded. Yet there were here and there newspapers and magazines which preached "truth in advertising"—and practiced it. In time advertising became more specialized, and with this specialization and the study that went with it came the realization of the harm that was done the reputable advertising business by the rogues within its ranks. Then the various organizations of advertising men were brought into a more closely knit community of interest by a national organization; this later became international and is now known as the Associated Advertising Clubs of the World. The slogan of this organization is "Truth in Advertising" and, to further its objects, it created a "National Vigilance Committee" for the purpose of investigating such phases of advertising as seemed likely to injure the legitimate interests of the business. The National Vigilance Committee corresponds in many ways to the Propaganda department of The Journal of the American Medical Association. Its declared purpose is "To create maximum public confidence in advertising by making all advertising trustworthy." The committee does not, of course, confine its work to medical advertising, for its scope naturally must be as broad as the advertising field itself. As medical advertising, however, is, and has long been recognized as, the black sheep of the advertising family, it is natural that the National Vigilance Committee should have devoted a good deal of time to this particular class of advertising. Realizing that The Journal is in a position to furnish it with information regarding advertised medicinal products and the claims made for these products, the National Vigilance Committee has since its inception called on the Propaganda department for such specific data as it might have. Some of the local "Vigilance Committees" (known now as "Better Business Bureaus") of the component clubs that go to make up the organization also write to The Journal. After getting from such sources all the facts that are available, the National Vigilance Committee passes on this information to its members. In a few instances it has taken up, *de novo,* medical humbugs, as it has frauds in other lines of business, made its own investigations and then published its results in the form of special bulletins. Such an organization as the Associated Advertising Clubs of the World makes for optimism in those who are interested in seeing higher standards of business morality, with its corollary greater protection for the purchasing public. Such protection is sadly needed for those who go into the open market to purchase relief from suffering.

ASPECTS OF THE TREATMENT OF OBESITY

Although, in ultimate analysis, the problem of obesity may resolve itself into a question of nutritive bookkeeping, that is, of the relative balance between food intake and energy output, the clinician encounters difficulties from time to time in making this simple explanation fit all of the circumstances. This is particularly true when he stands face to face with a failure to reduce body weight despite what seem to be adequate reductions in the food allowance. For this reason it has often been asserted that there must be cases of fundamental disturbances of metabolism favoring obesity. Thus, instead of being ascribed to overeating, the pathogenesis of obesity might be assigned to an unusually low basal metabolism, a relatively small expenditure of energy for a given amount of muscular exercise, or to an unusually low production of heat after the ingestion of a given amount of food.[1] In addition to such an hypothesis the tendency to gain body weight as a consequence of perverted or omitted function of some of the endocrine organs, notably the sex glands and the hypophysis, is generally recognized. Before attributing some vague and metabolically mysterious cause to the failure to secure prompt losses of weight in many of the simple "reduction" treatments for obesity, wherein the food intake alone is carefully regulated and reduced without administration of drugs like the thyroid hormone, it will be well to examine more carefully into the tissue changes that may follow such treatment. The normal organism ordinarily responds promptly by fall of weight when the food allowance is reduced. The loss of body substance, estimated from the excreta, is likewise attended with the water which was associated or combined with the proteins, fats and other compounds in the tissues. Grafe [2] of Heidelberg has pointed out, however, that in the case of many obese persons the water which makes up a considerable portion of cells and fluids is not always so promptly disposed of by the body after its accompanying tissue solids are disposed of. Thus, a retention of water, even when the intake of fluid is somewhat restricted, may prevent the fall in weight from being conspicuous or significant. In other words, there are cases of obesity in which the tendency for the tissues to store water is greater than one finds in the usual experience with chronic undernourishment. In his metabolic studies on the obese, Grafe, like numerous other investigators before him, has not found indications of any inability of the organism to utilize and burn fat for its uses. The lesson of the increasing recognition of the failure of the body at times to give up water as readily as the solids with which it exists in biologic combination is one of patience in the management of antiobesity procedures. Carefully planned reduction in intake will almost always in the long run bring the desired result, unless perchance endocrine dysfunction stands in the way of success. The employment of organotherapy, effective in the hands of trained clinicians, should be regarded as a last rather than a first recourse.

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[1] Loebenstein, F.: Ueber die Bakterienbesiedlung der Haut beim gesunden und exsudativ-diathetischen Kind, Ztschr. f. Kinderh. **26**: 99 (Aug. 16) 1920.

[1] Hewlett, A. W.: Pathological Physiology of Internal Diseases, New York, D. Appleton & Co., 1917, p. 216.

NECROPSIES AND MEDICAL PROGRESS

It may be trite to emphasize again the importance of necropsies as an aid to the progress of medical science. However, as is pointed out in a recent report of a committee appointed by the Institute of Medicine of Chicago [3] to inquire into the question of necropsies in the hospitals of Chicago, the value of postmortem examinations to the advancement of medical science can hardly be overestimated. The necropsy confirms or disproves the clinical diagnosis, and gives additional information of value to the clinician in subsequent practice. The interest of the hospital staff in securing the consent to necropsy examinations may be taken as an index of the grade of clinical work done in the hospital. How much may be accomplished by earnest effort is revealed by Dr. Ashhurst in a letter appearing in this issue.[4] In his service he was able to obtain thirty postmortem examinations out of forty-three deaths, or 70 per cent. A contrast to these figures is revealed in those applying to the hospitals of Chicago. The reports vary from 48 per cent. of postmortem examinations in the Presbyterian Hospital to none at all in more than nine other institutions. The Cook County Hospital, with 2,000 beds, the largest institution in the city, was able to get postmortem examinations in only 8.9 per cent. of the deaths. As pointed out by the committee, it depends primarily on the hospital staffs to improve these records. It is believed that the deficiency is largely a matter of inertia and failure to realize the value of the postmortem examination rather than intentional neglect on the part of the staffs. Among the measures that will encourage interest are discussion in hospital staff meetings, the elimination of unnecessary delay in the signing of death certificates for undertakers, the establishment of adequate laboratory facilities with a pathologist in active attendance at the hospital, and closer cooperation between the pathologist and the medical and surgical staff. As Dr. Ashhurst says, his record could not have been secured without the active cooperation of the entire staff of the hospital. In making its report, the Institute of Medicine has taken up a fundamental problem for the benefit of medical science in Chicago. It is proposed to publish a report each year, recording progress or failure to live up to the requirements of scientific medical practice.

THE BIOGRAPHIC WRITE-UP

Most of us, whether we happen to be professional men or not, are easy marks for any form of exploitation which appeals to personal vanity. Among the most moth-eaten schemes is that entitled, "History of Important Men of Our Town," perchance a compilation of "Eminent Divines," "Men of Science," "Personalities of Bench and Bar," or "Physicians and Dentists of the Queen City." In such costly volumes appear ten photogravure reproductions of the vapid countenances of nonentities to one biography of a real leader. The greater the nonentity, the more glowing is his autobiography. The game, as we have said, is old; the glitter is but that of a bauble; but many men who should and do know better fall an easy prey. "A golden mind," said Shakespeare, "stoops not to shows of dross"

HEALTH ALMANACS

Louisiana and Rhode Island have issued health almanacs for 1921. That of Rhode Island is published as a number of its regular bulletin, thus securing second-class postal rates. The Louisiana almanac is a separate publication. In the preparation of these booklets the compilers have shown ingenuity, an excellent sense of humor, and a sense of public taste. Common sense and excellent medical advice are mixed carefully with humor, poetry and pictures, making a combination that will appeal to every citizen. The climatological and other almanac data make the pamphlets of practical value throughout the year. It is easy to give advice but hard to make people take it: when the pills are as well sugar-coated as in these almanacs, the patients "cry for them."

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[2] Grafe, E.: Zur Pathologie und Therapie der sog. "konstitutionellen" Fettsucht, Deutsch. Arch. f. klin. Med. **133**: 41 (July) 1920.

[3] Proceedings of the Institute of Medicine of Chicago **3**: 150, 1921.

[4] This issue, p. 540.

Association News

THE BOSTON SESSION

American Medical Golfing Association Tournament

Plans are being perfected for the annual American Medical Golfing Association Tournament—an entertainment feature at the convention. The tournament will be held on Monday, June 6, at the Commonwealth Country Club. The following constitute the local (Boston) committee in charge: Dr. Franklin Newell, chairman and Drs. Walter Lancaster and Harold Tobey, 416 Marlboro Street. The usual competitive events are planned, including the association championships for gross and for net scores and for the scientific section team matches. The surgeons now hold the section championship and trophies. The American Medical Golfing Association is open to all male Fellows of the American Medical Association in good standing, who have the degree of M.D. Full information may be obtained through the office of the Golfing Association secretary, Dr. Will Walter, 1414 Chicago Avenue, Evanston, Ill.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Hospital News.—A hospital will be opened at the old fair grounds, Thomasville, to take the place of the Clarke County Hospital.——Plans have been completed for the construction of the first unit of the Alabama Home for the Feebleminded, to be erected at Tuscaloosa, at an approximate cost of $175,000.

Extension of Health Work.—The International Health Board has appropriated $25,000 for 1921 for the organization of additional county health units and further extension of malaria control work in Alabama. The fund was made available at a conference between Dr. Samuel W. Welch, state health officer, and officials of the Interntional Health Board recently held in Baltimore.

ARKANSAS

Personal.—Dr. Aaron A. McKelvey has been reappointed district health officer of Fort Smith.—Dr. Percy A. Riddler has been elected chairman of the Fort Smith Board of Health.

Venereal Clinic Closed.—The City Clinic of Little Rock, maintained by the municipal authorities since the abandonment of the government clinic for the control of venereal diseases, has been discontinued. Patients will hereafter be referred to the Isaac Folsom Clinic.

CALIFORNIA

Personal.—Dr. Fred Tapley has been appointed health officer of Marysville, to succeed Dr. William J. Guinan, deceased.——Dr. Norman Bridge, Los Angeles, was operated on for acute appendicitis, February 14. Dr. Bridge at the last report was doing well. He is 77 years of age.

Municipal Tuberculosis Clinics.—The board of health of San Francisco has voted to assume the maintenance of five local tuberculosis clinics hitherto supported by the San Francisco Tuberculosis Association. The funds of the tuberculosis association do not suffice to maintain the clinics and to conduct the research work which it has planned.

Chiropractors Fined.—It is reported that C. T. Cleland and F. H. Johnson, chiropractors, recently found guilty in the superior court of Santa Ana of practicing medicine without licenses, have been set at liberty following the payment of fines of $100 each. Sentences of three months each were suspended on condition that the men would not resume practice for at least six months.

Medical Officers' Training School.—The Medical Department of the University of California has filed an application with the Surgeon-General of the Army for the establishment of an officers' reserve medical training school. An order will shortly be issued authorizing the establishment of the course and appointing a medical officer of the Army as instructor in military science and tactics.

COLORADO

Hospital Staff Reorganized.—According to press reports, the management of St. Joseph's Hospital, Denver, has decided that in order to further the interests of the hospital it is necessary that the present staff be dissolved and has so notified the staff. At the same time the hospital management has invited applications for positions on the staff about to be organized.

CONNECTICUT

Yale Alumni Day.—The eighth annual alumni university day will be observed at Yale University, February 22. The day has been set aside to give the alumni an opportunity of inspecting the university activities under normal working conditions. Prof. Lafayette B. Mendel will deliver an address on the functions of the graduate and professional schools as a part of the university development in the training of students for research work, and Dr. Milton C. Winternitz will speak on the training of medical students. For the benefit of visiting physicians the medical school has arranged a series of clinics, representing medical, surgical, gynecologic and obstetric cases, to be held at New Haven Hospital, from 12 m. to 1 p. m. A clinical pathologic conference will be held from 2 to 3 p. m. Graduates of the medical school and other Yale physicians will be entertained at luncheon at the New Haven Hospital as guests of the school of medicine.

FLORIDA

Personal.—Dr. John G. Lester, Bartow, has been appointed county physician of Polk County.——Dr. Henry O. Snow has been named physician of Hillsborough County, to succeed Dr. Roscoe E. Glass.——Dr. Benjamin F. Hodsdon has resigned his membership on the Miami Board of Health.

Regulations for Midwives.—New regulations for the practice of midwifery, incorporated in an ordinance recently passed by Tampa city council, stipulate that those desiring to practice shall register with the registrar of vital statistics, and agree to comply with the rules of the city health officer; they shall report each birth within twenty-four hours, and attend a class of instruction held by the Tampa District Nurses' Association.

Recommendations of State Board of Health.—In his annual report as secretary of the state board of health, Dr. Ralph Greene has recommended the coordination of the work of all health organizations under the direction of the state board of health; establishment of a state hospital for the care of the indigent poor; putting control of medical licensure in the state board of education; formation of a state lunacy commission, and organization of full-time county health boards.

IDAHO

Tuberculosis Sanatorium.—The Idaho Tuberculosis Commission has chosen Payette as the point of location for the first state tuberculosis sanatorium.

ILLINOIS

Personal.—Dr. Samuel N. Clark, associate in the division of neurology and psychiatry of the University of Illinois Medical Department and psychiatrist to the Illinois State Psychopathic Institute, Chicago, has been appointed psychiatrist of the Norbury Sanatorium, Jacksonville.

Chicago

Personal.—Dr. Hiram J. Smith has tendered his resigation as superintendent of the Illinois Charitable Eye and Ear Infirmary.

Accused of Violating Liquor Restrictions.—It is reported that Dr. John W. Koehn was recently arrested by United States deputy marshals on a warrant charging that he had issued 1,700 prescriptions for whisky within four months. Of this number, it is claimed, 1,000 were written on ordinary office stationery as emergency prescriptions for general debility.

Health Insurance Discussion.—The *Bulletin* of the Chicago Medical Society announces a joint meeting of physicians, dentists and pharmacists for the purpose of discussing health insurance. Dr. John J. A. O'Reilly, Brooklyn, will speak from the standpoint of the physicians; Dr. Don M. Gallie from the standpoint of the dentists, and Mr. S. C. Henry from the standpoint of the pharmacists.

INDIANA

Marion Academy of Medicine.—Formation of a Marion medical academy was decided on February 1, at a meeting of physicians and surgeons, most of whom are members of the Grant County Medical Society. Dr. Godlove G. Eckhart was named temporary chairman, and Dr. Edwin O. Harrold, secretary-treasurer. No limitations as to the residence of members will be made in the constitution.

Personal.—Dr. Edouard J. DeBois has resigned his position as city bacteriologist of Indianapolis after fifteen years' service. Dr. William V. Boyle has been named as his successor. ——Dr. C. F. Morris has been appointed city chemist of Anderson, following the recommendation of the Madison County Medical Society which was consulted in the matter of the appointment.——Dr. David E. Johnston has been appointed physician in chief of the Milan Sanitarium.

KENTUCKY

Personal.—Dr. Robert L. Woodard, Hopkinsville, has been appointed health officer of Christian County.

Academy of Medicine Organized.—Physicians and surgeons of Fulton have organized the Fulton Academy of Medicine, and elected Dr. John M. Alexander, president, and Dr. Henry T. Alexander, secretary.

MARYLAND

Special Lecture.—Dr. Richard P. Strong, professor of tropical medicine of Harvard University Medical School, delivered a lecture on the "Economic Loss from Disease Due to the War," February 7, at the School of Hygiene and Public Health of Johns Hopkins University.

Founders' Day at Johns Hopkins University.—The forty-fifth anniversary of the founding of Johns Hopkins University will be observed by public exercises, to be held in the Lyric Theater, February 22. Dr. Livingston Farrand, De Lamar lecturer at the Johns Hopkins School of Hygiene, will deliver the principal address.

Epidemic Encephalitis in Baltimore.—A report of the Baltimore City Health Department discloses that there have been nine cases of lethargic encephalitis in Baltimore since January 1. Five were reported during February and four in January. None of the cases proved fatal and, so far as the department's records indicate, all the patients have recovered or are convalescent.

MICHIGAN

Dean Vaughan Resigns.—Dr. Victor C. Vaughan, dean of the University of Michigan Medical School for the last thirty years, has tendered his resignation to take effect at the end of the scholastic year. Dr. Vaughan has been connected with the medical faculty for forty-five years.

Nutrition Clinic.—A clinic for children suffering from malnutrition has been opened at the Stocking School, Grand Rapids, as the result of the findings disclosed in the uncompleted survey of city schoolchildren. Out of 7,080 children examined, 1,064 were undernourished. Dr. Eugene N. Nesbitt will have charge of the clinic.

Coughing and Sneezing a Misdemeanor.—An ordinance recently passed by the city council of Detroit defines the uncovered sneeze or cough at a public gathering as a misdemeanor, punishable by a fine of $100. The cooperation of owners of theaters and other public places has been requested that the ordinance may be enforced.

MINNESOTA

Psychopathic Hospital Recommended. — The Hennepin County Public Health Service, composed of members of eight volunteer health organizations of Minneapolis, has recommended to the legislature the establishment of a psychopathic hospital at the university and a change in the methods of commitment of the insane and inebriates to asylums.

School Health Survey.—A survey of the activities in school hygiene in Minneapolis will be conducted by Dr. Francis E. Harrington, under direction of the U. S. Public Health Service, for the purpose of determining what methods should be inaugurated to derive the greatest benefit from the work. The annual health appropriation of the city totals approximately $1.16 for each schoolchild.

MISSISSIPPI

Physician Sentenced.—It is reported that the supreme court in a decision handed down January 31 upheld the conviction of Dr. Fletcher E. Lee, Petal, on a charge of performing a criminal operation and imposed a prison sentence of twenty years.

Permanent Clinic Established.—A nonsectarian clinic, known as St. Joseph's Clinic, was formally opened in Bay St. Louis, January 31. The clinic is under the management of the physicians of the city, who will render their services without charge to the indigent sick.

MISSOURI

Personal.—Dr. Eli K. Marshall, professor of pharmacology of Washington University, St. Louis, has been elected professor of physiology of Johns Hopkins Medical School, the appointment to take effect July 1.

Mental Hygiene Society Organized.—The Missouri Society for Mental Hygiene was organized in St. Louis, January 13, with the following officers: president, Dr. Malcolm A. Bliss; secretary, Dr. James F. McFadden, and treasurer, Dr. J. E. Wallace Wallin.

Hospital to Hold Clinics.—The General Hospital of Kansas City has inaugurated a series of medical and surgical clinics, to be held weekly in the hospital amphitheater by staff physicians. Members of the medical profession in Missouri and throughout the Southwest are invited to attend the clinics, which will be conducted every Wednesday from 8 to 12 a. m.

Social Service for Tuberculous.—The Tuberculosis Society of St. Louis, through its social service committee, recently called a conference of representatives from welfare agencies included in the Central Council of Social Agencies, for the purpose of standardizing the methods of social service in dealing with the tuberculous. The conference dealt with the medical, social, economic and legal phases of the subject. Dr. George B. Mangold, dean of the Missouri School of Social Economy, is chairman of the committee.

NEBRASKA

Personal.—Dr. George E. Pennington, Broken Bow, has been appointed health officer of Custer County.

State Health Director Proposed.—A bill has been introduced in the senate at the request of the children's code commission creating the position of state health director under the department of public instruction. The director would be charged with the medical and sanitary supervision of the rural schools at the expense of the school districts.

NEW JERSEY

Personal.—Dr. Leroy A. Wilkes, formerly director of child hygiene in Bridgeport, Conn., has been appointed medical director of Trenton Public Schools.

School Nutrition Study.—The Trenton branch of the American Red Cross has donated $7,000 for a study of malnutrition in the public schools. In the course of a recent survey it was disclosed that 22 per cent. of the schoolchildren were below the average weight for their ages and height. The demonstration is intended to establish definite data on which to base continuation of the work as part of the regular school program.

NEW YORK

Personal.—Drs. William J. Sullivan and Joseph Rieger have been reappointed members of the Dunkirk Board of Health.

Municipal Milk Plant for Jamestown.—The citizens of Jamestown have authorized a bond issue of $150,000 for the construction and equipment of a municipal milk pasteurizing and distributing plant.

Government Leases New State Hospital.—Under the provisions of the bill recently passed by Congress authorizing the appropriation of $18,000,000 for the construction and provision of hospitals for disabled veterans of the World War, the federal government will lease the new $3,000,000 State Hospital to be built at Creedmoor, L. I. The annual rental will be $300,000.

Public Health Exhibition.—In connection with the annual meeting of the Medical Society of the State of New York, to be held in Brooklyn, May 2-5, a public health exhibition will be held in the Twenty-Third Street Armory. The committee in charge of the exhibit plans to secure the cooperation of the dentists and pharmacists in giving a series of educational exhibits and addresses to which the public will be admitted, and covering all aspects of public health.

Tonsil and Adenoid Clinics.—Tonsil and adenoid clinics for the children in Rochester have been established at the Convention Hall Annex and at the General, St. Mary's, Homeopathic and Hahnemann hospitals. The clinics are an outgrowth of the tonsil and adenoid clinic held by the Eastman Dental Dispensary during the summer of 1920, and are financed by the Community Chest. Approximately 1,600 children of school and preschool age, who were referred for attention during a tonsil and adenoid survey of the schools, have been treated in the first three weeks of the clinics' activities.

New York City

Presentation of Portrait.—A portrait of Dr. Samuel W. Lambert, dean emeritus of the College of Physicians and Surgeons, Columbia University, was presented to the college, January 28. The presentation speech was made by Dr. George S. Huntington, professor of anatomy.

Harvey Lecture.—The seventh of the current series of Harvey Society Lectures will be delivered at the New York Academy of Medicine, February 26, by Dr. A. N. Richards, professor of pharmacology in the University of Pennsylvania, on the subject of "Kidney Function."

New Brooklyn Hospital.—The Brownsville and East New York Hospital, Brooklyn, will open its doors for the reception of patients about March 1. The medical staff of the hospital has inaugurated a series of monthly lectures the first of which was delivered at the Kings County Medical Society, January 29, by Prof. Elmer V. McCollum of Johns Hopkins University on the subject of "Nutrition."

County Ward Closed to Physicians.—The observation ward of Kings County Hospital has been closed to private physicians by order of the welfare commissioner, Bird S. Coler. The Medical Jurisprudence Society of New York, at a recent meeting, unanimously adopted resolutions opposing the commissioner's ruling on the ground that it is an unnecessary interference with the private practice of medicine.

NORTH CAROLINA

Personal.—Dr. John V. Hunter has been elected physician and quarantine officer of Randolph County.——Dr. John C. Twitty has been reelected county physician and quarantine officer of Rutherford County.——Dr. Grover Wilkes has been appointed physician of Jackson County.——Dr. S. L. Russell has been appointed health officer of Yadkin County.——Dr. R. S. Bailey has been appointed health officer of Vance County.

OHIO

Personal.—Dr. William D. Inglis has been appointed a member of the board of health of Columbus to succeed Dr. Pinckney D. Shriner.

Harrison Law Violation.—It is reported that Dr. E. L. Lowthian, Yorkville, recently pleaded guilty to two charges of violation of the Harrison Narcotic Law and was fined $250 on each charge.

Group Clinic Organized.—Under the leadership of Dr. Joseph L. DeCourcy, a clinic, in which the several branches of medicine and surgery are to be represented, has been organized at Cincinnati.

Public Cooperation Against Quacks.—The Academy of Medicine of Cleveland, through its executive secretary, Mr. Guy M. Wells, has issued an appeal to the public asking that all unsatisfactory dealings with quacks be reported to the academy.

Water Supply Condemned.—The state board of health has issued an order requiring that the town of Hillsboro secure a new and uncontaminated water supply within one year. The order was issued following the development of a number of cases of typhoid fever which were traced directly to the town's water supply.

OREGON

Officers of Board of Health.—Dr. Willis B. Morse, Salem, has been elected president of the newly constituted state board of health, and Dr. Charles J. Smith, Portland, has been elected vice president.

State Aid to Children's Institutions.—According to the terms of a bill introduced in the state senate, on recommendation of the state child welfare commission, authority will be given for the extension of state aid to any institution caring for children. Another bill extends the jurisdiction of the commission to all children's institutions and provides that no building for the care of children be erected without approval of the commission by any agency coming within the provisions of the act.

PENNSYLVANIA

Hospital Drive Ended.—Final reports submitted to the board of managers of the Harriman Hospital at the conclusion of the drive for a $15,000 maintenance fund indicate that the total cash contributions amounted $10,107.82.

Instruction of Health Officials.—Dr. William C. Miller, chief of the division of public health education, state department of health, has initiated a correspondence course of instruction for health officials in every county throughout the state. The curriculum will consist of lessons in hygiene and the practical application of the state health laws. The course, which is required of all health officials, is open to nurses, welfare workers and workers in allied fields.

Personal.—Dr. J. Q. Thomas, Conshohocken, has been appointed a member of the board of trustees of Norristown State Hospital.——Dr. Thomas S. Blair, Harrisburg, chief of the bureau of drug control of the state health department, has been appointed a member of the Committee on Narcotic Drugs of the American Medical Association.——Dr. Henry Wilson, Somerset, has been elected superintendent of the Somerset County Home and Hospital, to succeed Dr. A. M. Uphouse, resigned.——Dr. Henry Stewart, Gettysburg, has been elected physician to the Adams County Almshouse and Insane Asylum.

Health Department Appointments.—The following appointments were recently announced by the state department of health: Dr. Elmer Bausch, Allentown, and Dr. Lucius M. Elsinger, Scranton, have been appointed assistants in the state clinics in their respective cities; Dr. Daniel E. Hottenstein, Millersburg, medical inspector of Dauphin County; Dr. Harry M. Hartman, chief of the child welfare clinic at Gettysburg; Dr. Arthur B. Hamilton, assistant in the tuberculosis clinic at Bethlehem; Dr. William H. Banks, chief of the tuberculosis clinic at Mifflintown; Dr. Harry S. Falk. chief of the child health station at Emporium; Dr. Joseph R. Beckley, Lebanon, medical inspector of schools for the Lebanon independent district; Dr. Clayton C. Flatt, Corydon, for Kinzua and Corydon Townships, Warren County, and Dr. George F. Drum, Mifflinville, for Briar Creek Township, Columbia County.

Philadelphia

Personal.—Dr. Samuel Bolton was slightly injured when the automobile in which he was riding was struck by a street car.

Hatfield Lecture.—The third Nathan Lewis Hatfield Lecture was delivered at the College of Physicians of Philadelphia, February 18, by Dr. William R. Nicholson on "An Anachronism of the Twentieth Century—The Midwife."

Hospital Changes.—Dr. Charles Lincoln Furbush, director of public health, presented detailed plans for the expenditure of $1,030,000 in modernizing the Philadelphia General Hospital, the Contagious Diseases Hospital and the Hospital for the Insane, Byberry, at a recent meeting of the council's health committee. In connection with the contemplated improvements for the care of the insane at Byberry, the expenditure of $660,000 at that place alone is planned. The same will provide also for an infirmary for male and female insane patients, an administration building, and colony farm buildings. The director has apportioned $150,000 of the sum to the Contagious Diseases Hospital for the erection of an addition to the bacteriologic building and for equipment. For the Philadelphia General Hospital $320,000 has been requested for the construction of obstetric and surgical buildings and a new clinic for completion of the hospital library and museum and for the construction of a research laboratory.

SOUTH DAKOTA

Marriage Law Proposed.—A bill, based on the Wisconsin marriage law, has been introduced in the state legislature, requiring that every applicant for a marriage license must file with the application a certificate from a registered physician certifying to the applicant's unimpaired health and physical and mental fitness as determined by a personal examination and giving an outline of the applicant's family history.

TENNESSEE

Hospital Addition Completed.—The annex to the Kings Daughters' Hospital, Columbia, erected at a cost of $15,000, is ready for the reception of patients.

New Milk Regulations Proposed.—The Hamilton County Medical Society and Chattanooga Academy of Medicine adopted resolutions opposing a bill recently introduced in the state legislature which requires that all milk on sale in cities of the state shall either be pasteurized or certified.

UTAH

Personal.—Dr. John F. Flynn has been appointed health officer of Bingham.

Popular Health Campaign.—Dr. Heber J. Sears, chief of the department of hygiene and preventive medicine in the University of Utah, conducted a campaign on public health throughout the state during the month of January. Dr. Sears delivered from one to three lectures daily in various towns on his itinerary.

WISCONSIN

Illegal Practitioner Sentenced.—It is reported that John Till, plaster healer at Barron, has again been sentenced to one year in the county jail for practicing medicine without a license.

Hospital Construction Work Completed.—An extensive addition to Mercy Hospital at Janesville, designed to relieve congested conditions in various departments of the institution, is practically complete.

Honor to Dr. Daniel Hopkinson.—A testimonial dinner will be tendered to Dr. and Mrs. Daniel Hopkinson at the Milwaukee Athletic Club, Thursday evening, February 24, at 6 o'clock. At this function members of the county and state medical associations will endeavor to express the high regard in which the guests of honor are held.

CANADA

Personal.—Dr. Mary Logan Cowan, a member of the Department of Pathology, University of Toronto, has been awarded the Beit Memorial Scholarship for research in medicine. She will shortly take up work in the Lister Institute of Preventive Medicine.

Society News.—The Canadian Association of Massage and Remedial Gymnastics recently held its first annual meeting in the Royal Victoria Hospital, Montreal, which was attended by delegates from many of the principal centers of Canada. Dr. F. W. Harvey, Montreal, is president and Dr. Clarence L. Starr, Toronto, vice president.——At the annual meeting of the Academy of Medicine of Edmonton, Alta., the following officers were elected: president, Dr. T. H. Prust; treasurer, Dr. R. F. Nicholls, and secretary, Dr. H. H. Hepburn.——The Calgary Medical Society has requested the Alberta Medical Association to appoint a committee to meet with a similar body of the Law Society for the discussion of the proposed revision of the statutes relating to insanity.

GENERAL

Psychology Journal Transferred. — The *American Journal of Psychology*, established by Dr. G. Stanley Hall in 1887, and since edited by him, has been acquired by members of the department of psychology of Cornell University, and will hereafter be edited by Prof. E. B. Titchener.

Society Election.—At the annual meeting of the New England Women's Medical Society, January 20, the following officers were elected for the ensuing year: president, Dr. Florence Duckering; vice president, Dr. Maud Carvill; secretary, Dr. Alice H. Bigelow, and treasurer, Dr. Margaret Kleinert, all of Boston.

Visit of French Scientist.—Mme Marie Curie, the discoverer of radium, will visit the United States in May for an extended tour, as the guest of Mrs. William Brown Meloney, editor of the *Delineator*. A reception committee of prominent physicians who are engaged especially in radium work has been appointed under the chairmanship of Dr. Francis C. Wood, New York.

Reorganization of the Executive Departments.—The Joint Congressional Committee on Reorganization of the Governmental Departments, provided for in the Smoot-Reavis Joint Resolution, consists of Reed Smoot, Utah, James W. Wadsworth, New York, and Pat Harrison, Mississippi, from the Senate, and C. F. Reavis, Nebraska, H. T. Temple, Pennsylvania, and R. W. Moore, Virginia, from the House. Senator Smoot, chairman of the joint committee, has announced that this committee will meet in night sessions three times each week in its work of making a survey of the administrative services of the government. He plans to organize this committee before the expiration of the present session of Congress and to start the work of the committee during the interim between the present and the extra session of Congress. The protracted discussion on the reorganization of federal health activities, as well as Senator Smoot's well known views on the Public Health Service make it highly probable that the health work of the national government will be among the first subjects taken up.

Typhus Fever Among Immigrants.—Thirty-five cases of typhus fever have developed among passengers taken from the steamers *Presidente Wilson* and *San Giusto* to Hoffman's Island, New York Harbor, and another case was discovered in a young man who had frequented the steamship docks in Brooklyn. Three of the patients had succumbed to the disease up to February 15, and three other deaths during the voyage of the *San Giusto* were attributed to the same cause. Special precautions have been adopted by the U. S. Public Health Service to prevent further importation of the disease, and a twelve day quarantine of immigrants from certain foreign points will be maintained at all ports where quarantine enforcement is under federal control. Special precautions will be observed in admitting passengers on vessels coming from Rotterdam, Antwerp, Havre, Cherbourg, Gothenburg, Danzig, Trieste and Naples. At a number of European ports officers of the U. S. Public Health Service are detailed to make careful medical inspections and to issue bills of health; such precautions have proved uniformly successful. The Army vermin exterminating plant at Hoboken has been put at the disposal of the health officers of the post of New York for disinsection of immigrants.

Gorgas Memorial Institute.—As a memorial to the late Gen. W. C. Gorgas and in recognition of his achievements in preventive medicine, Dr. Belisario Porras, president of the Republic of Panama, has proposed the foundation of an institute of tropical and preventive medicine in connection with the Santo Tomás Hospital at Panama. Pending the erection of a permanent building it is planned that the institute shall comprise a well organized laboratory for research in tropical diseases in the Santo Tomás Hospital. After the laboratory has been established it is contemplated to organize a school of tropical medicine. As it is the wish of President Porras that the institute be a contribution of the Republic of Panama to the memory of General Gorgas, the project will be financed by the Panamanian government. Although the work of the institute will be largely in the interests of the countries of Central and South America, it is hoped that its activities will give it an international scope and that it will have the active cooperation of leaders in tropical and preventive medicine. At a meeting held in Washington, January 31, a provisional board of directors for the United States was appointed, including Admiral William C. Braisted, M. C., U. S. Navy, chairman; Dr. Leo S. Rowe, director of the Pan-American Union; Surgeon-Generals Ireland, Stitt, and Cumming of the Army, Navy and Public Health Service, respectively; Hon. J. E. Lefevre, chargé d'affaires of the Republic of Panama, in Washington, and Hon. John Basset Moore, legal representative. A similar board will be named to represent the countries of Central and South America.

LATIN AMERICA

Leprosy Notifiable in Brazil.—The National Board of Health has made the notification of leprosy compulsory and also the report of the change of residence or the death of any one known or suspected to have leprosy.

Vital Statistics of Venezuela.—According to the last report of the Department of Public Health of Venezuela, the infectious diseases which caused most deaths during the year 1919 were influenza, 8,155; tuberculosis, 4,848; intestinal diseases, 4,670; dysentery, 4,275; typhoid fever, 1,566, and hookworm disease, 1,862.

Child Welfare Work in Rio de Janeiro.—The *Brazil-Medico* announces the creation of a new service in the municipal public health and charities system, a domiciliary *serviço de puericultura*. Its activity is to be limited to the suburbs, and is to include maternity cases as well as supervision of infants during the first few months of life. Four physicians have been assigned to the service, including Dr. P. Vasconcellos, Dr. P. Paes de Carvalho and Dr. P. da Cunha.

Argentine Materia Medica.—Under this heading the *Semana Médica* describes the organization of a scientific mission for the study of the native flora and materia medica of Argentina. The expedition will study the region of the Uruguay River and Misiones territory. The party includes Sr. J. F. Molfino, chief of the botanical section of the pharmacologic institute of the Buenos Aires Facultad de Medicina, and Sr. L. R. Parodi, chief of the botanical section of the Facultad de Agronomia.

Argentine Medical Congress.—The Asociación Médica Argentina, composed of six societies (societies for internal medicine, surgery, hygiene, radiology, medical deontology and biology) will hold its next annual meeting at Buenos Aires in October. The subject appointed for discussion in the general meeting is the treatment of fibromas, to be introduced by Dr. A. Lanari. The internists will discuss encysted pleurisy and ulcerative colitis, the surgeons, tumors of the pancreas and inherited syphilitic disease of the long bones.

Fellowship Offer to Chilean Physician. — The Chilean-American Association of New York has offered a one year fellowship in the New York Post-Graduate Medical School and Hospital to a Chilean physician to be designated by the secretary of education of Chile. A fund of $3,000 is available for this purpose, $1,000 of which will be devoted to traveling expenses and the remainder for teaching and maintenance. The secretary of education has requested the officials of the School of Medicine to recommend a physician for the fellowship.

Smallpox Prevalent in Haiti.—Wide dispersion of smallpox in Haiti, which began in mild epidemic form many weeks ago, has led to the issuance of an order closing all theaters and public places, and prohibiting dances and similar gatherings. Deaths are reported almost daily but are limited almost exclusively to the natives; few Caucasians have been affected. The present epidemic is the first of a serious nature since 1882, when it is estimated about 200,000 natives succumbed to smallpox. Medical officers of the United States government have been detailed to cooperate in the administration of measures of suppression.

FOREIGN

Smallpox Still Prevails in Spain. — Our last Spanish exchanges state that while the number of smallpox cases is decreasing in most parts of Spain, the epidemic is still increasing in Guipúzcoa, where the people refuse to be vaccinated.

The American Hospital at Paris.—The *Presse médicale* states that plans are under way to build a new pavilion for the American Hospital at Paris. This will increase its capacity from thirty to a hundred beds, but it requires $400,000. A committee is now at work to raise the necessary funds.

Cost of Medical Education in Australia.—The University of Sydney has announced an increase of approximately 50 per cent. in the fees payable by students. In the medical school the term fees will be increased from £132 to £216, and as it is anticipated that the fees for hospital practice will be raised proportionately, the total tuition fees of the medical student will be about £300.

Prize Topics. — A number of prizes are offered by the Académie de médecine of Paris for contributions on the ultimate outcome of wounds of the skull; transformation of epitheliomas into sarcomas; war traumatic epilepsies; abortive treatment of poliomyelitis; relations between the therapeutic properties and the chemical constitution of different agents; poisons of the saponin group, and hemorrhagic pancreatitis.

Jugoslavian University.—The *Policlinico* gives the list of members of the medical faculty of the University of Agram, the only one in the Serbo-Croato-Slovene state. Dr. Houdl is professor of pathology and bacteriology; Dr. Bubanovic of clinical medicine; Dr. Miculicic of pharmacology and experimental pathology, and Dr. Semikauska of physiology. During the first half of 1920 there were 874 medical students enrolled.

Prophylaxis of Venereal Disease.—The Netherlands Society to Prevent the Spread of Venereal Disease has founded a periodical entitled *Sexuecle Hygiene,* to aid in promulgating its ideas and recording what is being accomplished at home and abroad to protect the individual, the family and the community against venereal disease. One of the six members of the editorial staff is Prof. T. M. van Leeuwen. The publisher is J. Ploegsma, Zeist, Holland.

France Confers Title of Professor Without Corresponding Chair.—The *Journal officiel* announces that hereafter all members of the teaching force of the universities, now known as *agrégés* or in charge of courses, are entitled to the title of professor when a demand for this, signed by two thirds of the voting force and of the Conseil supérieur de l'instruction publique is presented to the authorities in charge. The titular professors are not entitled to vote in the faculties or to election as dean or assessor, but otherwise their rights and privileges are the same as those of professors with regular chairs.

Paris Faculty's Course in Ophthalmology.—A graduate course in ophthalmology will be given at the ophthalmologic clinic of the Hotel Dieu under the auspices of the Paris Medical Faculty, beginning May 10 and continuing through the month of June. Prof. F. Lapersonne and Drs. Terrien, Guilleminot, Hautant, Velter, Prelai and Monburn will conduct the courses, which will include clinical examinations and practical surgical and laboratory work. A special certificate from the Paris Medical Faculty will be given on completion of the full course. The number of students will be limited to forty and the fees will total 150 francs. Physicians and students desiring to take the course should apply to the secretary of the Faculté de médecine de Paris.

Albert J. Chalmers Memorial Library.—The late Dr. A. J. Chalmers made a valuable collection of medical works, mainly on tropical diseases, including a number of incunabula. This collection, with the exception of a small number of books which were donated to the Royal College of Physicians, has been presented by his widow to the Royal Society of Medicine as a memorial to Dr. Chalmers. Mrs. Chalmers has added a gift of £500, with which the society will furnish a room in its building and equip it with shelves. The room will hereafter be known as the Chalmers Memorial Library. The special collection of books will be utilized for the promotion of the work of the new section of tropical diseases, recently organized by the society, with Sir Leonard Rogers as president.

Campaign Against Tuberculosis in Children in France.—The work of the Oeuvre Grancher was described by its secretary in The Journal, July 6, 1918, p. 1. The present status of the work is given in the *Presse médicale,* Jan. 22, 1921, p. 105. The mortality of the children removed from tuberculous city families to healthy homes in the country has dropped to 0.1 per cent., but the expense of the work has increased from 2 francs per day before the war to 3 francs at the present time. All the money is spent on the children. Hitherto the Oeuvre Grancher has limited its work to children over 3 and under 15, but it has recently been decided to take infants, and an infant crèche is now being organized to extend its scope to the youngest child. One of the advantages of the work is that the children adopted into country homes grow up usually to be farmers or marry farmers. The eighteenth annual meeting of this "Work for Preservation of Children against Tuberculosis," was held recently at Paris with the chief of the public health service presiding. He urged that every province in France should organize a similar work, and that this system of giving out healthy children for adoption in the country to save them from threatening tuberculosis should be adopted as a link in the chain of world measures against tuberculosis.

Deaths in Other Countries

Sir Frederick Taylor, president of the Royal College of Physicians in 1915, author of a textbook on the "Practice of Medicine," the first edition of which was issued in 1890 and the eleventh in 1918; aged 73.——**Edmund Johnson Spitta,** Hove, Brighton, England; M.R.C.S., England, L.R.C.P., London, 1874; at one time vice president of the Royal Astronomical Society and Royal Microscopical Society.——Dr. **A. Albu,** privatdozent in internal medicine at the University of Berlin and author of numerous works on metabolism and gastro-intestinal diseases, aged 54.——Dr. **A. L. de Soldati,** chief of the public health and of the public instruction services of the province of Tucumán, Argentina, and at one time senator and a member of the national cabinet, aged 56.——Dr. **M. Pollosson,** an eminent surgeon and professor of operative medicine at the University of Lyons.——Dr. **Elie Bourquelot,** professor of pharmacy at the University of Paris, vice president of the Académie de médecine, author of numerous works on topics connected with pharmacy.——Dr. **M. Holl,** professor of anatomy at the University of Graz, aged 68.——Dr. **F. Unterberger,** privatdozent for gynecology at the University of Königsberg, aged 67.——Dr. **L. Guella,** president of the Medical Chamber of Trento.

Government Services

Increase in Hospital Appropriation

The Senate added $1,100,000 to the appropriations for the construction of hospitals for wounded and disabled soldiers during its debate on the Sundry Civil Bill. The hospital at Fort Bayard, N. M., was allowed $750,000; the Marine Hospital at Evansville, Ind., $100,000, and the Marine Hospital at Pittsburgh, $250,000.

Reserve Medical Officers

The Medical Department of the Army began this week to circularize all Class A medical schools with a view of inducing them to establish a Reserve Officers' Training Unit for the instruction of medical officers. An appeal is being made to every university and college to institute the military course now authorized by the Army Reorganization Act so that there will be a regular increase in the number of emergency medical officers each year.

Simplification of Army Records

Surgeon-General Ireland has inaugurated a campaign for the reduction of paper work in the Army Medical Department. During the World War medical officers sometimes found difficulty in attending the sick and wounded because of the necessity of making out the detailed daily and weekly reports prescribed by the regulations. As a result of the lessons learned then it has been decided to reduce the number of records to the limit of absolute necessity. The "sick and wounded" report has been greatly simplified, some reports have been eliminated altogether, and others are being curtailed and consolidated so that ultimately, it is hoped, medical officers will be relieved of all complicated paper work.

Interdepartmental Social Hygiene Board

The Senate voted to strike out an item of $40,000 for administration of the Interdepartmental Social Hygiene Board which had been inserted in the Sundry Civil Bill as an amendment by the Senate Appropriation Committee. The appropriation of $300,000 for the continuance of the venereal disease control work was transferred from the Interdepartmental Social Hygiene Board to the division of venereal diseases of the Public Health Service. If this action is approved by the conference committee the activities of the Interdepartmental Social Hygiene Board will cease after July 1 and all venereal disease control work of the federal government will be concentrated under the Public Health Service.

Hospitals and Officers of the Public Health Service

During the last several weeks the Public Health Service has taken over for use as government hospitals the Aberdeen Hotel at St. Paul, the Asbury Hospital at Minneapolis, Wesley Hospital at Kansas City, Mo., and Altamont Hotel at Newport, Ky. The patients under treatment, February 3, numbered 25,475, of whom 21,866 were beneficiaries of the War Risk Insurance Bureau. The facilities for the care of patients with tuberculosis and mental and nervous disorders of various kinds are not in keeping with the need. The Sundry Civil Bill, which appropriated $18,850,000 for hospital construction, has made adequate provision for the hospital requirements. The Public Health Service has been considerably expanded by reason of the additional duties devolving on it in the care and treatment of War Risk Insurance patients. Through operation of a statutory provision permitting the formation of a reserve corps most of the additional medical officers have been appointed. At the present time the service consists of a regular corps and a reserve corps. It was hoped that when additional funds for hospital construction were secured, Congress would also provide for a reorganization of the Public Health Service. This legislation, however, has been postponed since it could not be considered in the Sundry Civil Bill.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Jan. 21, 1921.

The Carotid Arteries and Hemorrhages of the Tonsils

At a recent meeting of the Société de chirurgie, Dr. Sebileau, hospital surgeon and agrégé professor of the University of Paris, gave a dramatic account of the death of a young girl from fulminant hemorrhage following tonsillectomy, performed by an expert surgeon. Aside from its dramatic features, this observation is instructive, for the case was taken to court, a judicial necropsy was held, and a large tear was discovered in the internal carotid artery. The surgeon against whom the charge was brought had performed more than 500 tonsillectomies without the slightest accident. In connection with this event, the *Gazette des hôpitaux* recalled the history of a case of the celebrated surgeon Péan. Péan had just removed two large tonsils with the Chassaignac tonsillectome from a young man of 30. All had gone well and the surgeon had left. Soon the brother of the patient came running after him, calling to him to return at once to the patient, who was bleeding profusely. Péan, without losing a second's time, applied, somewhat at random, four or five clamps, and hemorrhage was immediately arrested. He had arrived in the nick of time, for the patient was already pulseless. The copious hemorrhage led Péan to believe that the internal carotid artery was involved. The clamps were left in place for twenty-four hours, and the patient recovered. In view of these facts, laryngologists will do well to bear in mind that the internal carotid lies in the vicinity of the tonsil.

Advertising to the Public the Curability of Cancer

The minister of public health is using posters to call the attention of the general public to the curability of cancer and also to some of the symptoms little known to laymen. He also emphasizes more particularly the serious inconvenience that may result from the use of pseudotherapeutic methods recommended by empirics, not the least of which is that thus the moment when rational treatment might have still some chance of success is allowed to slip by.

War in Relation to Chemistry

Charles Moureu, professor in the Collège de France, has just published, under the title "Les leçons de la guerre" (Masson et Cie, publishers), an instructive book on chemistry in relation to the war. He points out the great importance of the problem of chemistry during the war, and emphasizes the necessity of assuring an adequate supply of expert chemists by improving the quality of instruction in chemistry. He also stresses the need of a more systematic organization of scientific research. In speaking of the future of science in general, Moureu points out that the whole nation ought to take part in the scientific movement, and he urges his fellow countrymen to draw inspiration from what has been accomplished in the United States, where the various organizations and scientific societies for the last fifty years have pursued an active and insistent propaganda that has borne fruit. Multimillionaires have contributed immense sums for the prosecution of research work, and—what is still more significant—many large corporations have established laboratories. Even charitable organizations have found time and money, along with their other work, to promote institutions of research. For example, the League for the Relief of Belgium, after having, during the war, provided relief for our allies, and having, with the signing of the armistice, a balance on hand of more than 100 million francs, devoted it to the creation of a fund for the advancement of laboratory research. Moureu likewise refers to the resolution adopted by the American Federation of Labor at its congress held at Atlantic City in January, 1919, in which the Federation of Labor took the stand that it is of prime interest for the welfare of the nation to schedule a comprehensive program of scientific research.

The Seventh Centennial of the Montpellier Faculty of Medicine

The sixth centennial of the University of Montpellier was celebrated in 1890. The preparations to which reference was made in a news item (The Journal, Nov. 27, 1920, p. 1597) were in view of the celebration of the seventh centennial of the Montpellier Faculty of Medicine and not of the University of Montpellier, for it is a peculiar fact that the Faculty of Medicine is more ancient than the university proper. It was on Aug. 17, 1220, that the legate of Pope Honorius III, Cardinal Conrad d'Hurach, Count de Seinen, bishop of Porto and of Sainte-Rufine, gave the Faculty of Medicine of Montpellier its charter. In an interesting article on the ancientness of the Faculty of Medicine of Montpellier, published in the *Languedoc médical,* Dr. Paul Delmas, himself agrégé professor of the faculty, points out that the origin of the medical faculty of Montpellier dates back even farther than the charter. Cardinal Conrad d'Hurach gave merely his official consecration to a learned body of old renown, as is clearly shown by the wording of the first charter given the Medical Faculty of Montpellier, which reads: "For a long time past, the science of medicine has flourished at Montpellier with distinguished glory, from which center it has spread throughout the world its salutary influence and the multiplicity of its fruits."

It seems certain, as Delmas states, that, with the founding of the town of Montpellier as a trading center for the whole Mediterranean Basin, the market places of the city were thronged by a Judeo-Arabian element, who helped to keep alive hippocratic doctrines, which since that time have stood in such high favor in the school. The influx of the Jewish element seems to coincide, in point of time, with the beginning of the period dominated by Guilhem (about 990).

Compulsory Notification of Trachoma

In response to the request of the minister of public health, a committee, composed of Dr. Kermorgant, Dr. Jeanselme, professor of cutaneous and syphilitic diseases in the University of Paris, and Dr. de Lapersonne, professor of clinical ophthalmology of the University of Paris, has drawn up the following conclusions:

1. As regards the inspection of immigrants, if the rigorous measures adopted in the United States are not feasible, we ought at least to continue the systematic ocular examination of colonial laborers at the time they are engaged and also when they embark, as was done during the war.

2. Similar precautions should be taken at the frontiers, especially in the case of immigrants coming from infected countries: Italy, the Balkans, the Levant, etc.

3. When immigrants arrive in port, more particularly in Marseilles, the physical examination should include of necessity an ocular examination, and immigrants, as well as foreigners in general, should be required to furnish, besides the vaccination certificate, a certificate of ocular examination showing that the subject has no contagious eye disease.

6. Surveillance should be especially rigorous in the schools. Eye examinations should be more frequent, and suspects should be sent to the dispensaries and not allowed to reenter school without a certificate from an ophthalmologist. If such cases should prove to be numerous, special classes of trachomatous pupils should be formed and completely isolated.

7. The campaign against trachoma should be pursued with great energy in our colonies and protectorates.

LONDON

(From Our Regular Correspondent)

Jan. 24, 1921.

The Dangerous Drugs Act

An act termed the Dangerous Drugs Act became law last August. Draft regulations have now been issued by the government for carrying it out. They are based on two sections of the act: one for controlling and restricting the possession, sale and distribution of raw opium; the other for controlling the manufacture, sale, possession, distribution of morphin, cocain, ecgonin and diamorphin (commonly known as heroin) and their respective salts, and medicinal opium and preparations and substances containing not less than 0.2 per cent. of morphin or 0.1 per cent. of the other alkaloids. In regard to morphin and the other alkaloids, no one shall manufacture them or carry on any process in their manufacture without a license, except on licensed premises, or otherwise than in accordance with the terms of the license. No one shall supply or procure raw opium or any of the drugs mentioned for any person whether in the United Kingdom or elsewhere, nor advertise them for sale, unless licensed to do so and only when the drugs are lawfully dispensed in pursuance of a prescription given by a legally qualified physician in accordance with certain conditions. Exemption may be granted for dispensing at a public hospital and on board ship. The prescription must be in writing, must be dated and signed by the practitioner with his full name and address and qualifications and marked with the words "Not to be repeated," and must specify the total amount of the drug to be supplied on the prescription, except that in the case of prescriptions issued for national health insurance purposes on the forms provided by the Insurance Committee, the physician's address and qualifications and the words "Not to repeated" need not be marked on the prescription.

Certain conditions must be observed by persons, including physicians, dispensing prescriptions for the drugs: The prescription shall be marked with the date on which it is dispensed, and shall (unless issued for national health insurance purposes on the official form provided) be retained by the person, firm or body corporate by whom it is dispensed, and shall be kept on the premises where it is dispensed. The drugs shall not be supplied more than once on the same prescription. The ingredients of the prescription, with the name and address of the person to whom it is supplied or delivered, shall be entered in a book specially set apart for this sole purpose and kept on the premises where the prescription is dispensed, so that at all times it shall be available for inspection. No one shall be in possession of raw opium or any of the drugs mentioned unless he is licensed to import or export, or to manufacture or supply the drug, or unless he can prove that the drugs were supplied in accordance with a legitimate prescription. Any duly qualified physician, or registered dentist or veterinary surgeon, or person employed or engaged in dispensing medicine at any public hospital or other institution, being a person duly qualified under the pharmacy act, is authorized so far as is necessary for the practice of his profession, to be in possession of and to supply drugs. No one shall supply any article into the composition of which any of the drugs enters in a package or bottle which has not plainly marked on it the amount of the drug in the article, and the total amount in the package or bottle, and, in the case of solutions, the amount and percentage of the drug in the solution. Every person who supplies raw opium, including any physician, shall enter in a book kept for the purpose all the supplies obtained by him and all dealings effected by him. Separate books are to be kept for: (*a*) cocain and ecgonin and substances containing them; (*b*) morphin and substances containing it; (*c*) diamorphin and substances containing it; (*d*) medicinal opium. Entry is to be made on the day the drug is received and on the day on which the transaction is effected. The book shall be at all times available for inspection. No cancellation, obliteration or alteration is to be made, any mistake in an entry being corrected by a marginal note or footnote.

The Ratten Case

The case of Ratten, a physician practicing in Tasmania, whose diploma, said to have been granted by the defunct Harvey Medical College of Chicago, has been questioned, appears to have reached a termination. As stated in a previous letter to The Journal, an application was made by the Medical Council of Tasmania to the supreme court for the creation of a commission to take evidence in Chicago, and was refused. In October the premier was asked in the House whether he had any statement to make in regard to "the action of the Medical Council in its persistent persecution of Dr. Ratten." The premier stated that the government was not prepared to undertake any responsibility for the financing of an appeal against the judgment of the supreme court. Later he introduced a bill to amend the medical act. It provided that application for removal of a physician's name from the Medical Register shall not be made unless the alleged offense was committed within seven years of the time of such application. In introducing the amendment he said the only way of reaching finality was by validating Ratten's registration. In the course of a lively debate it was suggested that the bill would enable any man guilty of fraud to escape the consequences if he could cover up the traces for seven years. One member read a letter written by Ratten to the Tasmanian branch of the British Medical Association in 1916, fifteen months before he was appointed to the Tasmanian General Hospital, complaining that his name was not included in the list of members of the branch. He also read letters proving that the branch had his case under investigation from this time onward. Thus the validity of his diploma was questioned before he came to the assistance of the government. It may be remembered that Ratten's supporters alleged that the action of the association in questioning Ratten's diploma is due to resentment at his refusal to join the "strike" against the conditions of service at the Tasmanian General Hospital. It was also stated that when the case was under investigation, Ratten admitted that he had never been at the Harvey Medical College, although he held its diploma. Another member pointed out that if Ratten was forced to go to America they would secure a triumph for the British Medical Association, which wanted to get rid of him. The premier, in closing the debate, brushed aside the suggestions that finality could be reached in any other way than that provided in the bill. Had he been satisfied that the opposition to Ratten had been raised in the interests of the public, that would have weighed with him. He was, however, satisfied that it had not been so raised. The second reading was carried by 21 to 7.

MEXICO CITY

(From Our Regular Correspondent)

Jan. 30, 1921.

Postgraduate Course at the School of Medicine

The officials of the school of medicine inaugurated a postgraduate course which was given during December and January, while medical students were away for their vacations. This course included a series of sixty lectures, some of them illustrated. They were given by the professors and other well known physicians. About twenty-five physicians from different towns enrolled for this course and received a certificate on completion. The course included special subjects which were considered of interest in internal medicine, obstetrics and surgery. Undoubtedly it will be possible to improve this form of teaching by means of programs better prepared, and by correcting the defects observed. These postgraduate courses are a happy innovation, and their first trial has given satisfactory results.

American Medical Literature

It has long been known to Mexican physicians that the American school with its numerous workers has a personality of its own. However, the abundance of excellent European works, especially French, and the lack of familiarity with the English language, have prevented physicians from devoting the proper attention to American books. The lack of any French books during the war, and the active propaganda of American publishers, have changed the situation completely. A few years ago there were few Mexican physicians who had more than two or three American books. The present change may be inferred from the fact that during the year 1920 one single agent of an American publishing house sold over $12,000 worth of medical books. This does not imply that Mexican physicians neglect European authors; but, aside from their intrinsic worth, American medical publications, books as well as periodicals, reach us much more quickly and are more timely than those of the Old World. The good results of this intellectual intercourse may seem slow, but they are certain to come and they will be mutually profitable.

Personal

Dr. Hircano Ayuso has become acting governor of the State of Yucatán.——Dr. Cutberto Hidalgo resigned the position of secretary of state in President Obregón's cabinet.——Dr. Francisco E. Canale has been appointed secretary of the school of medicine in lieu of Dr. Fernando Ocaranza, who has become a member of the council of public health.——Dr. J. Velásquez Uriarte has been appointed professor of abdominal surgery and gynecology in the postgraduate school.——Drs. F. Castillo Nájera and Alberto Román have been appointed members of the superior council of public health.——Dr. George Leblanc of the Rockefeller Institute is now at Vera Cruz conducting studies on the parasitology of yellow fever.——Dr. Clarence A. Baer of Milwaukee was in this city on his way to Mérida, Yucatán.

PRAGUE

(From Our Regular Correspondent)

Jan. 31, 1921.

Health Centers

The division of social pathology in the ministry of public health is carrying out its program on the health center idea. Dr. Hamza, the chief promoter of the idea, wants to have the centers run by local committees from local resources. The state offers subsidies for investments in buildings and equipment. There are nine centers already in operation, and several more are being prepared. The centers have always their own building and a full time staff. The health center usually consists of a tuberculosis dispensary, child welfare clinic and a venereal diseases dispensary. The plan is to add departments on mental hygiene, gynecology and eye clinics later on. A public health nurse is connected with the center and does the home visiting and social work for the patients.

Organization of Public Health Council

There has been a strong feeling among the private health organizations that their functioning could be greatly improved if there was an agency that would coordinate all their activities. As a result of this a public health council has been formed under the leadership of the Czechoslovak Red Cross. The Masaryk Antituberculosis League, Society for the Prevention of Venereal Diseases, Sokols (Association for the Promotion of Physical Education), Infant Welfare Association and the Red Cross are represented. They will meet once a month and will discuss their plans. Branches of the council will be formed in smaller cities all over the republic.

Appropriation for Tuberculosis Dispensaries

The Masaryk Antituberculosis League appropriated 500,000 Czechoslovak crowns for stimulating the creation of tuberculosis dispensaries. There are forty-four already in existence. Every local branch will get its equipment for a dispensary from the league if it lives up to the standard for the management of a dispensary which was recently published by the league. The reasons for stimulating the fight against tuberculosis are only too many. The tuberculosis death rates compiled recently by the ministry of public health for the year 1918 show that ten political districts in Bohemia have a rate over 500 per hundred thousand inhabitants. The highest rate in Bohemia was 916 for the district of Karlín. The situation in Slovakia is much worse, but there are no reliable statistics available for that part of the republic. The estimate says that there were 60,000 deaths from tuberculosis last year in the republic, which would make a rate of some 450 for the country as a whole.

Opening of New Medical Schools

Both medical schools in Prague are greatly overcrowded. There are about 3,000 medical students at the Czech school and 2,000 at the German school. Of course there are many foreign students among them, chiefly from Poland, Russia, Jugoslavia, Hungary and Austria. The Czechoslovak government opened a new medical school in Brno and another one at Bratislava in order to relieve the congestion somewhat. The first part of the study, five semesters, is offered at Brno, the second part, five semesters, at Bratislava. There are about 800 students at Brno and 250 at Bratislava.

Proposal to Legalize Interruption of Pregnancy

A rather curious bill was introduced into the parliament by the socialistic deputies allowing the physicians the interruption of pregnancy if it is the wish of the woman, unless the pregnancy is farther advanced than three months. The reason was that abortions are being made now frequently by incompetent persons and that the law would give the physicians control over these dangerous operations. The sponsors of the law pleaded that the woman has the right to decide whether or not she wants to be a mother. The medical profession and public opinion took a firm stand against the law because it would undoubtedly lead to general dissipation of morals and loosening of decency. It is most probable that the law will not pass.

VIENNA

(From Our Regular Correspondent)

Jan. 18, 1921.

Statistics as to Practicing Physicians in Austria

The municipal board of health has just issued a leaflet dealing with statistics of practitioners in Vienna and the flat country during and since the war. In the second half of 1914, 107 physicians applied for permission to settle in this country, of whom fifteen settled in Vienna. In 1915, the figures were 104 and 28, respectively; in 1916, only 49 newcomers, with 18 in Vienna; in 1917 there were 60, with 25 in Vienna. In 1918 a sudden leap resulted: 265 new men, of whom 161 took up their residence in Vienna. In 1919 the figure went up to 429, of whom 332 selected the capital as their abode; in 1920 the figure dropped to 370, with 298 settling in Vienna. The sudden increase in 1918 is no doubt due to the breaking up of the empire, when numerous physicians of German nationality who practiced formerly in the provinces were forced by more or less violent persuasion to get out, when, as a matter of course, they flocked to Vienna. Thus it happened that out of 6,006 physicians in Austria, no less than 4,160 live, or try to live, in the one city of Vienna, a proportion of 1 physician to 450 inhabitants. In this respect, too, it is apparent that this country is similar to a monstrous dwarf with a huge hydrocephalus, unable to support itself.

New Hospitals in Vienna

One of the few central offices producing effective work in this country is our ministry of public health, which has called to life within the last few months a number of up-to-date hospitals and medical institutes. In spite of the serious general conditions, means have been found to secure not only the necessary men fit for the work, but also instruments, apparatus and funds to fight the severe ravages made by the consequences of war and famine.

A large orthopedic hospital has been opened in the fifth district of Vienna, devoted chiefly to the treatment of crippled children, and also of children suffering from tuberculosis of the bones. It accommodates 500 patients, and is under the direction of Professor Spitzy, who did good work among the men disabled by war. A department for artificial limbs and other prosthetic work is a prominent feature of this hospital, which at present is fully occupied. A roof garden enables the children to be outdoors all the time and to enjoy open air and sun treatment, and a large hall with gymnastic and mechanical apparatus provides for active and passive movements of the joints and limbs, as required.

Another hospital situated in the populous twelfth district is devoted to venereal diseases in women. The site was formerly occupied by a hospital for the insane. Extensive gardens and meadows permit agricultural work for the inmates, thus forming a sort of rural colony for the mental cure and education of the patients, of whom 500 can be received. Special care is taken not only to cure the patients of disease, but also to impress on them the advantage to be derived from honest work. As the overwhelming majority of the inmates are prostitutes, as a rule with a certain degree of mental inferiority, the combination of moral and physical treatment is expected to be beneficial.

An institute for diseases of the nerves—not mental disease—has also been opened recently on the outskirts of the city; it will accept chiefly patients with injuries to the head and nerves; a department for children with disturbances of speech and writing is annexed to it. A hospital for general work, including medical, surgical, dermatologic wards and a special department for treatment of tuberculosis of all kinds is now nearly completed. It will contain 600 beds. An interesting old hospital has been brought quite up to date in Baden, a suburb of Vienna, where the old military hospital has been rearranged and where hot sulphur springs were made use of to serve the needs of patients with rheumatism and sciatica. As a large number of men have brought home from the trenches of the war diseases of this nature, the hospital receives in first line such patients; but also private patients are treated there. Of course, all requirements of modern treatment of rheumatism are available, not to forget physicians and surgeons.

Health of Vienna Last Autumn

A marked increase in the infectious diseases of childhood, noticed in the summer of 1920, was more pronounced in the autumn months. Scarlet fever and measles, as well as whooping cough, are still increasing, while diphtheria has dropped below the average figure for the season. Also typhoid fever and dysentery, which were nearly absent before the war, owing to our excellent system of water supply and drainage, are quietly disappearing. All the cases reported recently took place among persons returning from captivity in eastern

Siberia. Mortality was high in October and November; in fact, it was higher than ever noted since many decades, except in 1918, when the grip wave raged in Vienna. Since May, 1920, it was noticed that the majority of deaths were due not to tuberculosis, as previously, but to heart disease and disorders of the circulatory system, or in other words, that the death rate of the higher age-periods has increased markedly in comparison with other years. The average monthly mortality was 2,400, or 148 more than in the previous months.

Anthropologic Investigations of Apprentices

In the course of exact examinations of schoolchildren and students as to the mental and physical capacity, two series of apprentices were made the subject of anthropologic investigations by experts of the board of health. Altogether, 5,920 youths between 14 and 19 years were examined, comprising all classes of population and vocation of both rural and urban families. On an average, the weight was found to be wanting by at least 5 kg., taking prewar conditions in consideration. For instance, boys of 14-15 years showed an average weight of 42.3 kg.; of 15-16 years, 45 kg.; of 16-17 years, 49.4 kg., and of 17-18 years, only 52.5 kg. Also the height measurements were 5 cm. (2 inches) below the average. The influence of occupation is striking. Apprentices to locksmiths showed a difference of from 3 to 5 cm. and 3 or 4 kg. in their favor when compared with saddlers of the same age. Mortality statistics are interesting. It must be kept in mind that two factors cooperate here: the constitution of the apprentice and the influence of his surroundings. Thus, the locksmith, whose physique is generally better, is less endangered by tuberculosis than the tailor or the bootmaker, even if the latter lives in the country. Care was taken to note the color of the hair and eyes of each individual, as it is the aim of the investigation to follow up their ultimate fate, and to study the effect of pigmentation on morbidity and mortality. The results of these examinations are not yet fully worked out, but they already give a certain insight into the variety of occupational risks. Similar investigations will now be followed up with the inmates of lung sanatoriums with the idea of studying the conditions governing the development and course of tuberculous infections, their spread and prognosis.

The Electropathologic Station in Vienna

In 1909 an institute was established for the study and treatment of electropathology (injuries by electric currents or by lightning) which had formerly been closely affiliated with the university clinic for internal medicine. During the war it was transferred to the military hospital in Vienna, where it was doing valuable work in connection with scientific research on electricity. At present it has been returned to the civil authorities, and Professor Jellinek is its director. All cases of accidents by electric currents (tramways, electric railways, dynamo machines) have to be referred to this institute. Apart from the pathologic changes produced by electricity in human beings, the physiologic effects of electric currents on living tissue as well as on inanimate material like stone, iron, cement, cloth and linenware, on metals and on leather are within its range of investigations. Excellent opportunity for medical study in this unusual and rather untilled field of science is offered.

Fight Against Alcohol Among Infants and Adolescents

By an order of the ministry of public health, all corporations caring for the welfare of infants or adolescents are ordered to pay special attention to prevent the administration of alcohol or beverages containing liquor to these persons. Especially persons accepting babies to rear are to be controlled by regular inspections.

Marriages

Vann M. Matthews, Charlotte, N. C., to Miss Naomi Fogel of Binghamton, N. Y., January 15.

Joseph Keefer Fisher to Miss Margery Isabel Oren, both of Harrisburg, Pa., January 23.

John Ewing Cavey to Miss Florence Louise Bradley, both of Stratton, Colo., January 25.

Charles Cadwallader to Miss Helen Washburn, both of Philadelphia, January 31.

Morris Frank to Miss Miriam Segel, both of Boston, Nov. 25, 1920.

Deaths

Haller H. Henkel, Staunton, Va.; New York University, New York, 1898; aged 68; a member of the Medical Society of Virginia; for many years a member of the Staunton board of health; local surgeon for the Chesapeake and Ohio, and Baltimore and Ohio railroads; died, January 17.

Irwin Berry, Augusta, Ky.; Kentucky School of Medicine, Louisville, 1904; aged 42; a member of the Kentucky State Medical Association; captain, M. C., U. S. Army, and discharged, Jan. 8, 1919; died, January 27, from lethargic encephalitis.

John Francis Dillon, San Francisco; State University of Iowa, Iowa City, 1881; aged 65; at one time professor of materia medica, pharmacology and therapeutics in the College of Physicians and Surgeons, San Francisco; died, January 27.

Dwight Frans Morton ⊕ Taylorville, Ill.; Northwestern University Medical School, Chicago, 1902; aged 44; major, M. C., U. S. Army, and discharged, June 2, 1919; died at Philadelphia, January 27, from carcinoma of the intestine.

Stinson Lambert, Owensboro, Ky.; Hospital College of Medicine, Louisville, 1879; aged 68; a member of the Kentucky State Medical Association; at one time mayor of Owensboro; died, January 26, from cerebral hemorrhage.

Henry Frank Burman, Toledo, Ohio; Toledo Medical College, 1911; aged 42; a member of the Ohio State Medical Association; lieutenant, M. C., U. S. Army, and discharged, Jan. 3, 1919; died, January 27, from pernicious anemia.

Frank Monroe Weldy, Chicago; University of Illinois, Chicago, 1912; aged 32; a member of the Illinois State Medical Society; captain, M. C., U. S. Army, and discharged, July 29, 1919; died, February 5, from pneumonia.

Clarence Milton Parks, Tacoma, Wash.; Medical College of Ohio, Cincinnati, 1888; aged 57; at one time superintendent of the Western Washington Hospital for the Insane; died, January 19, from heart disease.

Frank Bell, San Diego, Calif.; College of Physicians and Surgeons, University of Southern California, Los Angeles, 1913; aged 34; a member of the Medical Society of the State of California; died, January 30.

Darius W. Owens ⊕ Hersman, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 75; a veteran of the Civil War; at one time president of the Brown County Medical Society; died, January 22.

Matthew J. Coveny ⊕ Spring Valley, Ill.; Detroit College of Medicine and Surgery, 1886; aged 60; at one time surgeon for the Chicago, Rock Island and Pacific Railway; died, January 27, from pneumonia.

Charles A. Ferris ⊕ Denver; Gross Medical College, Denver, 1901; instructor in obstetrics and gynecology in the University of Colorado; died, February 1, from glioma of the brain.

Malcolm B. MacLean ⊕ Chicago; Hahnemann Medical College and Hospital, Chicago, 1908; aged 41; a specialist in diseases of the eye, ear, nose and throat; died, February 11, from pneumonia.

John Parley Brown, Nunda, N. Y.; University of the City of New York, 1881; aged 67; a member of the Medical Society of the State of New York; died in Buffalo, January 18.

⊕ Indicates "Fellow" of the American Medical Association.

William Augustus Hunt ⊕ Northfield, Minn.; University of Michigan, Ann Arbor, 1882; aged 62; third vice president of the Minnesota State Medical Association; died, January 27.

Robert H. Mobley, Uvalda, Ga.; University of Georgia, Augusta, 1901; aged 39; president of the Montgomery County Medical Society in 1918; died, January 18, from heart disease.

John G. Rushing ⊕ Center, Texas; Baylor University, Dallas, Texas, 1911; aged 41; died, January 25, from the effects of injuries received when he was kicked by a horse.

James Richard Spencer, Hollins, Va.; University of the City of New York, 1888; aged 56; a member of the Medical Society of Virginia; died, Dec. 2, 1920, from pneumonia.

Joseph Barton Betts ⊕ Buffalo; Albany (N. Y.) Medical College, 1894; aged 48; major, M. C., U. S. Army, and discharged, May 5, 1919; died, January 29.

James C. Smith, St. Joseph, Mo.; Missouri Medical College, St. Louis, 1881; aged 63; a member of the Missouri State Medical Association; died, January 27.

Laureston A. Merriam, Omaha; University of Michigan, Ann Arbor, 1873; aged 77; a member of the Nebraska State Medical Association; died, January 25.

Jackson David Horton, Aurora, Ind.; College of Physicians and Surgeons, Chicago, 1884; aged 60; died at the Deaconess Hospital, Louisville, February 1.

James H. Ewing, Baltimore; Eclectic Medical College of Pennsylvania, Philadelphia, 1876; aged 88; a veteran of the Civil War; died recently.

Phillias H. Boisvenu, Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1899; aged 49; died, February 5, from pneumonia.

Peter Fairly, Jackson, Miss.; Tulane University, New Orleans, 1868; aged 81; died, February 1, from injuries sustained in a fall.

William E. Chapman ⊕ Litchfield, Minn.; University of Vermont, Burlington, 1879; aged 63; died, February 6, from heart disease.

Henry Gordon McGill, Oakland, Calif.; University of the City of New York, 1892; aged 59; died, February 3, from heart disease.

Lewis Americus Ward, Bemidji, Minn.; Hahnemann Medical College and Hospital, Chicago, 1895; aged 54; died, January 16.

Idris Helen Briggs Gregory, Ontario, Calif.; University of Michigan, Ann Arbor, 1876; aged 66; died in Los Angeles, January 30.

William M. Meffert, Emporia, Kan.; Louisville (Ky.) Medical College, 1888; died in Kansas City, January 29, from diabetes.

John A. Robb, Catonsville, Md.; University of Maryland, Baltimore, 1880; aged 61; died, January 30, from pneumonia.

William Ambroise Hulen, Kansas City, Mo.; Missouri Medical College, St. Louis, 1890; aged 58; died, January 26.

William O. Trammell, Atlanta, Ga.; Atlanta (Ga.) Medical College, 1895; aged 63; also a druggist; died, January 30.

Lambert Holland Edgar, Philadelphia; University of Pennsylvania, Philadelphia, 1887; aged 66; died, January 22.

Thomas Francis Martin, Bridgeport, Conn.; University of the City of New York, 1874; aged 69; died, January 21.

Gabriel Harrison Parkhurst, Allendale, N. J.; Castleton (Vt.) Medical College, 1860; aged 84; died, January 29.

Almon Augustus Manson ⊕ Chicago; Rush Medical College, 1903; aged 42; died, February 12, from nephritis.

John R. Huffaker, Knoxville, Tenn.; Chattanooga (Tenn.) Medical College, 1902; aged 48; died, January 23.

John Edward Fitzgerald, New York; University of Vermont, Burlington, 1902; aged 51; died, January 7.

Johnson Franklin McKneely, Clinton, La.; University of Louisville, Ky., 1912; aged 30; died, January 26.

Hamer S. Beasley, Pearson, Ark.; University of Arkansas, Little Rock, 1908; aged 51; died, January 27.

Percival Gates Kelsey, Evanston, Ill.; Chicago Medical College, 1864; aged 80; died, January 19.

Robert I. Battle, Cartersville, Ga.; University of Nashville, Tenn., 1861; aged 78; died, January 23.

Hugh P. Mack, St. Louis; St. Louis Medical School, 1884; aged 57; died, January 22.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

THE WILLIAM F. KOCH CANCER REMEDY

Last week some space was given to the alleged cure for cancer put out by Dr. William F. Koch of Detroit. Incidentally it should be mentioned that Dr. Koch's article of Oct. 30, 1920, to which reference was made, appeared not in the *New York Medical Journal,* as stated, but in the *New York Medical Record.*

The following correspondence throws additional light on the subject:

To the Editor:—To the number of inquiries which you have received regarding the alleged cure of cancer by Dr. Koch, permit me to add the following personal experience. On July 1, 1920, I was asked to examine an ex-patient of mine whom I had not seen professionally for many years. Her husband frankly told me that for several months his wife had been treated by Dr. W. F. Koch for inoperable carcinoma of the pelvic organs, that he wished Dr. Koch to retain charge of the treatment but hoped I would give my opinion regarding certain nervous manifestations in the patient which were causing him (the husband) much concern. At the same time, he showed me a letter written by Dr. Koch purporting to explain the symptoms and offering suggestions regarding treatment. I called on the patient and found her in the last stages of generalized carcinomatosis. Simple palpation of the abdomen revealed multiple nodules involving both lower and upper abdominal quadrants. I did not feel justified in making a pelvic examination but noted a profuse foul-smelling discharge on the vulvar pad. My prognosis did not meet with the deluded husband's approval. The patient died within a week and a necropsy confirmed the clinical picture of carcinomatosis. Enclosed is Dr. Koch's letter; the patient's name should of course be omitted if you see fit to publish this note.

George de Tarnowsky, M.D., Chicago.

The letter from Dr. Koch which Dr. de Tarnowsky enclosed with his own, follows. We have, of course, deleted the name of the patient.

June 28, 1920.

Dear Doctor: Mrs. ——— has absorbed and is still absorbing some killed tumor tissue. She has absorbed some three pounds, I judge. The results of the absorption are intoxication quite general (nervous, muscular, perhaps nephritic). The myocardium at present shows no signs of poisoning but the skeletal muscles and nerve do. The important toxin liberated by the killed tissue is methyl cyanimide which combines ammonia (NH_2) from the amino acids, and thus becomes methyl guanidine. This latter has produced in my patients an intoxication varying in similarity to: idiopathic tetany in children, chorea in children, eclampsia in women, and has even been so severe as tetanus in some of the muscle spasms; a toxic albuminuria has resulted in some of my cases.

All of my cases have cleaned up so far. Of course, I cannot predict in any individual case, except that when the absorption has been completed and the toxin all eliminated, everything should return to normal, unless the toxin has destroyed tissue beyond physiological repair. My suggestions as to treatment would be elimination, saving the kidneys as much as possible, by whatever methods you find best and necessary.

At present I am treating symptomatically thus—atropin as a guanidine antidote, arsenic as a chorea coupled antidote as a prevention to the production of guanidine from the cyanimide, the use of dilute hydrochloric acid has proven successful to me. Even a urine boiling solid—albumen has cleared up in one case in three days just by taking large quantities of ½ per cent HCl. I am explaining the factors I have contended with in these cases, but do not want to influence your plan of treatment when your judgment finds me insufficient.

Sincerely, Wm. F. Koch.

I shall have a publication out very soon on the treatment of these tetanics and eclampsia with HCl.

It is worth noting that this letter of Dr. Koch's was written June 28, just three days before Dr. de Tarnowsky saw Mrs. ——— and less than a week before she died of generalized carcinoma.

Not the least important element in the story which these two letters tell is the optimism engendered in the husband of the poor cancer patient by the widely vaunted treatment of Koch. And herein lies one of the most pernicious features connected with the exploitation of alleged cures for cancer, tuberculosis, etc. All such remedies, whether fraudulent both in their inception and exploitation or those which while equally worthless are at least honestly put forward and are based on a certain amount of scientific investigation produce a profound and marked temporary change in the patient's condition. It is this that tends to warp the judgment not only of the unscientific layman, but also of the physician. The psychic element in cancer has been well described by Weil:

"Is it indeed, very remarkable that a patient who has been consigned to death as a victim of a hopeless malady, should regain his spirits and his appetite, when he is again confronted with the hope of a cure, and of the eradication of his disease? It is a phenomenon well known to every student of the disease that a large proportion of cases responds in just this manner to any treatment which is offered them. Osler has described a case of cancer of the stomach in which the mere visit to a consultant of sanguine temperament, though poor judgment, whose assurance of the patient that there was no possibility of cancer, resulted in a disappearance of all the symptoms and a gain of 18 pounds in weight. It is this psychic influence, which has occasionally deluded the honest student of cancer cure, and which has also so generously played into the hands of the dishonest."

BOROTETRAMINE ("BORO") NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report which declares Borotetramine (Takamine Laboratories, New York) inadmissible to New and Nonofficial Remedies.

W. A. Puckner, Secretary.

"Borotetramine" and "Boro" are names applied by the Takamine Laboratories to hexamethylenamin diborate. It is a molecular combination of hexamethylenamin and boric acid which is readily split into its components. The borates of hexamethylenamin have been known for some time. In 1907, the Atkiengesellschaft für Anilinfabrik. took out a patent in Germany (D. R. P. No. 188,815) covering the preparation of the monoborate, the diborate and the triborate of hexamethylenamin. The triborate has been used in medicine under the name "Borovertin."

According to an explanatory letter from the Takamine Laboratories, Borotetramine is not intended as a means of administering hexamethylenamin and boric acid but as a means of rendering the urine acid. The firm, however, has failed to submit any evidence that the oral administration of Borotetramine materially changes the true reaction of the urine. In any case the effect cannot be greater than that of the boric acid contained in Borotetramine. Boric acid has been tried in gonorrhea, but seems to have been abandoned by modern clinicians.

The manufacturer claims that the greater solubility of Borotetramine renders it more efficient than the ingredients taken separately. Such an increased solubility, however, is of no moment, first because the compound is broken up in the stomach into its components and second, because the solubility of boric acid is quite sufficient to insure its solution in the alimentary tract, especially in the intestine. Furthermore, Borotetramine must separate into its components before it can act; hence the administration of a compound presents no distinct advantage over a simple mixture of the components.

The Council holds that Borotetramine is a superfluous and therefore useless article, and hence not eligible for inclusion with New and Nonofficial Remedies.

General Practitioner and Tuberculosis.—The medical student of today is the medical practitioner of tomorrow, and the general practitioner is our first line of offense against tuberculous disease; yet it has been demonstrated by notification records that the early diagnosis of tuberculous disease is rather the exception than the rule.—H. Gauvain, *Brit, J. Tuberc.* **15**:3, 1921.

Correspondence

THE PROPER RECOGNITION OF THE CLINICAL PATHOLOGIST

To the Editor:—In The Journal, January 8, appears a communication from Dr. Gradwohl on the subject of laboratory technicians in the field of clinical pathology. I feel certain that this raises questions of vital importance to every clinical pathologist. Clinical pathology is a field in which the application of scientific methods to the practice of medicine has perhaps reached its greatest development. It is distinctly a form of diagnosis. Its successful application requires grounding in the fundamental medical sciences as well as thorough training in the clinical branches, so that not only may suitable methods of examination be accurately employed in a given patient, but also a correct interpretation of the results of the examination may be had. The general training of the medical curriculum cannot give the necessary special training for clinical pathology. Clinical pathologists must be recognized as specialists in the broad field of medicine, a conception which requires the clinical pathologist to be a medical graduate.

In the present tendency to have clinical laboratory work performed by these nonmedically trained, so-called "technicians" we are facing a situation whose logical development has possibilities potentially dangerous to the position of clinical pathology as a medical specialty. My original conception of the term "technician" was that it designated a type of laboratory aid capable of rendering general assistance about a laboratory, but not engaged in making diagnostic examinations, which were the function of the clinical pathologist. Recently the scope of the term has become enlarged, so that it includes the performance of diagnostic examinations. From a perusal of advertisements in The Journal, it would seem that some are extending the scope of the term to include persons not possessing medical training, who are to interpret the results of laboratory examinations as well. The present use of the term "technician" is therefore synonymous in some quarters with clinical pathologist, but more particularly for one without medical training.

I have observed some agitation for the establishment of special courses for the training of such nonmedical assistants, the proponents of the suggestions asserting that medically trained clinical pathologists required the assistance of such persons in their laboratories. Where the responsibility and direction of a technician's work rests on a medical clinical pathologist, I grant that the nonmedical technician occupies a definite legitimate field. But, on the other hand, there is a definite tendency on the part of medical practitioners of one type or another, men who themselves are not clinical pathologists, to establish personal private laboratories of their own and to install a nonmedically trained technician in the laboratory. Under such circumstances the technician becomes to all intents a clinical pathologist, as we find that such technicians also establish laboratories of their own and actually independently practice clinical pathology.

From what sources are the "technicians" encountered in the last two circumstances recruited? We find here persons who may or may not be college or high school graduates, or pharmacists and who have received more or less thorough training in other laboratories under presumably competent clinical pathologists. Their training for the most part has been in the narrow field of routine, and their knowledge is empiric. They are not qualified for work outside the narrow field of routine, as the accuracy of their procedures is uncertain and they are absolutely disqualified to interpret laboratory results or suggest new avenues of approach to a perplexed clinician. Is it any wonder, therefore, that practitioners sometimes disparage laboratory assistance and that some states, such as New York, are finding it necessary to adopt some supervision over laboratories in which clinical pathologic work is being performed?

What solution does this situation demand? In my opinion it will only be met when the medical profession recognizes that clinical pathology is a medical specialty and countenances the performance of clinical pathology only by adequately trained medical men. The men who so specialize and practice in this field at present are not receiving the proper support of the rest of the profession when the latter countenances the employment of so-called "technicians" by practitioners for clinical pathologic work, or the patronage of laboratories conducted by nonmedical technicians of uncertain training and competence. The existing medical practice acts are inadequate to meet this situation. Clinical pathologists should recognize that the present situation, if continued, will lower the plane on which laboratory diagnosis is conducted and hence diminish the standards of accuracy and reliability; that it will diminish instead of increase research productivity in this field, and that it will be increasingly difficult to encourage medical men with the necessary degree of special training to enter this field. Clinical Pathology will occupy a lower plane.

I am heartily in favor of special training for medical men who desire to enter the field of clinical pathology, but I am opposed to the present growing practice of permitting nonmedical individuals of uncertain training to practice clinical pathology. Public welfare is jeopardized and medical standards are lowered thereby.

Mark F. Boyd, M.D., Galveston, Texas.

MEDICAL BIBLIOGRAPHY AND THE PERPETUATION OF ERROR

To the Editor:—The extent to which a scientific article should give bibliographic evidence of research in the literature on the part of its writer cannot be determined by rule. The character of the subject, the degree of familiarity with it possessed by the intended readers, the method of approach by other authors, and a dozen other factors will decide for the writer whether he should attempt a complete analysis of the literature of his subject, include a comprehensive annotated bibliography, append a complete author-subject list, content himself with citations of authorities, broadly summarize the literature without citations, or perchance ignore his predecessors entirely. In its proper setting, any one of these courses might be found satisfactory and sufficient; but the more limited the topic, the more precise its application, the more necessary does it become for the author to give evidence of familiarity with the literature of the subject concerning which he writes. He can best do this by such bibliographic apparatus as may be found necessary, for, to those expert in his own line, his thesis may exhibit abundant internal evidence of the possession of such familiarity and yet be judged inadequate and superficial through lack of external evidence when read by the inexpert. Thus it has come about that a criterion invariably applied to the written presentation of the results of a scientific investigation is whether or not it is accompanied by an adequate bibliography. One need not dip very far into current medical literature to discover why a real necessity for the application of this test exists.

As one corollary to this condition has been developed the use of coarse, bulky, undigested and unassimilated bibliography to give volume and dignity of appearance to an article altogether unworthy of such an appendage. If a bibliography is a good thing, insuring a hearing by a respectable audience, let us have a bibliography and that a long one.

It is a second corollary, however, which prompts the writing of this note. The author of a scientific communication, altogether sufficiently familiar with the literature of his subject, knowing that it has been abstracted from various angles by twenty or a hundred others before him, still feels that his paper must give external evidence of his familiarity. So he appends his bibliography and cites his authorities. But he avails himself of the abstracts and bibliographies of one or more of his predecessors and does not go to the original sources. He may not realize that some of his forebears have done likewise, and hence the perpetuations of error, misquotations, false translations and, above all, incorrect references, passed along from one to another, unchallenged and uncorrected.

If an example is needed (let us hasten to state that in quoting one no personal application is intended, and apologies are tendered), the adventure in bibliographic research here narrated may serve.

In an article on "Primary Tuberculosis of the Faucial Tonsils in Children" (*Journal of Pathology and Bacteriology* **21**:248-266, 1916-1917) Mitchell writes:

> Orth (1879[30]) seems to have been the first to have recorded a case of primary affection of the tonsil. He found tuberculosis of the tonsils in children who had died of diphtheria, the lungs being free from tuberculosis.

The reference (30) cited is Orth, *Virchows Archiv,* Berlin, 1879, Bd. LXXVI, s. 222. This is found to be Orth's important paper on the experimental study of ingestion tuberculosis. Page 222, which is the sixth page of the article, details the results as observed in Dog 17, in which tuberculous lesions of the tonsils and base of the tongue were noted. There is no record on this, or the preceding or following pages, of the observation of primary tonsillar tuberculosis in children dying of diphtheria.

Mitchell had access to an article by Carmichael (*Proceedings of the Royal Society of Medicine* [Section for Diseases of Children] **3,** pt. 1, pp. 27-36, 1910), for the reference is found in his bibliography. In this article Carmichael writes:

> Orth seems to have been the first to have recorded a case of primary affection of the tonsil.

Carmichael's reference, as well as the diction, is identical with that just quoted from Mitchell, and, as we have just seen, refers the reader only to experimentally produced lesions in dogs.

Mitchell also refers to an article by Bandelier (*Beiträge zur Klinik der Tuberculose* **6**:1-44, 1906). On the eleventh page of this article, Bandelier thus refers to the work of Orth:

> (Translation) Orth, who was the first to observe primary tonsillar tuberculosis in children dying of diphtheria, and otherwise tuberculosis-free, was able to produce cervical node tuberculosis in puppies by feeding tuberculous material, in one instance with a macroscopically demonstrable primary tonsillar tuberculosis.

In his bibliography, Bandelier gives the same reference as Mitchell and Carmichael, but without mentioning the page pertaining to Dog 17, to the article by Orth in *Virchows Archiv für pathologische Anatomie,* which, as we have just seen, is a proper citation only for the second part of his abstract. As a reference, it is but a half truth at the best. The whole truth must be sought a step farther back.

Mitchell and Bandelier both refer to a bulky article by Friedmann (of serum therapy fame) which is found in the *Beiträge zur pathologischen Anatomie* **28**:66-135, 1900. Here we find a possible source of the faulty references of Mitchell, Carmichael and Bandelier.

> (Translation) Orth[13, 14] found tuberculosis of the cervical nodes in seven out of nine puppies fed tuberculous material; in part of the animals specific ulcers of the mouth were met, and once tuberculous lesions of the tonsils. Further, the same author has found tubercles, without pulmonary tuberculosis, in the tonsils of children dying of diphtheria.

The two references given are true and complete. The thirteenth is to the article in *Virchows Archiv* and the fourteenth to Orth's "Lehrbuch der speciellen pathologischen Anatomie," on page 663 of which (1887 edition) the observation of primary tuberculosis in children dying of diphtheria is noted. This is the probable source, and the sequence given above, a possible pedigree, for Mitchell's false reference. Whether other generations were present in the chain and to what extent collateral inheritance took place has not been investigated.

Friedmann's method of giving double references without specifying the application of each was awkward, but would have caused no trouble had those desiring to present an abstracted bibliography of tonsillar tuberculosis consulted the original sources. Medical literature is strewn with bibliographic items similarly unverified, giving the impression of abundant and accurate library research on superficial examination, but proving very disappointing when their verification is attempted. The moral is obvious.

Carl Vernon Weller, M.D., Ann Arbor, Mich.
Assistant Professor of Pathology, University
of Michigan Medical School.

A CREDITABLE NECROPSY RECORD

To the Editor:—One of the criteria of the interest taken by members of a hospital staff in the scientific side of their profession is the ratio borne by the number of necropsies to the number of deaths occurring in any service. During the last year an especial effort has been made in my service at the Episcopal Hospital in this city to stimulate an interest on the part of all concerned in ascertaining by postmortem examinations not only errors in diagnosis but also faults in treatment (both of omission and of commission).

There were, in all, forty-three deaths; in these cases, complete necropsies were obtained in twenty (46.5 per cent.), and partial necropsies in ten (23.2 per cent.), or a total of thirty postmortem examinations (70 per cent.). Included in the foregoing there were twenty-nine deaths in patients who had been subjected to operation, and in twenty-three (79.3 per cent.) of these, postmortem examinations were held. Thirteen (43.7 per cent.) were complete necropsies, and ten (34.4 per cent.) were partial necropsies in which all that was essential was ascertained. Among fourteen deaths in patients who had not been operated on, there were held seven (50 per cent.) formal necropsies.

This record, which I feel is creditable, could not have been secured without the active cooperation of the entire staff: associate surgeons, chief resident physician, ward surgeons, and laboratory force.

Astley P. C. Ashhurst, M.D., Philadelphia.

Group Medicine.—Properly considered, group medicine is not a financial arrangement, except for the minor details, but a scientific cooperation for the welfare of the sick. Medicine's place is fixed by its services to mankind; if we fail to measure up to our opportunity it means state medicine, political control, mediocrity, and loss of professional ideals. The members of the medical fraternity must cooperate in this work and they can do so without interfering with private professional practice. Such a community of interests will raise the general level of professional attainments. The internist, the surgeon, and the specialist must join with the physiologist, the pathologist, and the laboratory workers to form the clinical group which must also include men learned in the abstract sciences, since physics and biochemistry are leading medicine to greater heights. Union of all these forces will lengthen by many years the span of human life and as a by-product will do much to improve professional ethics by overcoming some of the evils of competitive medicine.—W. J. Mayo, *Surg., Gynec. & Obst.* **32**:102 (Feb.) 1921.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

METOL DERMATITIS ("PHOTOGRAPHERS' ECZEMA")

To the Editor:—The other day a photographer consulted me for cutaneous lesions around the inner canthi of both eyes, and large areas on the anterior surface of the left knee and groin. The lesions did not have the appearance of psoriasis but rather that of "weeping" eczema. The family history was negative for psoriasis or other similar skin lesions. Further history elicited that the lesion first appeared about 1912; and at this time the patient began using, in developing, a German preparation called Metol (Hoff), handled solely by G. Gennert, 2426 East Thirteenth Street, New York, which chemical is now widely used in photography. Furthermore, the patient has a friend who cannot come into the room where this product is used without having, as a result, intense itching and a fine papular eruption on variable places of the body.

The indexes of The Journal, for several years back, give no information on this subject. Can you give me any source of information on this subject?

Park L. Meyers, M.D., Toledo, Ohio.

Answer.—Workers in photographic establishments, especially those engaged in the developing process, are exposed to a number of industrial poisons, such as bromin, chromium, "metol" (a trade name for mono-methyl para-amido meta-cresol sulphate), cyanogen, platinum, vanadium, anilin and mercurial compounds. Kober and Hanson (Diseases of Occupation and Vocational Hygiene, Philadelphia, 1916, p. 616) state that "in an examination of forty studios in Chicago by Dr. Karasek, platinum paper was found to be the cause of eight cases of poisoning, characterized by 'pronounced irritation of the throat and nasal passages, causing violent sneezing and coughing; bronchial irritation, causing such respiratory difficulties as to preclude the use of the paper entirely for some individuals, and irritation on contact with the skin, causing cracking, bleeding and pain.' Metol poisoning, characterized by an erythematous rash of the hands and arms, occasionally involving other parts of the body and giving rise to ulcers, was found in thirty-one cases in this same study. The developing process frequently gives rise to inflammatory conditions of the hands (eczema), ulcers and pigmentation unless protected by rubber gloves."

The so-called "photographers' eczema," the most common disease of this occupation, is due to "metol." In an answer to a query in this department several years ago (Metol Dermatitis, The Journal, Feb. 15, 1915, p. 610) concerning the method of treatment for this condition, it was stated that:

> There have been various recommendations for prophylaxis and treatment. Coating the hands with petrolatum before beginning development is a useful precaution. L. A. Freeman (*British Journal of Photography*, June 5, 1914) recommends that 2 drops of pure phenol (carbolic acid) be added to a quart of cold water. Immerse the hands in it after the use of metol, and warm gently over a gas flame until the heat is no longer tolerable. Then wash thoroughly with carbolic soap and dry well.
>
> Before the skin is broken, N. T. Beers (*New York M. J.*, Sept. 10, 1908; abstr., The Journal, Sept. 26, 1908, p. 1107) recommends soothing applications, such as lead lotion. After the skin is broken, care must be taken to protect the parts thoroughly and to use the blandest of applications. Zinc stearate with 1 or 2 per cent. of phenol or salicylic acid makes a useful dusting powder. In the later stages, more stimulating applications may be used, such as small amounts of oil of cade or of resorcin or ichthyol.
>
> This ointment has been advised: ichthyol, resorcinol, glycerin, of each, 1 ounce; zinc oxid, ½ ounce; white petrolatum, 6 ounces (*Brit. J. Photog.*, Nov. 7, 1913, p. 860).

IRON ARSENITE

To the Editor:—Can you inform me how iron arsenite can be prepared for subcutaneous injection? A commercial firm furnishes physicians with ampules of arsenite of iron. Is this really arsenite of iron?

S. H. Kempner, M.D., New York.

Answer.—Ferric arsenite (iron arsenite) is in itself relatively insoluble in water, but may be treated with ammonium citrate, the resulting product thus being soluble; the latter substance was at one time described in New and Nonofficial Remedies as "Ferric Arsenite, Soluble" and is sometimes sold as a solution in ampule form. In 1912, the Council on Pharmacy and Chemistry deleted "Ferric Arsenite, Soluble" from New and Nonofficial Remedies because "one cannot, in administering Ferric Arsenite, Soluble, give a useful dose of iron without giving too much arsenic; and, vice versa, one cannot give a safe dose of arsenic without giving too little iron." The Council, therefore, held the preparation to be irrational and unscientific.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alaska: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.

Arizona: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Connecticut: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Idaho: Boise, April 5. Director, Mr. Paul Davis, Boise.

Maine: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

Massachusetts: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

Minnesota: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

National Board of Medical Examiners, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

New Hampshire: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

Porto Rico: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

Rhode Island: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

MEDICAL EDUCATION AND PRACTICE IN CLEVELAND

Of the report[1] of the Hospital and Health Survey of Cleveland, Part 8 (pages 651 and 676, inclusive) deals with medical education and practice in that city. Since the only medical school in Cleveland is the School of Medicine of Western Reserve University, it was easy for the survey to place the responsibility for such conditions as were found, whether creditable or otherwise. The report brings out the following interesting data: (*a*) Each entering class of Western Reserve University School of Medicine is limited to fifty students. (*b*) A total of 5,136 classroom hours is scheduled for the complete course. (*c*) Of the 1,987 physicians who graduated from this medical school since 1860, 331, or 16.6 per cent., are practicing in Cleveland and constitute 28.3 per cent. of the 1,169 physicians practicing in Cleveland. (*d*) The 413 staff positions in the Cleveland hospitals are occupied by 309 physicians, seventy-six of these physicians occupying positions in from two to five hospitals. Of the 309 hospital staff in Cleveland, seventy-five, or 24.2 per cent. are occupied by graduates of Western Reserve University, and thirty-one, or 10 per cent., are occupied by teachers of the University who graduated elsewhere. (*e*) Of the 1,169 physicians in Cleveland, 878, or 75.1 per cent., are in general practice, while 291, or 24.9 per cent., are in the specialties. (*f*) Of the 291 specializing, ninety-one, or 31.3 per cent., claim surgery as their specialty; fifty-five, or 18.9 per cent., are practicing in diseases of the eye, ear, nose or throat, and the next largest number is twenty-three, who are specializing in diseases of children. (*g*) Of the 545 physicians who served internships in Cleveland hospitals during the last ten years, 196, or 36 per cent., are now practicing in Cleveland. (*h*) In the Cleveland hospitals during 1919 there were 455 necropsies, and of these 351 were conducted in the four hospitals connected with Western Reserve University School of Medicine.

The recommendations in the report, in substance, are that:

1. In order to strengthen the university organization, new members be added to the board of trustees representing industries, professions, the medical alumni and public services.
2. New medical buildings be erected on a site nearer the other departments of the university.
3. A plan for financial support be adopted so as to provide adequate salaries of teachers and for maintenance of the school.
4. The trustees discontinue teaching affiliations with all but the City, Lakeside, Maternity and Babies' hospitals.
5. Changes in the city charter be secured to insure the appointment of a board of trustees responsible for the administration of the City Hospital so as to guarantee a more permanent and satisfactory teaching relationship with the medical school.
6. The university discourage the employment of its officers on a part-time basis in city government positions.
7. More instruction in preventive medicine be included in the curriculum without necessarily increasing the hours of instruction.
8. Facilities for the training of physicians in industrial medicine, psychiatry, orthopedic surgery and urology be provided at the earliest opportunity.
9. The voting faculty drop absentee or inactive members and add ten or more assistant professors, demonstrators and others in order to make this body more representative of the actual teaching work.
10. Staff conferences be established to insure more uniform teaching policies in the various hospital services.
11. The department of pediatrics be made responsible for the care of new-born babies in the maternity hospital.
12. Financial provision be made at the earliest opportunity for graduate medical instruction.

IMPROVED OUTLOOK FOR MEHARRY MEDICAL COLLEGE

After forty-four years of continuous service as founder and builder of the Meharry Medical College, a medical school for negroes at Nashville, Tenn., Dr. George W. Hubbard retired from its presidency, February 1. Dr. Hubbard is having the satisfaction of seeing the culmination of his hopes regarding an assured permanency of the medical school and the brighter prospects for its higher standing as an educational institution. Dr. Hubbard's successor is Dr. John J. Mullowney, formerly head of the department of science and professor of chemistry and biology at Girard College, Philadelphia. Dr. Mullowney is 42 years of age and was selected because of his hearty sympathy with negro education and his special fitness for the work as head of the medical school. The financial status of the college has been greatly improved by the gifts of $150,000 each from the General Education Board and the Carnegie Foundation for the Advance of Teaching which, with the $200,000 raised by the Board of Education for Negroes of the Methodist Episcopal Church, has established a total endowment of $500,000.

Wyoming October Examination

Dr. J. D. Shingle, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, Oct. 4-6, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 3 candidates examined, 2 passed and 1, an osteopath, failed. One candidate was licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University		(1919)	77.5
Jefferson Medical College		(1917)	90.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Western Reserve University		(1919)	Utah

Texas November Examination

Dr. Thomas J. Crowe, secretary, Texas State Board of Medical Examiners, reports the written examination held at Dallas, Nov. 16-18, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College	PASSEL	Year Grad.	Per Cent.
Baylor University		(1920)	81.5
Mexican National Homeopathic School of Medicine		(1916)*	94.5

* Graduation not verified.

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[1] Already referred to in The Journal, Feb. 5, 1921. See Current Comments, pp. 383, 384.

Book Notices

A Laboratory Manual and Text-Book of Embryology. By Charles William Prentiss. Revised and Rewritten by Leslie Brainerd Arey, Professor of Microscopic Anatomy at the Northwestern University Medical School. Third edition. Coth. Price, $5.50 net. Pp. 412, with 388 illustrations. Philadelphia: W. B. Saunders Company, 1920.

This work is so widely and favorably known that the third edition does not call for extended comment. The figures of dissections and of reconstructions of embryos, which have formed a distinctive feature of this work from the first edition, are so beautiful, accurate and detailed that they are a delight to the experienced embryologist and a revelation to the student. No teacher of embryology can afford to be without the book if only for the sake of these remarkable figures; and, all things considered, it is probably the best book on embryology for the use of medical students in the English language. The present edition includes a new brief introductory chapter, and two or three new figures to replace old ones. The text has also been rewritten extensively, but without much additional material, though sufficient to bring it generally up to date. It is an introductory textbook, and, naturally, is not in any sense exhaustive. It is distinctly a book for the technical student with command of abundant material, and otherwise for reference on definite points. It is not a book to be read consecutively. The subject of embryology lends itself better than almost any other biologic discipline to consecutive and logical development, and such form of treatment was an outstanding characteristic of some of the older treatises, notably Hertwig's. The absence of such treatment is the most pronounced defect of this volume, which, it is to be hoped, may be remedied in the later editions certain to be called for. That this is a common defect of anatomic instruction in America makes it only the more regrettable that the part of the anatomic disciplines, which, by its very nature, invites philosophical treatment, should be presented as so much bare bones. If, for instance, one wishes to look up the subject of the placenta, one will find a few—very few—considerations on pages 74 and 75 as part of a chapter on "human embryos and fetal membranes"; and, if more information is desired, it is necessary to turn to the end of the chapter on the "urogenital system" (p. 230 ff.), where, for some mysterious reason, more data on the same subject are presented. But nowhere is there any adequate consideration of the way in which such an extraordinary organ has developed, or how it functions. As another illustration: the development of the face and of the oral cavity and its organs is an appendage to a chapter on "the dissection of pig-embryos," with which it has no logical connection whatever. The double function of the volume as laboratory manual and textbook is responsible for much of the lack of logical and consecutive treatment. The striving for condensation of statement, moreover, often leads to obscurity and infelicity of expression. These faults could be avoided in large measure by a more thoroughgoing isolation of the two functions of the book, and a slight increase of its size.

The Chemistry and Analysis of Drugs and Medicines. By Henry C. Fuller, B.S., in Charge of the Division of Drug and Food Products, The Institute of Industrial Research, Washington, D. C. Cloth. Price, $10. Pp. 1072, with illustrations. New York: John Wiley & Sons, 1920.

Medicines are so complex and variable in composition that their analysis requires a skill, practice and familiarity with diverse analytic methods much beyond the routine customary in most industrial laboratories. The procedures necessary for the analysis of medicines are so varied, the analytic schemes so complicated, and the methods so widely scattered in pharmaceutical literature, that no single publication has heretofore attempted to deal with the subject as a whole. Unless an author has spent the major portion of a long lifetime in the critical comparison of methods, a subject so broad as the "chemistry and analysis of drugs and medicines" cannot be handled adequately except by compiling much of the information from the literature. The author of this book deserves credit for his accomplishments in this direction, since the task is truly a stupendous one. In some instances the compilation has not been critical. For example, it is well known that the U. S. P. IX method for the assay of oil of peppermint, as published in the text, was unsatisfactory because of imperfections in the formula for the calculation. Corrections were afterward made by the committee of revision, but these changes have not been incorporated in this book. In some cases the author has failed to give credit for information taken from the literature. The test for salicylic acid in acetylsalicylic acid and the description for ichthyol are taken essentially unchanged from the older editions of New and Nonofficial Remedies without quotation marks and without credit being given. Most of the medicinal substances likely to be found in secret remedies are considered in detail in this book, and considerable discussion is devoted to vegetable mixtures of the shotgun variety, with mention of the diseases in which they are claimed to be useful. Statements of this kind are always helpful to the analyst, as they often furnish hints as to what drugs should be looked for in an analysis. In a work in many other respects excellent, it is regrettable that space has been taken by the description of little used or worthless drugs, such as aralia, aletris and helonias (for which no chemical tests are known), while substances of wide application in medicine like oil of chenopodium, collodion, thyroid, scarlet R., acriflavine and benzyl benzoate (all evaluated chemically) are not mentioned. The World War brought about the manufacture by the Allies of many medicinal substances under free names which were formerly controlled by the Germans under protected names. In this book it is noticeable that the modern, scientific and accredited names of many of these medicines, such as benzocain, barbital, cinchophen and procain, are not given, but instead the protected names of German origin by which the substances were formerly known are used. Arsphenamin is a creditable exception. While the book will not be of much value to practitioners, it should prove helpful to medical experts and an aid to drug analysts and forensic chemists. It should be in laboratories in which medicines are analyzed.

A Consulting Surgeon in the Near East. By A. H. Tubby, C.B., C.M.G., M.S., Consulting Surgeon to the Westminster Hospital. Cloth. Price, 15 shillings net. Pp. 279, with illustrations. London: Christophers, 1920.

The author records his experiences as a surgeon at Gallipoli, in Egypt and in Palestine. The story is told as a simple narrative describing climate, supplies and transports, the hardships and difficulties that were overcome, and the final triumph. The clinical problems were not essentially different from those on other fronts. The sanitary problems were, however, distinctive; for example, the construction of a pipe line 15 miles long to carry water into the city of Jerusalem. The book is well illustrated and a worth-while contribution to the medical history of the World War.

Lincoln Life Sketches. In Verse and Prose. By Garrett Newkirk. Cloth. Price, $1.25. Pp. 47. New York: Duffield and Company, 1920.

Dr. Newkirk dedicates his interesting booklet to Dr. Norman Bridge. The book contains twenty-one poems based on the life of Lincoln, with cross reference to twenty-one notes from the life of Lincoln which give the historical data on which the poems are based. In the supplement there are abstracts from famous Lincoln addresses. Dr. Newkirk is a physician who has made himself a name in the field of letters, this too, at an age when most physicians are content merely to rest. He graduated from Rush Medical College in 1868. His booklet is inspiring both for its intrinsic worth and as an example of geriatric accomplishment.

An Introduction to Bacterial Diseases of Plants. By Erwin F. Smith, in charge of Laboratory of Plant Pathology, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C. Cloth. Price, $10 net. Pp. 688, with 453 illustrations. Philadelphia: W. B. Saunders Company, 1920.

This is a valuable addition of great interest to the literature of bacteriology. Medical bacteriologists will find it to their advantage to familiarize themselves with the methods of work and the results obtained by the authors. The last chapter, which deals with investigative work, makes entertaining reading and contains valuable suggestions for the directors of such work as well as for the beginners.

Miscellany

THE TRANSYLVANIA LIBRARY

From time to time, reports and rumors have been current concerning the valuable collection of old medical books in the Library of Transylvania University at Lexington, Ky. In the *Transylvania College Bulletin*, November, 1919, there is an interesting note as to these books, which are in charge of Elizabeth Norton as librarian. This collection was started on the foundation, in 1784, of the Transylvania Seminary, and its nucleus was a donation by Rev. John Todd of Virgina. Owing to lack of transportation facilities at this early time, Todd's collection was brought to the seminary through private subscription and installed in the seminary. That the value of a library was appreciated at that time and in a locality as little settled as was the "Western Country" is attested by the setting aside from time to time of funds by the seminary to add to those works originally contributed by John Todd. As early as 1795, there is record of purchases to the amount of over £278, not an inconsiderable sum for an educational center in the far lying district of Kentucky.

When Transylvania University was incorporated at Lexington in 1798, the aims of the board became more ambitious, and in 1821 Dr. Charles Caldwell of the medical college took with him to Paris $17,000 for the purchase of medical books. In his autobiography he says:

> The time of my arrival in Paris was uncommonly and unexpectedly propitious for my purpose. The ravages and wastelayings of the French Revolution had not entirely passed away, and the libraries of many wealthy and literary persons had found their way to the shelves of the bookseller. I found and purchased works which in no other way could have been collected so readily and so certainly and on terms so favorable. Hence the decided superiority of the Lexington Medical Library to any other in the West and South, and probably in the whole United States.

Another foreign purchase was made in 1839, in Paris and London, when Dr. Peter and Dr. Bush spent $11,000 for this purpose.

While the library is not unusually rich in first editions, it contains a well balanced collection of notable works; the medical items are of more than passing interest to those concerned with the history of medicine.

In the account which Mrs. Norton gives of this collection there are thirty-nine medical works described, and among them mention may be made of the following:

The only first editions in the list are a copy of William Harvey's "Exercitationes de Generatione Animalium," published in 1651, and Fabry of Hilden's work. The earliest published book is a translation of the Materia Medica of Discorides, and bears the date of 1529. Discorides, who was a Greek army surgeon in the service of Nero (54-68 A. D.), was the first to publish a materia medica, or at least an application of botany to medicine. Fabricius, who was Harvey's teacher at Padua, is represented by a work on anatomy bearing the date of 1625, and there is a volume of the collected works of Gabriel Fallopius, a contemporary of his, and a pupil of Vesalius, which was brought out in 1600. We note a copy of "De Sympathia et Antipathia Rerum" of Fracastorius, who, as well as being a physician, was a poet, physicist, geologist, astronomer and pathologist, and was the first scientist to refer to the magnetic poles of the earth. It was he who first gave the name to syphilis in his medical poem, "Syphilis sive Morbus Gallicus," published at Venice in 1530; and in his treatise "De Contagione" he forecasts the modern theory of infection due to micro-organisms. Leonardo Botallo, that "vampire of bloodletting," is represented in a book published in 1660. There is a copy of William Cowper's "Anatomie of Humane Bodies," which alas! is chiefly of note from the fact that while he himself wrote the text he shamelessly stole the 105 plates from the text of Bidloo's "Anatomy" published in 1685, a fact which Bidloo took vigorous exception to in his "Gulielmus Cowper, criminis literarii citatus," published in Leyden in 1700, which stands as proof that literary piracy is not altogether a latter day practice.

Nicholas Culpeper, the confident English herb doctor celebrated in Kipling's story, styles himself "Student in Physicke and Astrologie," and contributes "The Astrological Judgement of Diseases." His dedication has a familiar ring even now in view of the statements which appear in the public prints as to various nostrums. It reads, "To the Astrological Physicians of England, Nicholas Culpeper wisheth peace and prosperity in this world, and eternal beatitude in that which is to come. . . . These Rules will serve to ballance your judgement in sayling through the Prognostical part of Physick, so that you may steer your course by the Card of Truth and not float unsettledly upon the waves of Errour, Ignorance, or Opinion." It would appear that the advertising specialist could "get away with it" even in 1655.

There is a copy of Thomas Willis' "Pharmaceutice Rationalis," date of 1675, and also a two volume collection of his writings published at Geneva in 1689. In addition to his contributions relative to the nervous system it will be remembered that Willis was the first to give an account of epidemic typhoid as it occurred in the troops of the Parliamentary Wars in 1643.

The work of Paola Zacchias, the first on medical judisprudence, is also included in the collection.

In addition to those noted, there are a number of others worthy of inspection, even in the short list of the more notable which Mrs. Norton publishes. To any one interested in the beginnings of medicine and its curiosities, there is much in this catalogue of the Transylvania library to attract attention.

INHERITANCE AND EDUCABILITY

Dr. A. F. Tredgold, author of an important work on mental deficiency, recently read before the Eugenics Education Society of Great Britain a paper on "Inheritance and Educability." He pointed out that while the child's capacity for education depended to some extent on such influences as food, clothing, sleep and overpressure, the important cause of difference in educability lay much deeper and was due to inheritance. Children born and bred in virtually the same environment showed marked differences in educability. Galton had demonstrated the inheritance of ability and showed that the chance of a son of an eminent man showing eminent ability was about 500 times as great as that of the son of a man taken at random. It was impossible to avoid the conclusion that each person was born with a certain capacity for mental development, which might never be realized, but which could never be exceeded. Minor differences in educability might be due to the universal tendency to variation; but any marked falling away seemed to be pathologic and associated with defects of structure, which were due to germinal impairment brought about by adverse factors in the environment. He estimated that in 1906 there was at least one certifiable mental defective to 248 of the population, and the proportion had increased since then. There was a still larger proportion who, although not certifiable, had a subnormal mental capacity for development. They were not the descendants of a class or race which had never evolved; they represented a definite retrogression. Such germinal defect was transmissible, and the unrestricted propagation of persons thus tainted might produce a serious deterioration in the energy and capacity of the nation.

The important question arose, If the capacity of the germ plasma might be impaired, might it not also be augmented? In other words, might the stimulation of education and the exercise of mind, continued generation after generation, produce an increased capacity for mental development? The inheritance of acquired characters had been strenuously debated and was still *sub judice*. His own opinion was that there were many facts not to be explained otherwise. National progress depended on the utilization of all the national resources, and of these none was more important than the developmental potentiality of its citizens. Therefore both the immediate and the remote interests of the community demanded that every one should be afforded opportunity for the fullest development of which he was capable. That was the task of education. But, though advances had been made, our educational methods were far from perfect. Much more might be done on physiologic lines to develop perception, discrimination, comparison, judgment and reasoning, and generally to educate mental capacity. Perhaps the greatest defect of our present system was that it did not take enough account of differences of innate potentiality. For children of low capacity much of the education now provided was wasted. On the other hand, those of high capacity did not get enough. In consequence of these fundamental differences, the catchword "equality of opportunity was meaningless." What was wanted was the higher education of children of good natural ability. To some extent this was done by means of scholarships, but their number might well be increased. But scholastic examinations were not entirely satisfactory tests and should be supplemented by medicopsychologic examination by which the durability and the capacity of the mind could now be ascertained. Finally, we should recognize that there were certain stocks whose germinal capacity was so impaired that they transmitted defective educability. Their mating with sound stock might disseminate the taint far and wide until it undermined the vigor of the whole nation. The remedy lay in the revival of the aristocratic ideal: not an aristocracy of rank wealth, but an aristocracy in the true sense of the word, consisting of all that was noble and capable in man, an ideal of the duty we owed to our children and their posterity in keeping them free from any tainted admixture, an ideal of biologic fitness and of their being truly "well born." This was the end and aim of eugenics.

Medicolegal

Privileged Communications and Patients' Declarations

(Maine v. Maryland Casualty Co. et al. (Wis.), 178 N. W. R. 749)

The Supreme Court of Wisconsin says that the plaintiff sought to recover on a policy of accident insurance for the death of her husband, which occurred thirteen days after he had moved a heavy icebox. On the day following the moving of the box he gave an indication of pain in his side by frequently placing his hand there and standing up; and the next day he lay down on a couch during the daytime, complaining of pain in the same place, which appeared to be over the gallduct. Shortly thereafter he was attended by physicians, and just a week after he moved the box he was operated on. The medical testimony showed that prior to his being sent to the hospital the diagnosis of some of the physicians was an infection of the gallbladder, but the operation disclosed that a part of the omentum had become gangrenous to an extent about the size of a hand. That was removed, but subsequently there developed a paralysis of the muscles in the walls of the intestine, and a secondary operation was performed. The distention of the bowels caused by the paralysis increased, and death resulted. The physicians testified that, considering what was disclosed at the operations and the necropsy, taken in connection with the statements which the patient had made to them, more than two days after the accident, as to the moving of the icebox, they ascribed the cause of his death as being traceable to such injury. However, on the motion of the defendant, the testimony of the physicians was striken out, as being privileged under Section 4075 of the Wisconsin Statutes, and after that a verdict was directed for the defendant, for lack of evidence showing the accident to have been the proximate cause of death.

In affirming the judgment dismissing the case, the supreme court says that, although Section 4075 makes no exception in terms as to the application of the peremptory language of the statute, excluding the testimony of physicians or surgeons as to information received by them professionally from a patient, yet it is well established that such statutory provision, being intended as a protection to the patient rather than a mere inhibition to the physician, is a protection or privilege that may be waived by him for whose benefit it is deemed to have been enacted, and therefore such testimony may, notwithstanding the statute, be admitted in evidence, it satisfactorily appearing that the patient's privilege has been waived. However, it cannot be waived by the administrators, executors or personal representatives of a deceased person, or by any person standing in a position toward the deceased such as did the plaintiff beneficiary under the policy in suit.

That such a statute as that which the public policy of the state has adopted for the exclusion of testimony involving information acquired in such confidential relationships as that between physician and patient, may and undoubtedly does in particular instances result in the defeat of meritorious claims, may and does make the court hesitate, but not pause, in unholding the law as it has been written. It must not be overlooked that such privilege is somewhat of a double-edged sword, in that the patient cannot waive his privilege so as to have admitted tesimony elicited from a physician favorable to his side of the controversy, and at the same time insist on the statute for the exclusion of further testimony on cross-examination or otherwise which may prove harmful to his cause. If the bars are lowered for and by him, they must be kept lowered for the opposite party. But the mere possibility of the need of such testimony in any action on an insurance policy does not justify a conclusion that the patient himself in the making of the contract for insurance thereby impliedly writes into it a waiver on his part of the statutory privilege. The trial court was therefore right in ruling that the information obtained by the medical witnesses while attending, prescribing for, and operating on the patient was not admissible in evidence, and should be excluded.

Moreover, the testimony of the physicians so excluded in this case would have been of no avail and weight without the declarations of the patient made to them some days subsequent to the accident, that he injured himself by the moving of the icebox; but such declarations were clearly hearsay, and inadmissible. Recitals of past events made by an interested person are no more admissible in evidence because made to physicians or surgeons, even when necessarily so made for the purpose of proper treatment, than if made to any other persons.

Fees Demanded by Expert Witnesses Allowed

(State v. Howell (La.), 85 So. R. 70)

The Supreme Court of Louisiana says that two physicians who were summoned from the city of New Orleans to the parish of Lincoln to testify in this murder case gave their testimony, and for their services they claimed $50 a day plus actual expenses. The court allowed $25 a day and expenses. They then took a rule on the police jury of the parish to show cause why they should not be allowed the amount claimed in full. The physicians stood very high in their profession, and testified that their charge was reasonable, in fact, moderate, less than what was usually allowed them as experts in court cases, and that, moreover, the amount was agreed on beforehand. There was no evidence to the contrary. The trial judge, however, thought that the matter was one wholly within the discretion of the court, and that, besides, the allowance was reasonable. But the supreme court holds these experts were entitled to the full value of their services, and that the evidence showed that this value was at least equal to the amount claimed, in consequence of which it amends the judgment appealed from by increasing it to $229.85 in favor of each physician, the parish of Lincoln to pay all costs.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Philadelphia, March 24-26.

American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.

Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, March 7-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Surgery, Chicago

January, 1921, **2**, No. 1

*Surgery of Substernal and Intrathoracic Goiters. J. deJ. Pemberton, Rochester, Minn.—p. 1.

*Are There Reliable Criteria of Operability in Exophthalmic Goiter? D. Cheever, Boston.—p. 21.

Repair of Bone Following Fractures. J. A. Blake, New York.—p. 37.

*Treatment of Fracture of Femur. K. Speed, Chicago.—p. 45.

*Association of Hepatitis with Experimental Cholecystitis and Its Bearing on Pathogenesis of Cholecystitis in Human. M. G. Peterman, W. A. Priest, Jr., and E. A. Graham, St. Louis.—p. 92.

Effect of Combined Radiation and Heat on Neoplasms. G. L. Rohdenburg and F. Prime, New York.—p. 116.

Unrecognized Occupational Destruction of Tendon of Long Head of Biceps Brachii. A. W. Meyer, Palo Alto, Calif.—p. 130.

Recurrence of Calculi in Common and Hepatic Ducts After Cholecystectomy. Report of Cases. G. E. Brewer, New York.—p. 145.

*Rôle of Ureteral Lymphatics in Experimental Urinary Tract Infections. V. C. David and P. M. Mattill, Chicago.—p. 153.

Nerve Suture: Experimental Study to Determine Strength of Suture Line. E. M. Miller, Chicago.—p. 167.

Correction of Scar Tissue Deformities by Epithelial Grafts. Report of Five Cases. E. B. Spaeth, Washington, D. C.—p. 176.

Substernal and Intrathoracic Goiters.—Within a period of approximately three and one-half years, 4,006 thyroidectomies were performed in the Mayo Clinic for simple colloid and adenomatous goiters. Five hundred and forty-two (13.5 per cent.) were found at operation to be substernal, and twenty-five (0.6 per cent.) of these were classified as intrathoracic. In seventy-two patients of the series, there were no symptoms other than the presence of a tumor. In 128 patients (25.4 per cent.), the goiter was associated with definite hyperthyroidism. Definite tracheal deformity was noted in 163 patients (30 per cent.). Dilated veins in the neck and on the chest wall were noted in fifty-eight patients (10.7 per cent.). Laryngeal examinations were recorded for 452 patients, and in forty-five (10 per cent.) a partial or complete paralysis of one or both cords was noted, although hoarseness was recorded in only twenty-nine patients. The results of the operation for the removal of substernal and intrathoracic goiters are very satisfactory. The patients are almost immediately relieved of most distressing symptoms. The mortality is low. There were sixteen deaths in this series of 542 operations (2.9 per cent.). Two are classified as due to faulty technic, one of these to the loss of blood after a thoracotomy for the exploration of a huge intrathoracic cancer, and the other to septicemia, probably originating from the wound. Three patients died from pneumonia. Eleven (68 per cent.) died from acute hyperthyroidism seventy-two hours following operation. The average preoperative basal metabolic rate was + 43. These patients were recognized as bad surgical risks; most of them had been treated medically before the operation.

Criteria of Operability in Exophthalmic Goiter.—The suggestion of Means and Aub that patients falling into their Type 2 "vagotonic" group give a more serious prognosis, does not seem to be wholly sustained by the cases presented by Cheever. Of four fatal cases, two belonged to the "sympathetico-tonic" and one to the "vagotonic" group, while one showed different phases, permitting its classification in either group. With regard to criteria of the ability of the patient with exophthalmic goiter to withstand the strain of operative therapeusis, Cheever agrees with others that during an acute exacerbation of the disease, or in periods of great mental depression, operation is contraindicated. Muscular weakness so great that the patient cannot walk and marked loss of weight with continued loss under absolute rest are serious contraindications. Organic visceral disease so serious as to jeopardize patients' having any operation of similar technical type is a contraindication. Operation should not be undertaken in the presence of an enlarged thymus, until its probable activity has been reduced by irradiation. The Jewish race offers a distinctly higher operative mortality. A metabolism of + 30 introduces a serious risk, which undoubtedly increases with high rates, but not necessarily in proportion, and there is no rate of metabolism which alone contraindicates at least minor surgical procedures.

Treatment of Fracture of Femur.—Speed analyzes 526 cases of fracture of the femur, observed in the Cook County Hospital and endeavors to outline a standard method of treatment, one which will make for better results. To overcome objections which can now be raised, Speed suggests that every patient with fracture of the femur should be directed to a hospital for roentgen-ray examination, correct treatment by any of the accepted methods, and after-treatment when cured. This includes fitting the patient with a walking caliper as soon as he is ambulatory or on his discharge from the hospital. Because fracture tables offer good means of securing reduction and an easy method of external splinting by plaster of Paris, every hospital receiving cases of fracture of the femur should possess a fracture or orthopedic table. Careful records should be kept in accordance with a fracture record sheet such as has been compiled by the American Surgical Association, so that a large number of average results can be grouped, that treatment looking toward the ideal may be worked out.

Association of Hepatitis and Cholecystitis.—After the experimental production of cholecystitis in dogs, inflammatory changes have been constantly found by Peterman and his co-workers in the liver. These changes have been of the same type as those previously described by Graham as occurring constantly in the human liver in association with biliary tract infections, namely, a pericholangitis with marked leukocytic infiltration of the interlobular sheaths. The same organism can be isolated from both the liver and gallbladder. Evidence is submitted that, owing to the free lymphatic communication between the liver and gallbladder, infection may pass easily from one organ to the other and a vicious circle be produced in this way. Infections of the gallbladder apparently by way of the lymphatics from the liver are easily produced experimentally. In any consideration of the pathogenesis of cholecystitis in the human, this lymphatic route must be regarded as important and probably frequent, although apparently it has heretofore received no attention. The probability of a frequent occurrence of a vicious circle between an inflamed gallbladder and an inflamed liver would seem to afford a strong argument in favor of cholecystectomy as an operation of choice in cases of cholecystitis.

Rôle of Lymphatics in Urinary Tract Infections.—Experimental observations have convinced David and Mattill that the lymphatics of the bladder and ureter play an unimportant rôle in the conduction of acute infections from the bladder to the kidney. Infectious material brought into intimate contact with the periureteral lymphatics does not affect them to any considerable extent and infection of the urinary stream does not result.

Arkansas Medical Society Journal, Little Rock

January, 1921, **17**, No. 8

Value of Rest in Valvular Diseases of Heart. R. Y. Phillips, Malvern.—p. 155.

Conservatism in Minor Surgery. J. M. Lemons, Pine Bluff.—p. 157.

Boston Medical and Surgical Journal

Jan. 27, 1921, **184**, No. 4

*Megacolon. W. E. Ladd, Boston.—p. 81.

*Megacolon in Adult: Report of Two Cases. P. P. Johnson, Beverly, Mass.—p. 88.

Conditions in Palestine During the War and Medical Relief Among Civil Population and Refugees. I. Alcazár, Boston.—p. 93.

Megacolon.—From the literature Ladd collected 113 cases which, with five of his own, makes a total of 118. Sixty patients were treated medically, with forty-one deaths (67 per cent.); four remained unimproved; eight were improved; seven were cured. Surgically treated, fifty-eight, with twenty-fourth deaths (41 per cent.); two remained unimproved; eight were improved; twenty-four were cured. From these figures it would appear that the chance of curing a patient by the surgical treatment was over three times as good as by medical treatment. The chance of losing the patient is two thirds less. The number of improved is pretty similar with both lines of treatment.

Megacolon in Adult.—Johnson's patients were aged 60 and 29 years, respectively. In the first case the history dates back three years. The patient was an inmate of an asylum for the insane. An artificial inguinal anus gave relief. In the second case, the onset was sudden. The patient had been constipated since childhood. He was suddenly seized with severe, colicky, abdominal pain most marked in the umbilical region. Castor oil had been taken, causing the evacuation of hard fecal masses but giving little relief to the pain. During attempts to move the bowels there was severe abdominal pain sufficient to keep him from his work for from three to seven days. The diagnosis was congenital megacolon involving the cecocolon. A sigmoidectomy was done with end to end anastomosis between the descending colon and the rectum. As the open end of the rectum was fully 9 inches across, the posterior 4 inches were closed and the union was made with three rows of chromic gut sutures. The patient made a remarkable convalescence. He is entirely free from all of his previous symptoms.

Colorado Medicine, Denver

January, 1921, **18**, No. 1

Blood Transfusion. G. B. Packard, Jr., Denver.—p. 5.
Acute Lobar Pneumonia; Treatment. A. L. Burett, Silverton.—p. 14.
Early Diagnosis of Cancer. L. Freeman, Denver.—p. 17.

Georgia Medical Association Journal, Atlanta

January, 1921, **10**, No. 8

*Ductless Gland Therapy in Defective Children; Experimental Work in Mental and Physical Deficiencies and Birth Paralyses: Report of Cases. L. B. Clarke.—p. 223.
Removal of Foreign Bodies from Esophagus and Bronchial Tree. G. D. Ayer and J. H. Buff, Atlanta.—p. 230.
Extraction of Foreign Bodies from Trachea, Bronchi and Esophagus. Report of Ten Cases. C. L. Pennington, Macon.—p. 235.
Burns: Report of Case. H. C. Whelchel, Douglas.—p. 239.
Principles of Preventive Medicine as Applied to Obstetrics. R. A. Bartholomew, Atlanta.—p. 241.
Cardiac Conditions in Children, Their Significance and Prognosis. B. Bashiuski, Macon.—p. 246.
Value of Roentgen Ray and Electro-Therapy in Treatment of Cases Not Responding Satisfactorially to Ordinary Treatment. D. M. Bradley, Waycross.—p. 249.

Ductless Gland Therapy in Defective Children.—Clarke's work was limited entirely to infants and very few young children. As a result of his study, he has established to his satisfaction that many cases of apparent idiocy—the spastic child, the defective child—are due to disordered internal secretions, and that these cases are not, as hitherto supposed, hopeless. Schools especially conducted for the training of the defective child may prove useless and unnecessary, and it is possible that a few months treatment, as has occurred in many of Clarke's cases, may be of far more benefit toward developing a fairly good mental and physical condition than all of the schools for this purpose have ever accomplished. The birth paralysis type of infantile cerebral paralysis, whether it be spastic diplegia, paraplegia or hemiplegia, has shown remarkable improvement under treatment. Infant cerebral paralysis has been classified, in the main, as of three types with many variations: (1) intra-uterine origin, occurring prior to birth; (2) extra-uterine origin, occurring at birth, and (3) acquired. Clark insists that spinal fluid Wassermann and other studies of the spinal fluid be made in all cases in which nervous syphilis is suspected, and that roentgen-ray examinations of the sella turcica and surrounding structures are of great diagnostic value. Treatment with endocrine gland extracts resulted in satisfactory improvement in the cases studied.

Journal of General Physiology, Baltimore

January, 1921, **3**, No. 3

Numerical Law of Regression of Certain Secondary Sex Characters. A. Pézard, Paris.—p. 271.
Effect of Temperature on Bleaching of Visual Purple by Light. S. Hecht, Omaha.—p. 285.
Amphoteric Properties of Some Amino-Acids and Peptids. H. Eckweiler, H. M. Noyes, and K. G. Falk, New York.—p. 291.
Iso-electric point of Red Blood Cells and Its Relation to Agglutination. C. B. Coulter, Brooklyn.—p. 309.
Production of Volatile Fatty Acids by Bacteria of Dysentery Group. H. F. Zoller and W. M. Clark, Washington, D. C.—p. 325.
Response of Popillia Japonica to Light and Weber-Fechner Law. A. R. Moore and W. H. Cole, Riverton, N. J.—p. 331.
Antagonistic Action of Lanthanum as Related to Respiration. M. M. Brooks, Cambridge, Mass.—p. 337.
Differentiation of Leaf Tissue Fluids of Ligneous and Herbaceous Plants with Respect to Osmotic Concentration and Electrical Conductivity. J. A. Harris, R. A. Gortner, and J. V. Lawrence, Washington.—p. 343.
*Experimental Production of Gigantism by Feeding Anterior Lobe of Hypophysis. E. Uhlenhuth, New York.—p. 347.
Time and Intensity in Photosensory Stimulation. S. Hecht, Omaha.—p. 367.
Relation Between Wave-Length of Light and Its Effect on Photosensory Process. S. Hecht, Omaha.—p. 375.
Ion Series and Physical Properties of Proteins. III. Action of Salts in Low Concentration. J. Loeb, New York.

Experimental Production of Gigantism.—The experiments made by Uhlenhuth show that at least in one group of cold blooded animals, namely, salamanders, feeding of anterior lobe of the pituitary, leads to the attainment of a size considerably in excess of not only the normal "average" size, but of even the greatest known size of the two species *(Ambystoma opacum* and *Ambystoma tigrinum)* employed in these experiments. Growth of the animals fed on anterior lobe did not cease after they had reached the normal "maximum" size of the species, and experimental giants were produced.

Journal of Orthopaedic Surgery, Lincoln, Neb.

January, 1921, **3**, No. 1.

*Anterior Bow-Legs. W. Blanchard, Chicago.—p. 1.
*Congenital Syphilitic Epiphysitis in Adolescence. E. J. Gaenslen and W. Thalhimer, Milwaukee.—p. 8.
Treatment of Fractures. H. W. Orr, Lincoln.—p. 23.

Anterior Bow-Legs.—Blanchard discusses this subject in general and reports four cases to illustrate his method of procedure in making a correction in these cases.

Congenital Syphilitic Epiphysitis in Adolescence.—In the case reported by Gaenslen and Thalhimer a diagnosis of infantile paralysis was made and the usual measures instituted for restoration of muscle power. Gradual improvement followed without other treatment, but the patient's general condition remained rather below par. One year later the patient returned with pain in the left hip and slight general indisposition. Examination showed tenderness over the left trochanter, slight limitation of motion in flexion, rotation inward and outward, other hip motions remaining normal. The temperature ranged between 99 and 100 F. Examination was otherwise entirely negative. Roentgenograms showed the trochanter to be rather flattened, with diffuse areas of rarefaction scattered throughout it and the adjacent portion of the femoral shaft. The epiphyseal line could not be made out, though it was still visible on the sound side. There was slight evidence of periosteal thickening of the shaft below the trochanter. The nature of the condition was entirely obscure, but tuberculosis or low grade pyogenic infection was at once excluded. Submission of microscopic slides to two pathologists of national reputation did not help to make the diagnosis in this case. The points which did assist in finally discovering the nature of the lesion were the periosteal thickening along the shaft of the femur, the recurrence of symptoms in three more or less definite attacks during the fifteen months the patient was under observation, the restlessness at night in spite of adequate fixation, and lastly the prompt and complete disappearance of pain on placing patient on antisyphilitic treatment.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, 1921, **16**, No. 6

Antagonistic Action of Epinephrin to Certain Drugs on Tonus and Tonus Waves in Terrapin Auricles. C. M. Gruber, Boulder, Colo.—p. 405.
*Absorption from Peritoneal Cavity. A. J. Clark, London, England.—p. 415.
*Absorption of Local Anesthetics Through the Genito-Urinary Organs. D. I. Macht, Baltimore.—p. 435.
*Quantitative Studies in Chemotherapy. IV. Relative Therapeutic Value of Arsphenamin and Neoarsphenamin of Different Manufacture. C. Voegtlin and H. W. Smith, Washington, D. C.—p. 449.
*Studies of Chronic Intoxications on Albino Rats. III. Acetic and Formic Acids. T. Sollmann, Cleveland.—p. 463.
*Effect of Morphin on Alkali Reserve of Blood of Man and Certain Animals. H. Gauss, Denver.—p. 475.
*Action of "Emmenagogue Oils" on Human Uterus. J. W. C. Gunn, Cape Town, South Africa.—p. 485.

Absorption from Peritoneal Cavity.—The results of experiments undertaken to compare the rates at which salts and fluids were absorbed when isotonic solutions of different substances were introduced into the peritoneal cavity are detailed by Clark. As soon as the fluid is introduced, free diffusion occurs between the fluid in the peritoneal cavity, and the blood, or the tissue fluids, and an equilibrium is reached when the peritoneal fluid contains 0.6 per cent. sodium chlorid, and a quantity of other substances, including proteins, which together produce a depression of the freezing point of about 0.2 C. This process of exchange is hastened by vasodilation and slowed by vasoconstriction. The more rapidly the solute in the peritoneal fluid diffuses, the more rapidly is this equilibrium attained, that is to say, the more rapidly is the solute absorbed. At the same time absorption of the fluid may occur, and the rate of absorption is determined by the relation between the rate of diffusion of the substances producing the osmotic pressure of the blood, and the rate of diffusion of the substances in the peritoneal fluid. When, for instance, a solution of sodium chlorid is introduced, the rate of diffusion of the chlorid is greater than the average rate of diffusion of the constituents of the blood, and a fairly rapid absorption of fluid occurs, but by the end of an hour various slowly diffusible substances have entered the peritoneal fluid from the blood stream, and absorption becomes slower. On the other hand, if a substance such as glucose is introduced, which has a very low rate of diffusion, then, since the rate of diffusion of the substance in the peritoneal fluid is lower than the rate of diffusion of the constituents of the blood, salts enter the peritoneal fluid quicker than they leave it, the osmotic pressure of the fluid rises, and little or no absorption takes place; after an hour much of the glucose has left the peritoneal cavity, but absorption still remains very slow, and the osmotic pressure is still higher than that of the blood. No attempt is made to explain the absorption of fluids which are in complete equilibrium with the blood, such as serum, but the absorption of such fluids is comparatively slow, and any absorption due to these unknown causes would be masked by the more rapid changes due to the differences in the rate of diffusion.

Absorption of Local Anesthetics from Genito-Urinary Tract.—Cocain, alypin and apothesin were studied by Macht in regard to their penetration through and absorption from various genito-urinary organs. It was found that these drugs are more or less readily absorbed through the urethra, ureters, pelvis of the kidney, praeputium and vagina. While the local anesthetics are readily and more rapidly absorbed from the urethra, they are very poorly absorbed from the urinary bladder.

Therapeutic Value of Various Brands of Arsphenamin and Neo-Arsphenamin.—Six different brands of arsphenamin, including a German preparation, which were studied by Voegtlin and Smith as to their trypanocidal activity proved to have approximately the same value. Slightly greater variations in activity were observed with six different sample of neo-arsphenamin, the maximum difference being 80 per cent. It is suggested that the alleged greater effectiveness of arsphenamin over neo-arsphenamin in the treatment of human syphilis may be attributed to the fact that arsphenamin is precipitated at the hydroxyl ion concentration of the blood, in consequence of which the rate of its oxidation and elimination from the body is considerably diminished. It was also found that sodium cacodylate does not exert any protozoicidal action even in lethal doses, and must, therefore, be considered as a quite worthless preparation for this purpose. Trivalent oxids are the only forms of arsenic which exert a direct toxic action on protoplasm. Cacodylic acid does not possess any trypanocidal action even in lethal doses. Methyl and ethyl arsenic acid show a parasitocidal action only when used in doses approaching the lethal dose.

Toxicity of Acetic and Formic Acids.—The immediate occasion for investigating these acids was the question of the safety of the use of formic acid for the preservation of foods. However, the investigation was planned with a view to possible wider applications. Sollmann found that acetic and formic acids behave approximately quantitatively alike, when added to the drinking water of rats in concentration up to 0.5 per cent. and daily doses up to 0.36 c.c. of absolute acid per kilogram of body weight, for from two to four months; this being the sole source of fluid for the animals. Concentrations of from 0.01 to 0.25 per cent., corresponding to daily dosage of 0.2 c.c. of acid per kilogram of body weight, produced no effect on growth, appetite, or consumption of fluid. They are, therefore, quite harmless. The diuresis described in the literature for formates and acetates, Sollmann believes, must be due to the sodium, potassium or lithium, and not to the formic radical. With concentrations of 0.5 per cent. and daily dosage of 0.36 c.c. of absolute acid per kilogram of rat, the appetite and growth but not the fluid consumption are materially, immediately and progressively diminished with both acids. This is evidently due to their acidity; but the experiments do not throw any light as to whether this is due to local action on digestion, or whether to some more profound disturbance of the acid-base equilibrium.

Effect of Morphin on Alkali Reserve of Blood.—A possible explanation for certain experimental therapeutic results obtained with morphin in tuberculosis was sought for by Gauss. The sulphate increased the alkali reserve in animals, but in man a therapeutic or slightly toxic dose did not have any such effect. Gauss suggests that further studies be made.

Action of Emmenagogue Oils on Uterus.—Oils of juniper, pennyroyal, rue, savin and tansy, in a 1 per cent. emulsion made in Ringer's solution, were investigated by Gunn as to their emmenagogue action. In small amounts there was no action at all; in higher concentrations, such as could never be used in the blood without producing dangerous, probably fatal, poisoning they inhibit uterine movement. Abortion after their use is held to be the result of the severe irritation and inflammation of the intestine and kidneys. On the whole, there use is dangerous as failure to secure results from small doses leads to the use of large and fatal doses.

Maine Medical Association Journal, Portland

January, 1921, **11**, No. 6

Food Poisoning; Special Reference to Botulism. J. M. Rosenau, Brookline, Mass.—p. 179.

Medical Record, New York

Jan. 29, 1921, **99**, No. 5

*Case of Multiple Myeloma with Unusual Features. V. C. Branham, New York, and N. D. C. Lewis, Washington, D. C.—p. 169.
William T. G. Morton, Discoverer and Revealer of Surgical Anesthesia, at Last in Hall of Fame; a Vindication. S. A. Knopf, New York. —p. 174.
Vertical Diplopia Lasting Eighteen Years Relieved by Operation. J. A. Kearney, New York.—p. 177.
Round Cell Sarcoma of Nasal Vestibule. G. D. Wolf, New York.—p. 178.
Types of Mammals: Notes on Hybrids, Diseases, Albinism and Other Conditions Equally Applicable to Man. R. W. Shufeldt, Washington, D. C.—p. 180.
*Cancer Death Rate in New York City During 1920. L. D. Bulkley. —p. 186.
Suggestion for Covering Yankauer Style Anesthesia Mask. S. K. Levy, Brooklyn.—p. 187.

Multiple Myeloma.—In the case cited by Branham and Lewis symptoms simulating brain tumor with pronounced unilateral exophthalmos were manifested. The true nature of the case remained unrecognized until the necropsy. The history dated back thirty-seven years when the patient was admitted to the hospital suffering from auditory hallucinations, periods of intense psychomotor activity, and a general dementia of moderate grade. This condition obtained over a period of many years, the stages of unrest becoming less frequent and less stormy and the apathetic stretches more in evidence. Irritability superseded excitement as the dementia progressed beyond the stage of active hallucinosis. His physical condition remained excellent throughout. Twenty-four years later, in 1906, the patient jumped over the stair banister and sustained a severe contusion of the right ankle and hip. This responded well to treatment and apparently no complications developed. May 2, 1916, the patient had a swollen face, some elevation of temperature, and headache. The condition was provisionally diagnosed as dental caries and a tooth was extracted. July 21, 1916, a more severe attack confined him to bed, his face being swollen to the extent that the right eye was completely closed. This attack lasted six days. Feb. 12, 1917, a third attack of two weeks' duration occurred, in which the entire face and neck were involved. A maximum temperature of 103 F. was attained. The condition was diagnosed as erysipelas. A similar attack took place Nov. 17, 1917, more severe than its predecessors. Sept. 29, 1919, for the first time the patient complained of pain in his right leg. Examination showed enlargement of the right hip with no evidence of a tumor growth. A moderate degree of tenderness was present. Three weeks later exophthalmis of the left eyeball was noticed; although there were no signs of general intracranial pressure, a brain tumor was suspected. Impairment of vision was noted early. A well defined immovable tumor, the size of a hen's egg, over the region of the right trochanter was present by this time. The patient died, Dec. 22, 1919. Tumor growths were found in the lumbar lymph glands, the neck of the femur, left parietal bone and right ilium. Attention is directed to the element of trauma in this case.

Cancer Mortality in New York.—During 1920 there were 5,361 deaths recorded in New York City from cancer, against 5,026 in 1919, an increase of 335, or over 6.6 per cent.; whereas the general yearly increase in cancer mortality in the whole United States has commonly been between 2 and 3 per cent. From July 1 to December 31, 2,691 deaths from cancer were recorded, and only 2,669 from tuberculosis, giving an excess of twenty-two cancer deaths. The greatest number of deaths from cancer in one week was 125, in the week ending January 31, an average of almost eighteen a day. The next largest was in the week ending December 4, when there were 121, or over seventeen per day. There were twenty-eight weeks which each gave over 100 deaths from cancer. Bulkley calls the attention of medical men to the importance of studying cancer along the lines which have been repeatedly laid down.

Military Surgeon, Washington, D. C.

January, 1921, **48**, No. 1

Lecture Given at Army Sanitary School, A. E. F. F. Lemaitre, M. C., French Army.—p. 1.
Forty-Four Craniocerebral Injuries Operated on in Zone of Advance with A. E. F. A. M. Hanson, M. C., U. S. A.—p. 30.
One Year's Experience with Regimental Infirmary. F. Beekman and S. Bradbury, New York.—p. 43.
"Service of Water" in French Army. S. H. Wadhams, M. C., U. S. A. —p. 56.
Plastic Repair of Soft Tissue Injuries of Face. J. D. Whitham, M. C., U. S. A.—p. 65.
Medical History of General Zachary Taylor's Army of Occupation in Texas and Mexico, 1845-1847. L. C. Duncan, M. C., U. S. A.—p. 76.

New Jersey Medical Society Journal, Orange

January, 1921, **18**, No. 1

Problem of Venereal Disease Control. H. J. F. Wallhauser, Newark. —p. 1.
Physical Diagnosis in Obstetrics. J. F. Condon, Newark.—p. 11.
General Practitioner's Interest in Radium. C. E. Field, New York. —p. 15.

New Orleans Medical and Surgical Journal

January, 1921, **73**, No. 7

Medical Versus Surgical Treatment of Gallbladder Diseases. A. L. Levin, New Orleans.—p. 252.
Infantile Diarrhea. J. Signorelli.—p. 258.
Demonstration of Technic Followed in Determination of Basal Metabolism Rate — Indirect Method Using the Benedict Portable Unit. H. P. Jones, New Orleans.—p. 262.
Use of Quinin in Treatment of Malaria. O. W. Bethea.—p. 271.
Nut. T. J. Dimitry.—p. 275.

New York Medical Journal

Jan. 29, 1921, **113**, No. 5

Management of Breech Presentation. W. Pfeiffer, Brooklyn.—p. 177.
Treatment of Drug Addiction Disease. F. Burns, Cincinnati.—p. 179.
Rôle of Ocular Muscles. E. B. Miller, Philadelphia.—p. 181.
Fumigation Inhalation Treatment of Syphilis; Report of Cases. J. P. Burns, Philadelphia.—p. 183.
*Bronchopulmonary Spirochetosis (Castellani); Report of Two Cases. M. D. Levy, Galveston, Texas.—p. 186.
*Myotonia Atrophica; Report of Two Cases Occurring in Brothers. I. T. Broadwin, New York.—p. 190.
Fractured Skull; Report of Case Complicated by Acute Mastoiditis; Operation and Recovery. J. Friedman, Brooklyn.—p. 193.
Newer Laboratory Methods in Diagnosis and Prognosis of Diseased Kidneys. A. I. Rubenstone, Philadelphia.—p. 196.
*Renorenal Reflex; Report of Case. W. H. Haines and K. P. A. Taylor, Philadelphia.—p. 197.
Inflamed Eyes. S. A. Agatston, New York.—p. 198.
*Examination of Water from Ganges River, India. R. C. Rosenberger, Philadelphia.—p. 199.
Icterus Gravis. C. G. Cumston, Geneva, Switzerland.—p. 200.

Bronchopulmonary Spirochetosis.—Levy urges that a more careful study of the sputum of patients suffering from chronic cough be made as it may reveal other cases of bronchopulmonary spirochetosis. In view of the wide distribution of the infection as evidenced by reports the world over, it is his belief that more cases will be brought to light by more careful investigations. The close similarity of the symptoms of bronchopulmonary spirochetosis to influenza, and especially to pulmonary tuberculosis, should constantly be borne in mind, and as a conclusive differential test from tuberculosis he recommends an inoculation of the suspected sputum into a guinea-pig.

Familial Myotonia Atrophica.—The history and findings in Broadwin's two cases were almost similar. The onset of the disease with weakness occurred in both patients at about 14 years. The myotonia was noticed in the older brother at 16 and in the younger at 18; in both there was extreme wasting. They showed no muscular hypertrophies at any time. The endocrinologic features are alike in both cases; the atrophied testicles and the atypical and scanty distribution of hair. The muscular atrophies were also alike.

Renorenal Reflex.—In the case cited by Haines and Taylor the pain was limited entirely to the sound side. The diseased kidney was removed. It was about twice the normal size, and the pelvis was disproportionately dilated. The pelvis was full of small stones ranging from the size of a shot to that of a pea. Because of the doubt as to the functional capacity of the kidney, it was excised. The pathologic report was: chronic interstitial nephritis. Convalescence was rapid and uneventful. A year from the date of operation there have been no symptoms of any kind.

Bacteriology of Ganges River Water.—Two samples of water from the Ganges River, one taken from the river above the place where the natives bathe, and the other taken from the river below the bathing place were examined bacteriologically by Rosenberger. In the first specimen 150 colonies per c.c., developed but none were of the acid or gas producing type. No presumptive evidence of the colon bacillus was observed in 10 c.c. quantities. In the second specimen, 2,500 colonies developed per c.c., of which 170 were of the acid and gas producing type. This latter sample also gave presumptive evidence of the colon bacillus in 10 c.c. quantities. When plated on Endo's medium, however, no colonies resembling the colon bacillus developed. The specimens were at least eight or nine months old.

Rhode Island Medical Journal, Providence

January, 1921, **4**, No. 1

Minor Rôle of Conduction Apparatus in Slowly Progressive Deafness. F. P. Emerson, Boston.—p. 1.
Changes in Retinal Vessels and Retina in Systemic Disease. T. A. Woodruff, New London, Conn.—p. 8.

Tennessee State Medical Association Journal, Nashville

January, 1921, **13**, No. 9

Dysmenorrhea. J. J. Cullings, Memphis.—p. 321.
Physician and His Relation to Public. J. Matthews, Johnson City.—p. 327.
What Constitutes a Specialist? E. C. Ellett, Memphis.—p. 330.
Treatment of Chancroid. P. G. Morrissey, Nashville.—p. 333.
Foreign Bodies in Eye. B. F. Travis, Chattanooga.—p. 334.
Tumors of Breast. W. A. Bryan, Nashville.—p. 336.
Management of Tuberculosis and Training Tuberculous Patient in Hospital or Sanitarium. W. S. Rude, Ridgetop.—p. 339.

U. S. Naval Medical Bulletin, Washington, D. C.

January, 1921, **15**, No. 1

Special Mare Island Hospital Number.

Virginia Medical Monthly, Richmond

January, 1921, **47**, No. 10

Ocular Angiosclerosis. W. Zentmayer, Philadelphia.—p. 469.
Treatment of Certain Types of Goiter. S. McGuire, Richmond.—p. 473.
Obstetrics de Luxe. M. P. Rucker, Richmond.—p. 477.
Eclampsia and Its Conservative Treatment. J. Bear, Richmond.—p. 487.
Modified Porrocesarean Section in Presumably Infected Cases; Report of Case. V. Harrison, Richard.—p. 491.

Statistics from Over Two Thousand Clinical Cases of Obstetrics. G. Baughman, Richmond.—p. 495.
Relation of Injuries of Leg and Foot to Traumatic Flat Foot. E. E. Feild, Norfolk.—p. 498.
Moral Obligation of Medical Profession to Humanity. E. M. Mann, Kenbridge, Va.—p. 500.
Tonsillectomy a Major Operation. F. J. Morrison, Suffolk.—p. 501.

Wisconsin Medical Journal, Milwaukee

January, 1921, **19**, No. 8

Transactions of Seventy-Fourth Annual Meeting of State Medical Society of Wisconsin.—p. 383.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

October-December, 1920, **17**, Nos. 202-204

Pediatro-Mathematics; Application of Principles of Mathematics (and Physical Chemistry) to Study of Child Physiology and Pathology. W. M. Feldman.—p. 171.
Stigmata of Predisposition to Bone and Joint Tubercle. W. C. Rivers. —p. 179.
*Congenital Pulmonary Regurgitation (Transposition of Spleen). E. Cautley.—p. 187.
Surgical Tuberculosis in Infants. C. G. Cumston.—p. 189.
*Primary Sarcoma of Small Intestine. W. M. Telling.—p. 192.
Esophageal Obstruction in Young Children: Report of Five Cases. H. T. Ashby.—p. 195.
*Transmitted Congenital Syphilis. D. H. Paterson.—p. 197.

Congenital Pulmonary Regurgitation.—An abnormally large pulmonary artery and orifice was the cause of a regurgitant murmur heard in Cautley's case. The child had been short of breath since birth, and had occasionally gone blue, especially after crying. The apex of the heart was outside the nipple line in the fifth intercostal space, the right border one-half inch to the right of the sternum and the left border almost reached the anterior axillary line; dulness extended up to the second left intercostal space. The sounds at the apex were short and flapping, and a short diastolic murmur was heard in the second and third intercostal spaces to the left of the sternum. Death occurred at the age of 10 weeks. Both the right auricle and ventricle were relatively much hypertrophied and somewhat dilated, while the left auricle and ventricle were unduly small in proportion to the size of the child, and still more so in proportion to those of the right side of the heart. The pulmonary artery and orifice were much larger than normal, the orifice admitting a small little finger and measuring in diameter seven-sixteenths inch as against an aortic orifice of four-sixteenths inch. No other abnormality was found. The liver was congested and rather large. The spleen was small and congested, and situated between the right lobe of the liver and the diaphragm, together with many pealike accessory spleens.

Primary Sarcoma of Small Intestine.—Telling's patient was aged 3½ years. The history was one of intermittent attacks of abdominal colic for about 7 months. At first the attacks of colic had come on about every three or four days, and had lasted from half an hour to an hour. The pain was of some severity, causing the child to cry and to be very restless. The attacks increased in severity and duration till they were occurring daily and lasting for several hours. The child had always had constipation which had not been unusually worse since the colic had been present, as it was easily controlled by simple aperients. No blood had ever been noted in the stools. The boy was healthy looking and had not lost much in weight. His doctor had noted a sausage-shaped tumor during some of the attacks. This disappeared in the intervals when he would be perfectly well and cheerful. Telling made a diagnosis of tumor, probably polypoid, pedunculated and nonmalignant, projecting into the small intestine at some distance from its fixed ends, and by some degree of mobility within the lumen causing recurrent partial obstruction, with spasm of the intestine immediately proximal to the lesion. The diagnosis of tumor was verified at operation but it was malignant, a spindle-shaped sarcoma.

Transmitted Congenital Syphilis.—Paterson records a case which he believes proves beyond a doubt that congenital syphilis may be transmitted from mother to child, a fact that is not generally admitted. The patient was a child, aged 2½ years. The complaint was that he was backward. He had the characteristic facies of congential syphilis and seemed a very mentally deficient child. His Wassermann reaction was positive. His mother showed the very characteristic features of congenital syphilis, and her Wassermann reaction was 4 plus. She had suffered as a child with interstitial keratitis and showed faint traces of the affection on examination. She had a depressed bridge to her nose and well marked external strabismus. The mother's mother, or the maternal grandmother, died of locomotor ataxia. Apparently, then, the disease has been transmitted from the maternal grandmother to her daughter, who has given birth to a syphilitic child.

British Journal of Psychology, London

Medical Section, October, 1920, **1**, Part 1

Psychologic Tension; Its Degrees and Oscillations. P. Janet.—p. 1.
*Revival of Emotional Memories and Its Therapeutic Value. W. Brown. —p. 16.
*Id. C. S. Myers.—p. 20.
*Id. W. McDougall.—p. 23.
Id. W. Brown.—p. 30.
Psychologic Adaptation. C. Long.—p. 34.
Recent Advances in Psycho-analysis. E. Jones.—p. 49.
Pathogenesis of Epilepsy; Survey of Clinical Studies of Pierce Clark. C. S. Read.—p. 72.

Therapeutic Value of Revival of Emotional Memories.—Brown is convinced of the great therapeutic effect produced by the intellect in the analytic review of past memories, especially in the analytic treatment of what has been called anxiety states where the patient is helped and encouraged to look at past events from a more impersonal point of view and so to obtain a deeper insight into their mutual relations and intrinsic values. The method, for which Brown suggests the term "autognosis," produces a readjustment of emotional values among the patient's past memories and they are scrutinized from the point of view of the patient's developed personality—or rather of his ideal of personality so far as it becomes revealed in the course of the analysis—and the relative autonomy which some of them enjoyed previously by virtue of their emotional overemphasis is withdrawn from them.

Myers is of the opinion that the value of autognosis consists in relieving the effective-cognitive repression and in redintegrating the various dissociated components, not in securing emotional revival. He doubts whether attempted control over emotional expression ever leads directly to functional nervous disorder, and whether dissociation of emotion or emotional expression ever occurs, save indirectly through dissociation and repression of the cognitive and effective experiences linked thereto.

McDougall asks: If living through a scene of horror produces a psychoneurotic disorder, why should the living through it a second time cure or tend to cure it? He does not believe that the revival of the emotion, the relieving of the emotional experience in itself results in relief, but agrees with the statement that in all cases in which some relief follows there is also some recovery from some amnesia, paralysis or other manifestation of dissociation.

British Medical Journal, London

Jan. 15, 1921, **1**, No. 3133

Part of Practitioner in Treatment of Pre-Operative Stage of Enlarged Prostate. J. W. T. Walker.—p. 71.
Teaching and Study of Human Anatomy. R. J. A. Berry.—p. 75.
*Use of Antigonococcal Serum. F. Ivens.—p. 77.
Albuminuria in Relation to Life Assurance. E. P. Weber.—p. 78.
Action of Certain Special Preparations on Malarial Parasites and Their Employment in the Treatment of Malaria. J. P. Johnson, K. Gilchrist and Hay-Michel.—p. 80.

Use of Antigonococcus Serum.—Ivens reports the results of his experience with antigonococcus serum in the treatment of gonorrhea in women. He administered the serum subcutaneously, intraperitoneally and in a few cases of endocervicitis with profuse leukorrhea he tried serum packs in the vagina. All the patients made a good immediate recovery. There have been three definite failures—one an acute case, where an insufficient quantity of serum was perhaps responsible, and two which relapsed after a period of some months' good health, and where was every possibility of reinfection. Further treatment had to be taken in all three cases; otherwise the results have been good.

Glasgow Medical Journal

January, 1921, **95**, No. 1

Medical Education, Legislation and Practice in United States. N. Walker.—p. 1.
*Epidemic Encephalitis in Childhood: Special Reference to Changes in Cerebrospinal Fluid. L. Findley and C. Shiskin.—p. 18.
Effects of Factors Producing Shell Shock. C. G. A. Chislett.—p. 51.

Epidemic Encephalitis in Childhood.—The cerebrospinal fluid was carefully and systematically examined by Findlay and Shiskin in twenty-three cases. The findings with regard to the cell content, the sugar content, and bacterial infection were similar to those obtained by other workers. The colloidal gold test was performed in twenty-one cases, and in seventeen of these the cerebrospinal fluid behaved differently from the normal. They behaved in the same manner as syphilitic fluids, causing precipitation in the tubes of low dilution. In two cases the precipitation was as complete as occurs typically in general paralysis of the insane, and to eliminate syphilis as the etiologic factor the Wassermann reaction was performed—but always with negative results. Sometimes the colloidal gold test was positive in the early stage of the disease, but in a few cases it did not appear for some considerable time afterward. Excess of globulin was searched for in nine cases and only found in seven, all of which gave a positive reaction with the colloidal gold solution, while in two a negative result was obtained both as regards excess of globulin and gold precipitation. The globulin was never so abundant as in the fluids from cases of meningitis. The fact that in encephalitis the reaction was of the spirochetal type suggested to the authors the possibility that the virus in epidemic encephalitis is of the nature of a spirochete, or at least some organism of a higher form of life than a bacterium. They have attempted to follow this line of research by endeavoring to activate normal cerebrospinal fluids with dead cultures of spirochetes and also emulsions of congenital syphilitic livers, but so far without any result. As further suggesting a spirochetal infection in this disease is the characteristic night restlessness. The night restlessness and change in disposition, the authors state, should be placed alongside of the lethargy in importance. Choreiform and myoclonic movements are not typical, but when occurring in association with the other features are not to be neglected in helping toward a diagnosis. And, finally, there is the condition of the cerebrospinal fluid—clear, scanty cellular contents, positive Fehling's test, excess of globulin, and especially the definite precipitation of the gold in the colloidal gold test in the syphilitic zone, with a negative Wassermann reaction. Of twenty-four cases observed this year by Findlay and Shiskin, only three ended fatally. A postmortem examination was performed in two cases. In both the brain showed to the naked eye marked generalized congestion, and in one a slight superficial hemorrhagic area. The cortex cerebri alone was examined histologically. The pathologist stated that he could not find any characteristic changes.

Journal of State Medicine, London

January, 1921, **29**, No. 1

Prevention of Venereal Disease. A. M. Frazier.—p. 17.
Part of Naval Medical Officer in Campaign Against Venereal Disease. D. McNabb.—p. 6.
Prevention of Venereal Disease in Royal Navy. P. H. Boyden.—p. 13.
Prevention of Venereal Disease. A. M. Frazier.—p. 117.

Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1921, **24**, No. 1

Recent Cholera Epidemic in Bangkok, Siam. R. W. Mendelson and R. J. Tait.—p. 1.
Differential Diagnosis of Malarial Parasites in Thick Blood Smears. J. Pratt-Johnson.—p. 6.

Lancet, London

Jan. 15, 1921, **1**, No. 3

*Malaria. J. P. Johnson and K. Gilchrist.—p. 107.
Three Cases of Influenzal Pneumonia with Septicemia and Extensive Membranous Colitis. E. C. Lowe.—p. 112.
Amputations: Effect of War Knowledge on Teaching, Practice and After Care. E. M. Corner.—p. 114.
Adolescent Albuminuria in Relation to Life Assurance. R. H. Fox.—p. 116.
*Postoperative Mortality of Appendicitis. H. H. Brown and H. M. Cade.—p. 118.
*Two Unusual Cases of Small Intestine Obstruction. W. H. Ogilvie.—p. 120.
Psychotherapy in General Practice. W. F. Brown.—p. 121.
*Case of Leukemic Polyneuritis. W. Harris.—p. 122.
*Case of Ophthalmia Neonatorum Before Birth. G. H. G. Dundas.—p. 122.
*Case of Amebic Dysentery in a Boy Aged three. M. L. Young.—p. 122.

Malaria.—These investigations were carried out during the war on cases of malaria returned from the German East African campaign and admitted for treatment into military hospitals in South Africa. They show that mixed infections are more resistant to treatment than either benign tertian or malignant subtertian; benign tertian is as resistant or even more resistant than malignant subtertian. The prolonged treatment required in mixed infection is due partly to the resistance of these infections to the action of quinin, and partly to the frequency with which relapses of either one or the other (usually benign tertian) infection takes place. The resistance of malarial infections, even when involving one type only of malaria, in syphilitic subjects is very marked. Relapses are frequent and the anemia is severe. The chronicity of malaria in syphilitic subjects, in spite of thorough antisyphilitic and of antimalarial treatment, emphasizes the importance of the natural protective mechanism of the body in combating malaria and in rendering effective the administration of quinin. The most intractable type of malaria from the point of view of control and prevention of relapses is a mixed infection of benign tertian and malignant subtertian. Moreover, the chances of relapse are more than twice as great in benign tertian than in malignant subtertian. Quinin is undoubtedly the most valuable single remedy at present known, but its repeated failure to eradicate malaria, even when exhibited in doses and amounts limited only by the toxicity of this drug, indicates that unless it is aided by the natural protective mechanism of the body frequent relapses and long-continued illness occur. Johnson and Gilchrist suggest the possibility that the action of quinin in malaria is analogous to the action of opsonins on bacteria in infected tissues. The crescent is a form of the malignant subtertian parasite particularly resistant to the action of drugs. The eradication of crescents is secured by control of asexual generation by quininization. The same is true of the sexual forms of the benign tertian parasite.

Bacteriology of Appendicitis.—In a case of acute appendicitis in which only a small quantity of pus was present in the appendix Brown and Cade succeeded in culturing *Streptococcus faecalis* from the blood.

Small Intestine Obstruction.—In one of Ogilvie's cases there was strangulation by a band, with absence of any of the usual symptoms of intestinal obstruction. The band was situated at the pelvic brim, passing from right to left. Several coils of intestine were matted together and surrounded a loop of the lower ileum about 5 inches long, which was gangrenous and greenish-yellow in color. In the second case a reduction "en masse" of an inguinal hernia had been made. Strangulation in the reduced sac occurred six months later.

Leukemic Polyneuritis.—The case described by Harris illustrates symmetrical polyneuritis as an early and prominent symptom in a case of lymphatic leukemia, before the definite diagnosis of the blood condition was possible to establish.

Ophthalmia Neonatorum Before Birth.—Five minutes after birth of a baby Dundas noted that it had ophthalmia neonatorum. The lids were red and edematous, and pus was discharging from both eyes. The case was evidently one of intra-uterine infection made possible by the draining away of the liquor amnii, and presumably the presentation had been a brow converted into an occipital during labor. The child died on the tenth day. On removing the calvarium, extreme intracranial congestion was found. The sinuses were full of fluid blood, and injection of the pia mater was intense. When the brain was removed a purulent exudate was found on the middle of the base of the skull extending from the optic commissure backward. There was no disintegration of the globe of either eye. The secondary condition was evidently due to infection by blood or lymph stream.

Amebic Dysentery in Young Boy.—The absence of any obvious source of infection was a noteworthy feature in Young's case, as well as the youth of the patient.

South Africa Medical Journal, Johannesburg

October, 1920, **16**, No. 3

Cyst of Pituitary, Internasal Sillar Decompression (Killian-Hirsch Operation). J. C. G. Macnab.—p. 46.
Use of Trephine in Surgical Treatment of Glaucoma. A. T. Thurston.—p. 49.

South African Medical Record, Cape Town

Dec. 24, 1920, **18**, No. 24

Retrospect of Four Thousand Obstetric Cases. G. P. Mathew.—p. 471.
Localization of Surgical Urinary Disease. A. Radford.—p. 476.
Stages of Miners' Phthisis.—p. 480.

Annales de Médecine, Paris

October, 1920, **8**, No. 4

*Therapeutic Pneumothorax. E. Rist and A. Strohl.—p. 233.
*Circumscribed Edema. P. Mauriac.—p. 271.
*Electric Tests for Tetany in Adults. F. Naville.—p. 280.
*Anti-Anaphylaxis. W. Kopaczewski.—p. 291.
*Digestive Anti-Anaphylaxis. P. Pagniez and P. Vallery-Radot.—p. 303.

Artificial Pneumothorax.—This experimental and critical study of pneumothorax is devoted principally to research on the absorption of gases in the pneumothorax and the balance between the gases. They diffuse through the pleural membrane until a balance is established, and this balance between the gases of the pneumothorax and the gases of the venous blood once established, persists indefinitely without change. When pure nitrogen or atmospheric air is insufflated, there follows at once a period during which the total amount of the gas in the pneumothorax is increased before this balance is established. This interval is short, but it explains the sensations of oppression sometimes observed before the interchange of gases has resulted in a balance. These physical phenomena explain many of the peculiar experiences that have been noted with therapeutic pneumothorax. One unexpected result of the research is the discovery that the proportion of oxygen in the venous blood is higher than has been realized hitherto.

Cause and Cure of Circumscribed Edema.—In Mauriac's case amenorrhea had developed suddenly in the woman of 38 and after that there had been occasional pains in the hands and one knee, suggesting subacute rheumatism. At the eighth year the hands swelled, the edema limited to the hands and forearms and finally becoming so severe that she was unable to continue her work as a dressmaker. Different measures, even thyroid treatment, were tried by different physicians, but all without benefit. At the end of the second year of this circumscribed edema, a turpentine fixation abscess was induced, and in a few days the edema disappeared and menstruation returned after a pause of eleven years, and was regular during the following nine months. By this time the woman was nearly 50. The fixation abscess seemed to act as if it removed some obstacle to the circulation of lymph. But the initial cause still persists; this may be relative insufficiency of the ovaries. The case indicates some close connection between the ovarian function and the edema.

Diagnosis of Tetany in Adults.—Naville states that the responses to electric tests applied to the right ulnar nerve reveal a tendency to tetany even when it is quite latent. The responses are absolutely characteristic and constant when there is any tendency to tetany. He tabulates the findings in twelve adults with pronounced tetany, in twelve with a dubious diagnosis, and in twenty with other diseases but free from tetany. The threshold for the closing of the current, the negative pole at the nerve, was always below 1 milliampere, and below 2 with the positive pole; below 5 with the threshold of tetanus with the negative pole, and below 10 with the same with the positive pole. In the absence of tetany these figures are always above these thresholds. The COCl threshold (5) and the CCTe threshold (5) are the pathognomonic figures. The experiences related testify to the unexpected prevalence of tetany with endocrine malfunction (thyroid, myxedema, dwarf growth, exophthalmic goiter). Nothing was found to confirm the assumption that lack of calcium is a factor in tetany in man.

Antianaphylaxis.—Kopaczewski reviews the whole field of the efforts to avert and cure anaphylactic shock, and shows that the widely diverse substances which have proved useful in this line all have one of two traits in common. They either prevent flaking in the blood serum or they dilate the blood vessels. All his extensive research tends to prove that the anaphylactic shock is the result of physical changes in the blood serum which permit flocculation of the molecules. Dark ground illumination has shown in the microscope the flaking in the blood serum in contact with certain colloids. The superficial tension of the serum of animals that have died from anaphylactic shock is found much reduced, a phenomenon which always accompanies colloidal flocculation. The capillary embolism found in the lungs of such animals testifies further to the flocculation. He explains that the introduction into the serum of a normal animal of one of a group of colloidal substances upsets the colloidal balance, and there is flocculation of the molecules. The flakes thus formed obstruct the capillary network, and thus induce fulminating asphyxia. Prophylaxis and treatment call for measures to reduce the superficial tension of the blood serum (saponin, soaps, bile salts, anesthetics, hypnotics, lecithin, etc.), or to render the serum more viscous (sugars, glycerin, acacia, carbonates, alkalis, etc.), or to dilate the blood vessels to allow the passage of the flaked micella (calcium lactate, atropin, etc.). No facts have been discovered yet, he declares, which conflict with this physical conception of anaphylaxis and antianaphylaxis. The serum of an anesthetized animal, for instance, has the superficial tension reduced by about 10 dynes, and Nicloux has reported the finding of a considerable amount of the anesthetic in the blood. Kopaczewski injected into the blood of animals a corresponding amount of an anesthetic. The blood thus contained as much of the anesthetic as in an anesthetized animal, although the animal did not show signs of anesthesia. But the animal was protected against anaphylactic shock as had been the theoretical surmise. This physical theory of anaphylaxis points the way, he says in conclusion, for suppression of the phenomena of shock in various pathologic conditions connected with anaphylaxis (asthma, urticaria, paroxysmal hemoglobinuria, diathesis, eclampsia, etc.) and indicates the substances to be used for preventing flocculation of the micella, that is, of the ultimate molecular masses of protoplasm in the blood serum.

Digestive Antianaphylaxis.—The experiences of Pagniez and Vallery-Radot with a preliminary ingestion of peptone to ward off alimentary anaphylaxis have been repeatedly described in these columns, as for instance, June 19, 1920, p. 1746. They describe here a number of instructive cases of intolerance of eggs, shellfish, etc., as also of alleged idiosyncrasy to some drug. The symptoms of anaphylaxis took the form of circumscribed transient edema, urticaria, migraine, or asthma. A small amount of the harmful food may be taken an hour before the meal or a tablet of 0.4 or 0.5 gm. of peptone. The peptone seems to be polyvalent for most of the articles causing the anaphylaxis. Some require the continuous use of the peptone, others do better when it is given for three to eight days followed by an interval of the same length. By this means they have succeeded in curing the tendency in time in many cases, the time required for complete desensitization depending however on the personal equation.

Bulletin Médical, Paris

Nov. 17, 1920, **34**, No. 54

*Venous Thrombosis. P. E. Weil and M. Bloch.—p. 1025.
Operation for Talipes Equinus in Little's Disease. T. Asteriadés.—p. 1026.

Venous Thrombosis in Chronic Hemorrhagic Conditions.—Weil and Bloch describe three cases of venous thrombosis resulting from some general derangement of the endothelium of the vessels. This insufficiency of the endothelium is probably the cause of the spontaneous or exertion thrombosis of which instances have been reported by surgeons and obstetricians. Heredity, induced purpura, hemorrhagic antecedents, and signs of abnormal composition of the blood should be sought for.

Dec. 11, 1920, **34**, No. 59

*Marriage of Syphilitics. Queyrat, Hudelo, Spillmann, Gastou and C. Simon.—p. 1101.
Present Status of Prostatectomy. R. Le Fur.—p. 1107.

Dec. 15, 1920, **34**, No. 60

Infantile Mortality. J. Renault.—p. 1127.
Iridectomy for Glaucoma. A. Cantonnet.—p. 1129.

Dec. 18, 1920, **34**, No. 61

Training Visiting Nurses for the Tuberculous. XVIII. G. Kuss.—p. 1141.

Marriage of Syphilitics.—This is the long report of a commission appointed by the Société française de Dermatologie et de Syphiligraphie to decide the date when consent can be given for the marriage of a syphilitic. The final summary states, "Our conclusions are only provisional as the subject, like many others in biology and especially in medicine, cannot be considered from the standpoint of pure science. We have no certain criterion of the cure of syphilis. However, we have not the right to prevent syphilitics from marrying. If we are too severe, they will lose the habit of consulting us. Our part, and it is a fine one, is to enable syphilitics by systematic treatment and medical discussion of their clinical and biologic balance-sheet to fill a normal rôle in the family and society."

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 3, 1920, **44**, No. 37

Tuberculosis and Pregnancy. Rist, Rolland and Ravina.—p. 1455.
*Meningococcus Urethritis. J. Dumont and Baron.—p. 1460.
Syphilitic Chorioretinitis Beginning at 21; Morvan's Disease at 45. F. Terrien.—p. 1463.
Suggestions for Artificial Limbs. G. Bidou.—p. 1465.
*Gangrene of Pharynx. Armand-Delille, Marie and Dujarier.—p. 1468.
*Case of Botulism. P. L. Marie.—p. 1471.
*Daily Subcutaneous Injections of Neo-Arsphenamin. J. Minet.—p. 1475.
Necropsy Findings in Nerve Centers in Familial External Ophthalmoplegia. Crouzon, Trétiakoff and Béhague.—p. 1479.
*Epidemic Hiccup. J.-A. Sicard and J. Paraf.—p. 1484.
*Nerve Centers in Epidemic Encephalitis. Harvier and Levaditi.—p. 1487.
*Hemolytic Jaundice in Helminthiasis. H. Bourges.—p. 1491.

Meningococcus Urethritis.—The urethritis developed in the course of grave epidemic meningitis and it was followed by orchitis, but both subsided under antimeningococcus serotherapy.

Gangrene of Pharynx.—The gangrene was of fusospirillar origin, complicating diphtheria, in a girl of 10. The diphtheria yielded to antitoxin and the gangrene to an intravenous injection of neo-arsphenamin. Antigangrene serum was also used, but the recovery is ascribed to the arsenical, as the benefit from this was prompt and decided.

Case of Botulism.—The patient was a physician, and presented the classic picture of botulism after the usual latent period of ten hours. The neuroparalytic symptoms persisted for six weeks but there was no fever. The blood pressure dropped remarkably low and had not returned to normal by the end of six weeks.

Daily Injections of Arsphenamin.—Minet reports favorable experiences with small, daily subcutaneous injections of neo-arsphenamin in treatment of syphilis. This allows incorporation of a much larger total amount than possible by the vein, and avoids all the dangers of the latter. After extensive tests he finally settled on a 4.7 per cent. solution of glucose for the vehicle, adding a little phenol. With this vehicle there is no persisting hardening or prolonged pain. Several patients were given fifteen of these daily injections, all in a space no larger than a silver dollar, without any complaints from them. He uses the minimum of vehicle, and says that the total effect of the course of treatment surprised not only himself but every one who witnessed it. Mal perforans was cured in two weeks in one case under a total of 2.5 gm. of neo-arsphenamin, and in another case it has almost healed under 4.75 gm. in two series of fifteen injections. He reports a number of cases in which the results far surpassed those realized with other technics. He gives mercurial treatment at the same time, with iodid during the intervals.

Epidemic Hiccup.—Subject discussed editorially, p. 249.

Lethargic Encephalitis.—The disease entailed cachexia with death after six months, and the nerve centers even at this late period induced fatal encephalitis in rabbits.

Hemolytic Jaundice in Helminthiasis.—The hemolytic jaundice and anemia subsided in the young man after expulsion of twenty-nine ascarids under santonin. Bourges does not hesitate to ascribe the clinical picture to the destructive action on the erythrocytes of the toxins generated by the ascarids. Their excreta are irritating in themselves, and resorption of the fat acids, aldehyds, etc., from the excreta have a toxic action on the nervous system as well.

Gynécologie et Obstétrique, Paris

1920, **2**, No. 4

*Gestation After Cesarean Section. A. Couvelaire.—p. 225.
*Suture of the Ureter. R. Gouverneur.—p. 231.
*Survival of Fetus After Cessation of Pulsation in Cord. S. E. Bermann (Buenos Aires).—p. 247.
Senile Genital Prolapse. E. Douay.—p. 258.

Pregnancy After Cesarean Section.—Couvelaire tabulates the obstetric history of 41 women after section of the body of the uterus who passed through one or more pregnancies later —a total of fifty consecutive pregnancies, one woman having four, one three and 5 women two pregnancies after the first cesarean section. The wall was found very thin in 4 of the 41 uteri, and it ruptured in 2 cases. Rupture is more liable during the last three months of gestation, and especially at the onset of labor. It was found necessary to remove the uterus at the second delivery in 15 of the first group of 21, but only in 7 of the 20 latest cases, which testifies to the improvement in technic. All but 8 of the consecutive pregnancies were carried to normal term.

Suture of the Ureter.—Gouverneur says that end-to-end suture of the ureter, with invagination, after it has been severed gives good immediate results, but the final outcome is usually deplorable; stenosis and adhesions shut off the kidney eventually. If possible, the central stump should be implanted in the bladder. He reviews the literature on the subject since 1900, and reports the results of considerable personal experimental research.

Survival of Fetus After Cord No Longer Pulsates.—Bermann reports a case in which there was no pulsation perceptible to the finger in the prolapsed cord, and yet the child was living when delivered, and he cites six similar cases from the experience of other obstetricians. He reviews also the literature on the subject, including the survival of the fetus after the heart sounds can no longer be heard. It is evident that the circulation between the fetus and the placenta may persist although imperceptible to our senses; the circulation may be arrested but the fetal heart may continue to beat. There is also the possibility that the fetal heart may be temporarily arrested in a kind of syncope, and then begin to beat again. He has had such a case in an adult; the man's heart stopped beating for twenty seconds while Bermann was incising an abscess on the left thumb. Bermann supposed the man was dead, but then the heart began to beat again. Lévy-Solal and his co-workers have recently published two similar cases. In one the massage of the heart was begun an hour after the respiration of the boy of 7 had stopped, three quarters of an hour after the heart had ceased beating. The heart began to beat anew after fifteen minutes of massage, but the child died forty-eight hours later. If massage had been applied earlier, they think he might have been saved. New-born infants can sometimes be resuscitated by prolonged artificial respiration when the heart sounds have not been audible for some time. A syncope in the uterus would be less dangerous than after birth, as the organic changes seem slower, and there is no danger of chilling. Bermann's conclusions from these and other experiences related justify the conclusion that the lack of pulsation in the prolapsed cord, even when no sounds are to be heard from the fetal heart, does not testify to the death of the fetus. In such a case, if it is possible to introduce the finger into the uterus, the finger may perceive the beat in the precordial region of the fetus. When this is not possible, embryotomy should not be applied until fully an hour has elapsed since any sign of life. The probability of survival is greatest, of course, when extraction follows at once, with the usual measures for resuscitation, including massage of the heart. He cites Balard's case in which a fetal hand protruded beside the pulseless cord. He was about to do embryotomy when the mother insisted on having the child baptized. Cold water was poured on the hand for this purpose, and the hand contracted. The child was at once delivered and was easily revived.

Journal de Chirurgie, Paris

1921, **17**, No. 1

*Ulcer in Middle Portion of Stomach. P. Lecène.—p. 1.
*Avulsion of the Scalp. C. Lenormant.—p. 9.

Remote Results of Resection of Middle Portion of Stomach for Ulcer.—Lecène describes his technic and the present condition of five patients whose operation dates from 1910 to 1914. All are well and in good condition, three have never had any symptoms since from the stomach. One had at the sixth year a week of pains in the stomach which yielded to dieting, and there has been no disturbance since. The fifth had a slight bleeding from the stomach at the fifth year, but it has never returned. All have increased in weight and eat ordinary food without restrictions. Radioscopy shows the stomach of practically normal outline. The ulcer was of the hard boring type in some, and there were two ulcers in two cases, but no signs of cancer in any.

Avulsion of the Scalp.—Lenormant analyzes thirteen cases of partial scalping and sixty-seven of total avulsion of the scalp, including one case treated in his own service. In the latter case the scalp had been torn off by machinery from the eyebrows to below the ears; at the back only a narrow strip of hair was left. A year later the vast wound, covered with young cells, was still suppurating a little, and the healing process did not seem to be making progress. The woman of 50 complained of the cold in the scalped region, and the nineteenth month the region was covered with Thiersch flaps taken from the thigh; all healed in place. He knows of only one case of speedy death at once after the avulsion, but the conditions for healing of the raw area are very poor, and infectious complications are difficult to ward off. Five cases are on record in which the patients died from septicemia from two to thirty months after the accident. Spontaneous cicatrization very seldom occurred, and then only after years of suppuration. The cicatricial tissue is very thin and fragile. Syme's patient had some suppurating points eight years afterward, and others', from two to seven years. With only partial avulsion, the flap still connected with the rest of the scalp, every effort should be made to save the flap, suturing it in its place. But with total scalping it is futile to attempt this, as the scalp flap is nourished only around its periphery and this would require suturing the vessels. Ollier-Thiersch flaps were applied in four of the cases and the results were brilliant in some and good in all, so that this must be regarded as the proper method of treatment. The experiences to date indicate that this method should be applied early, waiting only for a few days after the trauma. Some recommend to freshen the granulating surface with the curet or razor, but Lenormant merely rubbed the young cells with a compress dipped in hot serum, and none of his flaps were cast off. The dermoepidermic flaps "take" perfectly well on bare bone; it is not necessary to trephine to perforate the bone as Flaherty did. Gerok and Riegner covered the whole expanse at one sitting, others in two or three sittings. Lenormant advocates cutting large flaps, fully 3 or 4 cm. wide and from 10 to 15 cm. long, covering the entire surface, placing the flaps close to each other or even overlapping. He regards this as the secret of success with Thiersch flaps. The flaps should always be taken from the patient herself. The healing was complete in one month in Gerok's case, but in others from three, five to fifteen months were required. In Cotte's and in Ombrédanne's cases none of the flaps healed permanently in place by any of the various technics tried, and the cases had to be left to heal spontaneously.

Nourrisson, Paris

January, 1921, **9**, No. 1

*Insufficient Nutrition of Infants. A. B. Marfan.—p. 1.
*Fat Diarrhea in Infants. P. Woringer.—p. 18.
*Anemia with Splenomegaly in Infants. G. L. Hallez.—p. 24.

Hypothrepsia and Athrepsia.—Marfan recalls that growth is more active in comparison in the young infant than at any other period of life; the consumption of calories is nearly three times that of the adult per kilogram, and waste is thrown off in proportion. The smaller the infant, the greater its radiating surface in proporation to its weight, so that to keep its body at normal temperature it has to oxidize more substance per kilogram than the adult. When nutrition is insufficient, the child ceases to increase in weight; its adipose tissue disappears; there is autophagia of proteic elements, loss of water and of mineral substances, and this hypothrepsia may progress to incurable athrepsia. The causes may be from defective feeding, pathologic conditions in the digestive tract, or from infectious conditions, their action supplemented by inherited taints, unhygienic environment, and the lack of the stimulating action from the mother's smile and notice and crooning. Even in adults, the appetite wanes in dreary surroundings. The hypothrepsia of the infant may be the only sign of inherited syphilis. Extremes of temperature favor it, as also the environment in an asylum or other institution. But, he adds, hypothrepsia does not entail athrepsia, the incurable degree of denutrition, in the breast fed. In the artificially fed, the hypothrepsia may progress to athrepsia even after the primary digestive disturbance has subsided. The insignificance of the initial digestive disturbance in proportion to the final degree of denutrition has often been commented on.

Fat Diarrhea in an Infant.—Woringer's tests in the case described show that the steatorrhea could not be attributed to deficiency of digestive juices. The only explanation seems to be defective absorption from the bowel mucosa. The peristalsis was not exaggerated. The case should be classified as dyspepsia of fats.

Anemia with Enlargement of the Spleen.—Hallez' article is based on two cases personally observed, and 124 from the records. He refers to some experimental research in which this pseudoleukemic anemia was reproduced in young animals by different means, cholera toxins, typhoid toxins, lead, extracts of stools of children with severe dyspepsia, etc. The clinical aspect of the condition is well known but the immediate cause is still a mystery. It may subside spontaneously or under treatment for syphilis, malaria, or other suspected factor. Fresh or desiccated bone marrow has been successfully used by Combe, Marfan and others, and transfusion of blood might be considered in grave cases. Petrone and Zamboni have also reported success from exposure of the region of the spleen to the roentgen rays for thirty minutes at a time at ten or twelve days intervals. General hygiene, with iron and arsenic may also prove useful. The outlook, he adds in conclusion, judging from the literature, should encourage us to neglect nothing in treatment of this very grave condition which yet is susceptible of a cure.

Paris Médical

Dec. 18, 1920, **10**, No. 51

*Scientific Nutrition. G. Mouriquand.—p. 449.
Diagnosis of Bubonic Plague. E. Joltrain.—p. 459.

Scientific Nutrition.—Mouriquand discusses the latest views on alimentary deficiency, especially in infants, but he adds that adults are liable to suffer from it also when they keep up for too long some special diet ordered for some transient condition. These adults suffer from asthenia and are pale, and no tonics restore their strength. They may be thin or not, but they present intestinal disturbances, particularly diarrhea which is so frequent in animals on a deficiency diet. Loss of appetite or a morbid appetite, and signs of neurasthenia render life miserable but all is changed by modifying the diet from rice or starchy articles, etc., to an ordinary diet, increasing quantity as well as quality. In short, he concludes, the modern views on alimentation are a return to the traditions of good old French cooking, with variety in the strictest diets, especially when prolonged.

Dec. 25, 1920, **10**, No. 52

*Uremia in Acute Infections. P. Merklen.—p. 465.
*Glycuronic Diabetes. G. Weber.—p. 472.
*The Alleged Reserves of Vitamins. A. Lumière.—p. 474.

Uremia in Acute Infections.—Merklen cites writers who regard the urea content of the blood in acute infectious diseases, even in infants, as an indispensable element for the prognosis, as a progressive increase in the azotemia reflects the destruction of protein. To be truly instructive, however, he says, the urea content of the urine should be determined at the same time, taking into account also the diuresis by day and by night.

Glycuronic Diabetes.—Weber relates that a woman of 50 applied for relief from vulvar pruritus so intense that she was contemplating suicide. The urine contained 110 gm. sugar; no albumin. Under a course of Guelpa treatment the pruritus subsided but returned later on resumption of a rich diet, and examination of the urine in four different laboratories confirmed the presence of glycuronic acid in the proportion of 42.23 gm. per liter, with 2.07 gm. glucose. At the first examination the glycuronic acid had not been recognized, and Weber thinks that this may have been the case in other instances of diabetes. He queries whether the vulvar pruritus was traceable to this glycuronic acid.

Reserves of Vitamins in the Organism.—Lumière presents arguments against the assumption of reserves of vitamins, and in favor of his view that the vitamins act by stimulating the digestive glands. When deprived of vitamins, the digestive glands cease to function more or less completely. They may continue to function for a little time—which has erroneously led to assumption of reserves of vitamins. The prompt recuperation when vitamins are resupplied after the deficiency disease has developed, is further testimony to their stimulating action on the digestive glands as the latter start at once to function anew. No other explanation fits with the promptness of this recuperation. One of his arguments refers to the special task of the cerebellum in birds as controlling orientation in flight. This special development of the cerebellum requires an extra amount of nourishment for it. When the nourishment is shut off by lack of vitamins, the cerebellum suffers first and foremost from this lack of nourishment, so that the cerebellar symptoms are the first and predominant ones to appear.

Presse Médicale, Paris

Dec. 25, 1920, **28**, No. 95

Centenary of the Académie de Médecine. Addresses by Laveran, A. Honnorat, H. Vaillard, A. Chauffard, L. Camus, E. Delorme, G. Meillère and A. Hanriot. Conc'n in No. 1, p. 1.

Jan. 5, 1921, **29**, No. 2

Opening Lecture on Bone and Joint Tuberculosis. E. Sorrel.—p. 13.
*The Blood Pressure in Angina Pectoris. R. Lutembacher.—p. 16.

Rapid Drop in Blood Pressure in Angina Pectoris.—Lutembacher discusses the mechanism of this phenomenon. In all the instances he has observed, prolonged exposure to dampness and cold had preceded the intense substernal pain, which keeps up with possibly a few brief intermissions. After a few hours the systolic pressure drops, and death soon follows.

Jan. 8, 1921, **29**, No. 3

Opening Lecture of Therapeutics Course. M. Labbé.—p. 21.
Sodium Cacodylate in Large Doses. L. Cheinisse.—p. 27.

Progrès Médical, Paris

Dec. 4, 1920, **35**, No. 49

*Meningococcus C. Meningitis with Arthritis. R. J. Weissenbach and L. Merle.—p. 527.
Examination of a Gastric Ulcer Patient. Delbet.—p. 528.
Indecency from Medicolegal Standpoint. Balthazard.—p. 531.
*Duration of Pregnancy. R. Labouré.—p. 533.

Meningitis with Arthritis.—Weissenbach and Merle report the case of a young woman with acute meningitis who developed arthritis in her wrists and one shoulder. The features of the arthritis closely resembled those of gonococcus joint disease tending to ankylosis. Serotherapy proved promptly effectual against the meningitis but did not modify the arthritis. The joint lesions subsided under massage, as with gonococcus arthritis.

Duration of Gestation.—Labouré suggests that instead of an arbitrary month, we should calculate the duration of a pregnancy by the woman's own ovarian cycle, that is, ten times twenty-seven days or ten times thirty days as the case may be.

Dec. 11, 1920, **35**, No. 50

Lipomas in the Intestines. A. Bréchot.—p. 539.
*Diet with Gastropathies. M. Loeper.—p. 540.
Necessity for Saving the Menstrual Function. F. Hidden.—p. 545.

The Diet with Stomach Disease.—Loeper urges not to forget that sugar and salt, as well as cream and olive oil, check gastric secretion and hence are useful with hyperchlorhydria and with uncomplicated ulcer. On the other hand, when we wish to stimulate gastric secretion we have the choice of meat juice and extract, milk, gelatin, bread, peptone, raw meat, etc. Starch, boiled meats, egg albumin and solid fat, he adds, have little influence either way. With dilatation of the stomach, the food must be dry; with small stomachs, the meals must be fractioned. With a complicated ulcer, intolerant, or hemorrhagic, the food should be highly sweetened or possibly pure sugar be given. He emphasizes further that disease of the stomach affects the whole system, and as a rule there is excessive loss of minerals and especially of calcium. It is important therefore to remedy this demineralization. Minerals can be supplied in various foods, he continues; cheese contains large amounts of calcium and other minerals, and yolk of egg nearly as much, bone marrow even more, and ham as much as 5.8 per thousand; yoghurt, 4.71; kefir, 3.39; oysters, 2, and grapes, 2.13. "The stomach complains noisily, but the whole organism suffers silently along with it."

Revue Franç. de Gynécologie et d'Obstét., Paris

May, 1920, **15**, No. 5

Indications for Emmenagogues. P. Dalché.—p. 193.
Tuberculous Glands in the Axilla Enlarging During Pregnancy. P. Guéniot.—p. 206.
Allowing Parturients to Get up Early. A. Grosse.—p. 209.

June, 1920, **15**, No. 6

Technic for Conservative Cesarean Section. M. Rivière and J. Lacouture.—p. 241.
Hysteropexy by the Round Ligaments. L. Aubert.—p. 248.
Torsion of Ovarian Cysts in Pregnancy. G. Deverre.—p. 255.
Drop Irrigation Treatment of the Infected Uterus. E. Michon.—p. 258.

August, 1920, **15**, No. 8

*Treatment of Hemorrhage from Detachment of the Placenta. A. Grosse.—p. 321.

Treatment of Hemorrhage from Detachment of Placenta.—Grosse refers to a placenta attached to the lower segment of the uterus, and reports a case in which the suddenness and the violence of the hemorrhage required immediate delivery without waiting for dilation of the os. The woman and child were saved by immediate cesarean section. In connection with this case he reviews the literature on operative treatment of placenta praevia and the indications for it.

Revue de Médecine, Paris

June, 1920, **37**, No. 6

Lethargic Encephalitis. H. Durand.—p. 321.
*Experimental Epidemic Encephalitis. P. Harvier.—p. 353.
Acute Encephalitis of the Parkinsonian Type. O. Crouzon.—p. 359.
Lethargic Encephalitis in Spain. G. Marañon.—p. 364.

Experimental Epidemic Encephalitis.—Harvier has succeeded in transmitting epidemic encephalitis to rabbits. The virus becomes "fixed" by regular passages through rabbits, killing the animal between the fourth and sixth day. The nervous disturbances and the histologic lesions of the nerve centers are identical, he says, with those observed in man. The virus is kept in glycerin and retains its virulence after desiccation. It is filtrable but is not pathogenic for the monkey and the guinea-pig when derived directly from man, but it becomes pathogenic after several passages through rabbits. It is impossible to induce crossed immunity between poliomyelitis and encephalitis, and convalescents' serum seems to have no action on the other disease.

July, 1920, **37**, No. 7-8

*Mild Forms of Infectious Jaundice. M. Garnier and J. Reilly.—p. 377.
Flaccid Paralysis of the Hand After War Wounds. A. Pitres and A. Laffaille.—p. 409. Cont'n.
The Mental Condition of the Tuberculous. G. Ichok.—p. 427.

Primary Infectious Jaundice.—Garnier and Reilly found that the jaundice was of the spirochetal type in 30.4 per cent. of 1,300 cases of jaundice, but it was of the apyretic acute type in 61.9 per cent. and of the mild infectious type in 4.9 per cent. In 1.9 per cent. the jaundice was noted in syphilitics, and in 0.36 per cent. each the jaundice, was traced to acute yellow atrophy of the liver or to typhoid or paratyphoid infection. This extensive experience has shown that the bacterial etiology must determine the classification of infectious jaundice cases. The spirochetal jaundice keeps its special clinical physiognomy throughout, as also acute apyretic jaundice. The foci of infection of the latter and of the spirochetal type never coincide. Jaundice thus seems to be a clinical syndrome which a small number of germs are capable of causing, perhaps by different mechanisms.

Revue Neurologique, Paris

September, 1920, **27**, No. 9

The Anesthesia from Pressure on the Spinal Cord. J. Babinski and J. Jarkowski.—p. 865.
Sclerosis of Long Fibers. H. Claude and H. Schaeffer.—p. 872.
Parkinsonian Syndrome from Focus in Midbrain. J. Tinel.—p. 878.
*Concussion of the Brain. H. Duret.—p. 888.
*Familial Spastic Paraplegia. P. van Gehuchten.—p. 901.
*Fatal Obesity. G. Marañon and E. Bonilla.—p. 909.

Concussion of the Brain.—Duret discusses fatal concussion of the brain in which no lesions can be detected, and also fatal trauma of the skull and brain without concussion. Pure concussion, without lesions, is extremely rare in the fatal cases, if it ever occurs.

Familial Spastic Paraplegia.—In van Gehuchten's case there are six other members of the family presenting more or less pronounced spastic paraplegia in three generations. The first symptoms appeared at about the age of 30 in all.

Fatal Obesity.—Marañon and Bonilla emphasize the connection with syphilis in the case they describe in a woman of 29. She weighed 157 kg. although only 1.6 meters tall. The pituitary was found normal, but both thyroid and ovaries were pathologic. There were 7,756,200 erythrocytes to 11,320 leukocytes, with Arneth displacement to the left. There was very little fat around the heart, but the myocardium showed degeneration, and this was probably responsible for the sudden death. The histologic findings in the thymus showed functional persistence although it weighed only 12 gm. The woman had been thin until the age of 18, when syphilis was contracted, and she began to increase in weight a few months later.

Schweizerische medizinische Wochenschrift, Basel

Dec. 30, 1920, **50**, No. 53

Gliomatosis of Sacral Cord and Pia. W. Rütimeyer.—p. 1201.
Treatment of Caustic Injury of Esophagus. F. Häberlin.—p. 1208.
Experiences with Arsphenamin at Basel. E. Frey.—p. 1215. Conc'n.

Policlinico, Rome

November, 1920, **27**, Surgical Section No. 11

Subcutaneous Inguinal Hernia. E. Borelli.—p. 341.
*Heliotherapy for Surgical Tuberculosis. L. Negri.—p. 352. Conc'n.
*Implanting Ureter in Bladder. A. Pennisi.—p. 362.
Occlusion of Intestine by Gallstone. G. Pinardi.—p. 370.

Heliotherapy in Surgical Tuberculosis.—Negri does not hesitate to assert from his six years of experience that surgical tuberculosis can be cured in all its forms, at every stage and at all ages with heliotherapy. He is not so affirmative in regard to visceral tuberculosis, but cites a number of remarkably successful cases from his own and Rollier's experience. Success is especially frequent in tuberculous peritonitis. In one case of tuberculous adnexitis the local and general condition improved notably during a three months' course of heliotherapy, notwithstanding coexistent respiratory tuberculosis. But in this, as also in a case showing great improvement of a tuberculous urinary process, the patients would not wait to complete the course. He refers further to Rollier's success with tuberculosis of the testicles, adding that the practically invariable involvement of the seminal vesicles and prostate forbids surgical treatment. In conclusion he remarks that while all physicians admit theoretically the usefulness of heliotherapy for so-called bone and joint tuberculosis, yet comparatively few insist upon it for their patients, and still fewer apply it. It is not enough to order the patient to take sunbaths. The course must be systematically planned and applied, and for this Negri urges multiplication of inexpensive institutions for the regular application of heliotherapy. His own work was done in the Novara foothill district in northern Italy.

Implanting of Ureter in Bladder.—Pennisi performed the ureterocystostomy to cure a fistula between ureter and vagina, a relic of extensive suppuration after a septic abortion. The results have been perfect during the five years to date. He did not leave a catheter in the ureter nor even in the bladder after the operation, dreading the irritation therefrom, and the successful remote outcome justifies his technic.

December, 1920, **27**, Medical Section No. 12

*Pseudosyringomyelia and Chronic Poliomyelitis. Giannuli.—p. 441.
*Experimental Epilepsy. G. Amantea.—p. 462.
Tumor in Frontal Lobe Compressing Cavernous Sinus. G. Artom.—p. 473.

Pseudosyringomyelia and Chronic Poliomyelitis.—Giannuli reproduces seven photomicrograms from a case of symmetrical muscular atrophy of the Aran-Duchenne type. The necropsy findings the fortieth year of the disease demonstrated that such cases should not be labeled pseudosyringomyelia but be classed as the sclerotic myelitis form of chronic poliomyelitis.

Experimental Epilepsy.—Amantea's experiments on dogs with strychnin and electricity applied to the exposed sensory-motor nerve centers, showed that epileptic phenomena could be elicited not only directly but indirectly by irritating from the periphery the corresponding region of the skin. The reflex-eliciting zone of the skin thus becomes an epileptic phenomena-eliciting zone. These phenomena start always in the group of muscles corresponding to the strychninized nerve centers. After cauterization of the nerve centers involved, it is impossible to elicit the epileptic phenomena even with the strongest stimuli. This confirms the participation of the cortex in the epileptic attack. By means of a disk of blotting paper, dipped in a 1 per cent. solution of strychnin or other chemical, and applied directly to the center for the extensor muscles of the paw or fingers, we can test the efficacy and adequacy of stimuli for sensory nerves in the internal organs and in the organs of sense, and study the inhibiting action of afferent stimuli along with or consecutive to the epileptogenous.

Riforma Medica, Naples

Dec. 4, 1920, **36**, No. 49

*Occupational Poisoning in Munitions Workers. C. Rubino.—p. 1121.
Lymphosarcoma in Right Lung. G. Carisi.—p. 1124.
*Induced Dullness in Left Chest in the Healthy. C. Minerbi.—p. 1126.
The Oölemma of Mammals. A. Mazzarella.—p. 1127.

Occupational Poisoning in Munitions Workers.—Rubino refers in particular to trinitrotoluol poisoning as seen in sixty-seven of 410 workers on munitions.

Area of Dulness in Left Chest.—Minerbi found that it was possible to induce what is called "Grocco's left cap" in healthy young persons by the technic described. This "cap" is found as an area of dulness capping the normal outline of the left margin of the heart in case of mitral stenosis. It can be induced in the healthy by pressure on the eyeballs as the patient lies supine and the legs are passively raised upright. After pressure on the eyeball for fifteen seconds, the legs are slowly dropped to the level of the bed. By this means the auricular appendix of the heart undergoes a kind of shock. He regards this as proof that the tonic reflex of the auricle and Grocco's cap are two phenomena interesting in inverse sense the left auricular appendix.

Dec. 11, 1920, **36**, No. 50

Action in Vitro of Neo-Arsphenamin on Anthrax Bacilli. F. Tallo.—p. 1145.
*Reaction of Human Heart to Epinephrin. A. Fulchiero.—p. 1147.
Valsalva's Experiment with Diaphragmatic Eventration. N. Samaja.—p. 1151.
Epidemic of Poliomyelitis. E. Donetti.—p. 1152.
*Transformation of Tubercle Bacillus Into a Saprophyte. **L. Sivori.**—p. 1154.
Insufficiency of the Spine. E. Aievoli.—p. 1156.

Reaction of the Heart to Epinephrin.—Fulchiero gives tracings which show that the epinephrin test of the functional capacity of the heart is incapable of giving reliable results on account of the multiformity and varying intensity of the responses, depending on the condition in the endocrine system of different individuals. Epinephrin may possibly prove useful to determine the tonus of the myocardium, paying heed to the appearance of extra systoles and of the contemporaneous increase in the arterial pressure. Thus a considerable increase in the pressure without production of extra systoles testifies to good tonus of the myocardium, while the appearance of extra systoles, even with a relatively slight increase in pressure, signifies insufficient tonus, other things being equal. Hence the production of extra systoles after injection of 1 or 1.5 c.c. of a 1:1,000 solution of epinephrin may be regarded as a sign which, considered in connection with other clinical signs, may facilitate the diagnosis of pernicious anemia.

The Tubercle Bacillus Transformed to a Saprophyte.—Sivori explains that when the soil is resistant, the tubercle bacillus is practically a saprophyte. By this means we can distinguish between active and inactive tuberculosis. To determine the resisting power of the soil he tests with the poisons of fatigue. This shows the margin of resistance, and thus throws light on the amount of defensive and reactive reserves which the tuberculous organism can present to combat the tubercle bacilli. He does not give the details of his technic, but he reiterates that by determining the toxic action of the poisons of fatigue, it is possible to estimate the latent resistance of the tuberculous, and thus learn the defensive reserves on hand.

Brazil-Medico, Rio de Janeiro

Oct. 30, 1920, **34**, No. 44

*Typhus at S. Paulo. A. P. Ulhôa Cintra and J. de Toledo Pisa.—p. 715.
Case of Exstrophy of the Bladder. Barros Lima.—p. 719.
*Multiple Verrucous Pigmented Nevi. T. Tollendal.—p. 720.

Typhus at S. Paulo.—The case reported is said to be the third ever recorded at S. Paulo. The patient was a child of 10 and the differential diagnosis was puzzling until the agglutination of the proteus X at 1:6,000 confirmed the disease to be typhus.

Pigmented Nevi in Idiot.—The numerous verrucous nevi are scattered over the body of the young child with inherited syphilis, a pronounced idiot.

Crónica Médica, Lima

November, 1920, **37**, No. 689

Luxation and Fracture of Shoulder. F. Wieland.—p. 361.
Pathogenesis of Bronchial Asthma. A. Mora Quimper.—p. 364.
Endemic Goiter in Ancash Region of Peru. D. D. Antunez.—p. 371.
*Obesity. L. O. Romero.—p. 372. Conc'n No. 690, p. 417.
Myxomas of the Kidneys. R. Molla.—p. 376.
Retention of Urine from Retroversion of Uterus. B. Sosa Artola.—p. 384.

Treatment of Obesity.—Romero's method of treating obesity has already been summarized in these columns, May 10, 1919, p. 1402. It forms a ten months' course of which psychotherapy is the base from the very first. An extremely thorough and exhaustive examination of the patient, writing down his replies to questions, serves among other things to establish a confidential intimacy between physician and patient, arousing interest, ambition and encouragement as the progress realized is appreciated. The system is first cleared of toxins, then the course plans to prevent their further development, and to cultivate a love exercise. He regards obesity as a disease of which weakness of the will is one of the main factors. Instead of the patient being a passive element in the treatment, as in other diseases, he must be taught and inspired to cure the disease himself. The main obstacle to the success of Romero's treatment, he says, is the prejudices and discouragement from other members of the family, and sometimes from other physicians, with which the attending physician and the patient have to contend.

Revista Española de Medicina y Cirugía, Barcelona

September, 1920, **3**, No. 27

*Traumatic Epilepsy and Brain Cyst. S. Cardenal and J. Castellá.—p. 467.
*Inflammatory Tuberculosis of Nervous System. G. Roqueta and P. Umbert.—p. 475.
Deep Radiotherapy of Cancers. C. Comas and A. Prió.—p. 485.
*Nonspecific Antigen Therapy. A. Salvat y Navarro.—p. 490.

Hydatid Cyst in the Brain.—Cardenal and Castellá relate that symptoms of epilepsy developed in a boy of 14, a year after a fall on the right parietal region causing unconsciousness for two hours. The epileptiform seizures with unconsciousness for two or three minutes recurred finally every six or seven days, and partial right hemiparesis also became installed. A large flap over the left rolandic region showed the dura intact, but when this was incised a profusion of hydatid daughter cysts poured out of the opening. The cyst occupied the space of the anterior third of the left hemisphere, and within extended beyond the median line, but the symptoms had been remarkably mild in comparison with its extent. The capsule was removed entire, and recovery was complete in time except for inability to extend the fingers of the right hand and slight facial paresis; otherwise practically normal conditions have been restored. The lad had one seizure afterward at the seventh month but no more during the three months since to date. They packed the cavity left after removal of the cyst with a long strip of gauze, removing it gradually and completely by the sixteenth day.

Tuberculosis of Nervous System.—Roqueta and Umbert describe six atypical cases, including one of a physician of 35 who developed neuralgia in the arms and skull, with a tendency to paresis and contracture in the legs. The symptoms proved rebellious to all treatment, except morphin, and the martyrdom kept up till death. This experience was repeated in another case in which the pains shifted about, yielding only to two daily injections of morphin, with death the fifth month. In a third case the symptoms of toxic polyneuritis became complicated with symptoms resembling those of sclerosis in patches. In three other cases the men died not long after the onset of the nervous symptoms suggesting ascending paralysis, arthritis from septicemia or brain tumor. In all the six cases there was nothing to suggest syphilis, and tentative treatment on this basis only aggravated conditions. All of these patients, however, had an unmistakable small tuberculous lesion somewhere, so that toxins of the tubercle bacilli may well explain the condition. In the first case the neuralgia developed soon after the abrupt, spontaneous subsidence of an extensive tuberculous skin eruption. In one of the other cases, enlargement of glands and conjunctivitis accompanied the nervous disturbances. Improvement was realized in one case under heliotherapy, but the patient refused to complete the course. The lungs did not seem to be affected in any of these cases, but in reality there was probably some pulmonary focus in all.

Protein Therapy.—Salvat reviews the cases and history of what he calls nonspecific antigen therapy and parabacterial tachyphylaxis or protein shock. He cites clinicians who have realized this therapeutic protein shock without protein, merely with an injection of a glucose solution by the vein, saving the apparently moribund pneumonia patients. He adds that unless the organism is capable of reacting, these measures are futile. They yield all—and this almost instantaneously—or they yield nothing at all.

Revista Médica del Uruguay, Montevideo

August, 1920, **23**, No. 8

*Inversion of the Uterus. H. Loriente.—p. 371.
Medicinal Treatment of Influenza. F. Paladino.—p. 381. Conc'n.
Abdominal Cesarean Section for Retroplacental Hemorrhage. H. Platero.—p. 389.

Inversion of the Uterus.—Loriente reports two cases of puerperal inversion. In the first he was unable to reduce the inversion, but in the second case, in a young woman, he injected a preparation of opium and gave saline subcutaneously to combat the extreme tetany of the uterus and to replace the blood that had been lost. He then packed with sponges dipped in very hot water all the space around the uterus in the vagina and placed the patient in the Trendelenburg posture. After waiting for three quarters of an hour, he found the uterus walls somewhat relaxed, and with his whole hand he compressed the inverted uterus, while with the other hand and the aid of the assistant he tried to enlarge the os through the abdomen. By thus squeezing the inverted uterus, like a sponge, the blood was expressed and the size reduced, and in fifteen minutes of these continuous maneuvers the uterus slid back into place. The inversion in this last case occurred spontaneously, an hour after delivery, with agonizing pains. He ascribes his success in reduction to the hot sponges packed around the inverted uterus which did not project beyond the vulva, the sponges serving also to protect the uterus during the compression with the whole hand.

Siglo Médico, Madrid

Sept. 25, 1920, **67**, No. 3485

Neohippocratism. H. F. Delgado (Lima).—p. 725.
Atypical Acute Meningitis. B. Gil y Ortega.—p. 728. Conc'n No. 3486, p. 750.
*Phototherapy in Gynecology. S. Recasens.—p. 731. Conc'n.

Phototherapy in Gynecology.—Abstract was published, Feb. 12, 1921.

Oct. 2, 1920, **67**, No. 3486

*Pathologic Anatomy of the Eye. E. Fuchs.—p. 745. Conc'n No. 3492, p. 860.
Seborrhea of the Aged. Sicilia.—p. 748.
*Auto-Observation of Strychnin Poisoning. D. Gómez Repiso.—p. 748.

Pathologic Anatomy of the Eye.—This is the report in detail of the course of lectures delivered by Fuchs of Vienna at Madrid.

Strychnin Poisoning.—Gómez Repiso describes his own experience when he took a 10 cg. wafer of strychnin by mistake for quinin. A robust young woman taking one of the tablets at the same time soon died in convulsions. His first symptom was an intense itching, then slight sensations of suffocation, fleeting phosphorence visual sensations, and slight nausea, but no pain, no regurgitation. The tonic contractions of the larynx became more severe, rendering it difficult to swallow the coffee ordered by the physician after a hypodermic injection of caffein or camphorated oil. Four or five paroxysms of tonic contractions followed. They were so violent that the pain caused unconsciousness. During these paroxysms, artificial respiration was applied as indicated. An enema of chloral was given, and although the nervous excitability persisted throughout the day, no other untoward manifestations developed except that the surface of the tongue was black for two or three days. He is inclined to ascribe his survival after such a large dose to the fact that the organs which strychnin predominantly affects, namely, the gray matter of the spinal cord and medulla, were already diseased, as his legs had long been paralyzed and both hip joints and knees were ankylosed from disease in youth.

Oct. 9, 1920, **67**, No. 3487

Hemorrhage from Anterior Median Artery. C. Juarros.—p. 761.
Musical Sense in Deafmutes. V. Ribón (Bogotá).—p. 762.

Oct. 16, 1920, **67**, No. 3488

A Mechanism that Prevents Coagulation of Blood Within the Vessels. B. A. Houssay and A. Sordelli (Buenos Aires).—p. 777.

Oct. 23, 1920, **67**, No. 3489

The Greatest Sanitarian of the World: General Gorgas. M. Salazar.—p. 797.
Hemodystrophies and the Mendelian Laws. Pittaluga.—p. 798. Conc'n No. 3490, p. 818.

Oct. 30, 1920, **67**, No. 3490

Odors and Digestion. M. G. López de Lara.—p. 817.

Deutsches Archiv für klinische Medizin, Leipzig

Aug. 25, 1920, **133**, No. 3-4

*High Blood Pressure and the Kidneys. P. v. Monakow.—p. 129.
*Arteriolosclerosis of the Kidneys. K. O. Rosenthal.—p. 153.
*Nephrosis with Bence-Jones Albuminuria. S. J. Thannhauser and E. Krauss.—p. 183.
*Partial Sinus-Auricle Block. M. Straubel.—p. 193.
*Sinus Arrhythmia. M. Straubel.—p. 216.
*Erythrocyte-Destroying Action of the Spleen. E. Frey.—p. 223.
Hematology of Influenza. F. Harry.—p. 237.
*Venous Pulse. A. Weber.—p. 245; Idem. H. Straub.—p. 253.

High Blood Pressure and the Kidneys.—Monakow presents evidence that permanently high blood pressure is always preceded by abnormal contraction of the arterioles in extensive vascular regions. Even when the arterioles are organically modified, there is a spastic element involved in the abnormally high blood pressure. It is impossible to explain otherwise than with this assumption the fact that in many cases with pronounced sclerosis of numerous arterioles the blood pressure may be within normal range or below, without signs of cardiac insufficiency. These contractions of the vessels can be induced by nervous influences (disturbances in the domain of the sympathetic, from emotional influences), or they may be induced by changes in the internal secretions, or by poisons. They may also be induced by the influence of the kidneys. A high blood pressure is thus a symptom which—like fever—has no single etiology. To attempt to trace this symptom to a single cause—disease of the kidneys—is futile. Even with the so-called nephrosclerosis, the rise in blood pressure is not conditioned by the kidneys; for the kidneys can be entirely intact not only functionally but also anatomically. The trouble is a primary hypertonia which may be of different origins. The changes found in the renal vessels are not specific for this hypertonia; they do not entail contraction of the lumen of the vessels. They probably represent merely an insignificant consequence of the hypertonia.

Arteriolosclerosis of the Kidneys.—Rosenthal writes from the Pathology Institute of which Aschoff is director, to protest against the separation of arteriosclerosis of the kidneys into a mild and a malignant form. He refuses to accept any specific etiology, like syphilis or lead, for genuine contracted kidney. The changes considered characteristic of the mild and the malignant form are merely links of a single chain, as he shows by concrete examples.

Nephrosis with Bence-Jones' Albuminuria.—Thannhauser and Krauss found in a case of small smooth white kidneys a diffuse and intense degenerative change of the entire epithelium of the tubuli while the glomeruli were scarcely involved. The urine contained the Bence-Jones protein, and multiple myelomas were found in ribs, thighs and spine. The man died the sixth month with signs of insufficiency of the kidneys, without abnormally high blood pressure and without hypertrophy of the heart.

The Cardiac Impulse and Conduction.—Straubel reports four cases of partial sinus-auricle block, and discusses different anomalies in relation to the formation and conduction of the impulse. He ascribes the block to a disproportion between the strength of the impulse and its consequences. The old explanation of increasing impairment of conduction is not applicable here as there is no conducting system between the sinus and the auricle. In his second communication he describes two cases of extreme sinus arrhythmia. The normal relations between the auricle and the ventricle beats were retained in these cases. The only explanation is the assumption of an arrhythmia of the sinus alone.

Erythrocyte-Destroying Action of the Spleen.—Frey reports experiments which show that the blood from the splenic vein contains fewer erythrocytes than the arterial blood or the blood from a vein in the ear. This difference in the number of erythrocytes between the arterial and the splenic vein blood becomes larger when the resistance of the red corpuscles has been reduced by a blood poison such as ether. The difference grows less and less when the resistance of the red corpuscles is enhanced, by substances such as phenylhydrazin. The hemoglobin percentage was alike in both splenic vein and ear vein blood in dogs. As there are fewer erythrocytes in the splenic vein, this finding in regard to the hemoglobin seems to suggest that free hemoglobin is present in the serum of the splenic vein blood. He found further that the spleen acts as a close filter for foreign erythrocytes, allowing very few to pass in dogs. During ether anesthesia, the minimal resistance of the red corpuscles to hypotonic saline solution is very much reduced.

The Venous Pulse.—Weber says that the venous pulse was found in 399 of 400 cases of heart disease with failing or lost compensation, and hence he accepts it as a pathologic phenomenon and a very early symptom of incipient stasis. The premature beginning of the diastolic venous wave—or as he prefers to call it, the premature end of the systolic collapse—is a sign of beginning circulatory derangement. This symptom is such a sensitive reaction that it occurs long before other methods of investigation give any information in regard to the tendency to stagnation.

Mittheil. a. d. Grenzgebieten d. Med. u. Chir., Jena

1920, **32**, No. 3

*Goiter and Thymus. Haberer.—p. 329.
*Experimental Tetany. E. Farner and R. Klinger.—p. 353.
*Continuous Bath in Treatment of Wounds. W. Sacken.—p. 374.
Carcinoma of Stomach. G. Sandberg.—p. 399.
Acute Suppuration of Abdominal Lymph Glands. P. Schenck.—p. 414.
Differential Diagnosis of Diaphragmatic Hernia. H. Bentler.—p. 422.
*Osteitis Fibrosa. M. Roth and J. Volkmann.—p. 427.
Extra-Medullary Tumor of Spinal Cord. C. Jacob.—p. 454.
*Influence of Iodin on Ovaries. M. Jastram.—p. 460.

Goiter and Thymus.—Haberer in his previous papers advocated a simultaneous operative reduction of the thymus in exophthalmic as well as in simple goiter when hyperplasia of thymus forms a complication. His studies now are extended by 9 cases, and an analysis is made of the entire material, especially with reference to exophthalmic goiter, a total of 32 cases which recovered, and 3 which ended with death. Three cases were followed for seven years and showed thus far perfect recovery from all symptoms. Other 3 cases were observed for six years; 7 for five; 3 for four; 8 for three, and 8 for two years or less. In some instances nervous symptoms were noted, probably superinduced by the war. In 10 cases where an operative reduction of thyroid and thymus had taken place, there was a recurrence of the goiter, but wholly without exophthalmic manifestations. The 3 cases which ended in death induce the author to warn against deferring the operation until irreparable heart disturbances have set in.

Experimental Investigations of Tetany.— Farner and Klinger studied by experiments on rats the problem of the relations between the parathyroids and tetany. Removal of the parathyroids in many cases has been followed by tetany, but not in all. Negative results had been explained by the development of accessory parathyroid elements. Total removal of these glands in the rat is almost impossible, hence this animal is well suited for a study of the influence of the accessory elements on the manifestations of tetany. The operation and subsequent feeding of the animals are fully given. As a general result is noted: Between ten and twenty hours after operation, stiffness especially in limbs, flexion of forepaws, tremor in all the paws; all lasting from one to three hours. No depression. Subsequent development is for a time normal. No regular cachexia. Lower incisors invariably become opaque, and some teeth break off. After exertion, sporadic attacks of brief general tetany, sometimes followed by death. In eight of the sixty-four rats accessory parathyroid tissue was present as an atypic development; genuine accessory tissue was present in two cases. In no case did this development alter the results or give rise to a restitution of the normal condition of the animal.

Continuous Bath in Treatment of Wounds.—Sacken studied the influence of the permanent bath in a large number of surgical diseases and postoperative conditions, especially with extensive wounds, burns and excisions. Postoperative hemorrhages are a serious consideration, yet statistics are given of 282 cases, with an average treatment of thirty-seven days, where 134 showed complete recovery and forty-two considerable improvement, while 106 died. It must be noted that many of these 106 cases were hopeless, and the water-bed was used merely to relieve the last days of patients with severe spinal or pelvic complications. Good effects were noted in tetanus.

Generalized Osteitis Fibrosa.—Roth and Volkmann describe exhaustively a case of this rare disease (originally diagnosed by Recklinghausen), and give a bibliography of the disease. The etiology is unknown, but systematically the disease is classified with the sclerosis of the vascular glands, and a permanent injury to the myeloid system which prevents the retention of unripe cells—evident in the presence of myelocytes in the blood during exacerbations. The case under treatment developed in a woman after the menopause had set in. Treatment with glandular extracts no longer could be attempted. A transplantation of parathyroid tissue was indicated by the findings of O. Meyer, who determined in one case a distinct parathyroid tumor (microscopically proved a simple hyperplasia). No specific treatment is known. Lime is retained and sometimes gives temporary improvement.

Influence of Iodin on Ovaries.—Jastram experimented on young dogs beginning with doses of 0.006 gm. of iodid of potassium per kilogram weight and increasing the dose to 2.0 per kilogram, three doses each day. The effect was uniform in sixty-four animals, each receiving a total of 200 gm. of potassium iodid: a development of dense rigid elements of connective tissue amidst the ovarian epithelia. The epithelia themselves showed a distinct poverty of nuclei. No visible influence upon the follicular elements could be ascertained. This result proves the deleterious effect of iodin on the sexual glands, which has been now and then asserted, but hitherto without proof.

Münchener medizinische Wochenschrift, Berlin

Oct. 15, 1920, **67**, No. 42

Mushroom Poisoning. E. Fraenkel.—p. 1193.
Unsuccessful Attempts to Influence Tuberculosis by Wax-Dissolving Substances. W. Stoeltzner.—p. 1196.
Serious Gastro-Intestinal Hemorrhage. G. Kelling.—p. 1198.
*Treatment of Lymphomas. Baensch.—p. 1199.
*Decapsulation of the Kidney in Nephritis. W. Karo.—p. 1200.
Treatment of Neurosyphilis. H. Schmidt.—p. 1201.
Trials of Intradermal Own Urine Test. H. Reinecke.—p. 1202.
Treatment of Vaginitis with Iodin. L. Froriep.—p. 1202.
Construction of Vagina from Intestine. A. Hörrmann.—p. 1203.
Idiosyncrasy for Wasp Venom. R. Berg.—p. 1204.
Observations on Eugenics. L. Knapp.—p. 1204.
Therapeutic Effects of Pneumoperitoneum. Kästle.—p. 1205.
Peculiar Exanthem in Diabetes. H. Koch.—p. 1205.

Treatment of Lymphomas.—Baensch has found from his observations in a large series of cases that it is important to make a careful examination of the patient in order to discover if possible the gate of entry of the infection. It is surely not due to chance that 88 per cent. of all lymphomas are found in the neck. In every patient he examines carefully mouth, nose, the lymphatic tissue of the pharynx, and the scalp, and he is convinced that besides carious teeth and hypertrophied tonsils with chronic suppuration, external eczema plays an important rôle in the pathology of the lymph glands. If the lymphomas are of nontuberculous origin, heliotherapy is of no avail. The fundamental cause must be removed first. In many cases the glandular swellings receded as the result of merely removing the tonsils or extracting old molar roots. If the hyperplasia produced by the chronic irritation does not retrogress spontaneously, he applies roentgen-ray treatment, which gives good results provided the focus of infection has been removed. In the case of lymphomas of tuberculous origin, if there are well circumscribed solitary glands that are not broken down they can be removed surgically if time and money must be taken into account; otherwise he uses the quartz lamp or natural heliotherapy; in stubborn cases, combined with roentgen-ray treatment. If patients can be treated for from three to four months the results are without exception excellent; especially from a cosmetic point of view.

Decapsulation of the Kidney in Nephritis.—Karo recommends decapsulation of the kidney in such cases of nephritis as show no improvement either clinically or functionally in spite of long continued conservative treatment. Decapsulation as introduced by Edebohls is not a dangerous operation. The operation is strongly indicated in severe attacks of uremia brought on by anuria. In such cases the operation saves many lives. The operation is also indicated in cases of nephritis dolorosa and in hemorrhagic nephritis; here the decapsulation of one kidney is sufficient; in all other cases bilateral decapsulation is to be preferred. The operation is best performed under ether narcosis.

Therapeutische Halbmonatshefte, Berlin

October, 1920, **34**, No. 19

*Gastric and Duodenal Ulcer. H. Finsterer.—p. 525.
Diseases of the Tympanic Membrane and Middle Ear. M. Maier.—p. 529. Cont'd.

Indications for Operation in Gastric and Duodenal Ulcer.—Finsterer states that owing to improvements in surgical technic and the substitution of local anesthesia for general narcosis, the indications for operation in gastric carcinoma have been much extended. Although many of his cases were of unfavorable prognosis (advanced age; involvement of esophagus, colon, liver and pancreas; metastases), in 144 operations for carcinoma the mortality was only 17.3 per cent. He thinks operations for chronic gastric ulcer should be more frequent. Following an acute hemorrhage it has been the custom until recently to take a conservative stand and to postpone operation until the patient had recovered from his anemia. For the last four years Finsterer has favored immediate operation in such cases. He has operated in 32 cases of gastric ulcer during the stage of acute hemorrhage, 17 of which were resections. He lost only 2 cases, a mortality of 11.7, which he thinks is a good showing when we consider that most of the patients had received internal treatment for a long period and that the radial pulse at operation was often imperceptible. In resection of duodenal ulcer he regards it as absolutely necessary to remove at least half of the stomach in order to get good permanent results. From his experience with 150 duodenal ulcers he states that it is not absolutely necessary to remove the ulcer itself. It is sufficient if, in place of the simple unilateral exclusion by Eiselsberg's method, half or two thirds of the stomach is resected, the distal gastric lumen being closed tight in front of the pylorus, with end-to-side anastomosis between the partially sutured proximal lumen and the first loop of the jejunum. Finsterer has used this method in 103 resections for duodenal ulcer and for 43 gastric resections for the exclusion of duodenal ulcer; has been able to observe the results in 84 cases for varying periods up to four and one-half years, and there have been no failures.

Wiener klinische Wochenschrift, Vienna

Oct. 7, 1920, **33**, No. 41

The Cause of Heart-Beat. G. Mansfeld.—p. 897.
*The Rôle of Infections in Scurvy. H. Abels.—p. 899.
Clinical and Therapeutic Aspects of the 1920 Influenza Epidemic. O. Schiffner and G. Spengler.—p. 901.
Investigations on Intracutaneous Reactions. E. Hoke.—p. 904.
*Reflux of Duodenal Secretion into Stomach. L. Jarno.—p. 906.
Mortality from Tuberculosis in Vienna Before and After the War. S. Peller.—p. 906.

The Rôle of Infections in Scurvy.—On the basis of experiments with guinea-pigs, Abels states that a scorbutic organism presents diminished resistance to specific infectious diseases. The guinea-pigs in which a scorbutic condition was to be induced were fed only grain and water. Control animals were given 5 gm. of cabbage leaves in addition to the oats and water. Abels found that the scorbutic guinea-pigs succumbed to much smaller amounts of cultures of *Bacterium coli* injected peritoneally, in spite of the fact that this microorganism is only slightly pathogenic for guinea-pigs. Following intracutaneous injections of staphylococci, toward which (as toward all pyogenic organisms) guinea-pigs are very resistant, he discovered distinctly palpable infiltrates and in one case an abscess, whereas the controls presented either a very slight infiltrate or none at all. The fact that scorbutic animals readily succumb to pneumonia is also evidence of increased sensitiveness to infection. He also found support for the assumption that hemorrhages observed in scorbutics are also brought about by the toxic effects of infections.

Reflux of Duodenal Secretion After the Period of Activity of the Empty Stomach.—Jarno discusses the further results of his investigations on borborygmus, which he finds occurs in most persons when hungry. Borborygmus returns periodically coincident with the period of activity of the empty stomach, as established by Boldyreff. Boldyreff found also in his animal experiments that, after the end of this periodic activity, a mixture of pancreatic juice and bile flowed back into the stomach from the duodenum, and he raised the question whether this was a pathologic or a physiologic phenomenon. Jarno has made a similar finding in experimental human subjects. If only from fifteen to twenty minutes had elapsed after borborygmus had ceased, he could usually obtain from the stomach a bile-tinged secretion, which contained free hydrochloric acid. When he examined the stomach contents one hour after borborygmus had ceased, he obtained either an acid secretion without bile pigments or no secretion at all. The presence of bile pigments in the gastric juice is the best indicator for duodenal fluid. In some subjects borborygmus lasts only from one to two minutes; in others, from fifteen to twenty minutes. The period of activity of the empty stomach is usually completed at the end of from fifteen to twenty minutes. There are two possible interpretations of the mechanism of this regurgitation. Possibly, when the activity of the empty stomach is ended, primary regurgitation takes place and stimulates the secretion of gastric juice. A second interpretation, which Jarno favors, is, that after the activity of the empty stomach has ceased—for some as yet unknown reason, a gastric secretion occurs, which in turn induces the reflux from the intestine for the purpose of neutralizing or at least weakening the acid present in the stomach. His observations were all made on persons with healthy stomachs, for which reason he regards the reflux following borborygmus as a normal physiologic process. He thinks this finding may have great practical diagnostic value. We shall doubtless be able, in the case of most patients, to obtain from the stomach either bile or a mixture of bile, gastric juice and duodenal secretion, provided the proper time for the examination of the stomach contents is chosen.

Zentralblatt für Chirurgie, Leipzig

Oct. 16, 1920, **47**, No. 42

*Temporary Blocking of the Phrenic Nerve. O. Goetze.—p. 1290.
*Blocking of Sympathetic and Vagus Nerves. C. Steinthal.—p. 1293.
*Suturing of Musculature to Goiter Stump. J. Dubs.—p. 1294.
*Sterilization of Instruments. A. Rebula.—p. 1297.

Temporary Blocking of the Phrenic Nerve. — Goetze describes a case of protracted hiccup occurring in a young woman following appendectomy. The hiccup had persisted for weeks. With fluoroscopy the cardia could be seen to open suddenly synchronously with the clonic spasms of the diaphragm; the esophagus was stretched and opened, and air was drawn with a loud sound into the esophagus and stomach. The stomach contained no fluid but was greatly distended by air. The whole of the large intestine was seen to contain large quantities of gas. As the result of the large amount of air in the stomach, the left side of the diaphragm was distinctly higher than the right, and it appeared as if this pressure on the left side of the diaphragm constituted an important link in a vicious circle that was keeping up the singultus and the aerophagia. Therefore, three fingerbreadths above the left clavicle, where the scalenus anticus muscle can be plainly felt, 20 c.c. of a 1 per cent. solution of procain were injected slowly, distributing it over its anterior surface. The loud hiccup immediately became less violent and soon ceased entirely, and did not return. As the hiccup stopped, it was noted that the spasmodic contractions of the left diaphragm had also ceased; that the left side of the diaphragm was no higher than the right, and that the stomach and intestine were soon relieved of the gas.

Interruption of Sympathetic and Vagus Nerves by the Stierlin Method in Gastric Ulcer.—Steinthal has tried Stierlin's method but his experience has not been favorable. Stierlin holds that the better results securable by means of transverse resection in gastric ulcer as compared with gastro-enterostomy are due to the fact that, in addition to the removal of the ulcer, the gastric nerves are severed. This he thinks results in an increase of motility, stopping of the pylorospasm and reduction of the acidity. By the interruption of both the sympathetic and vagus nerves the peristaltic activity is increased through the mediation of the myenteric plexus; and the interruption of the vagus nerve alone reduces hypersecretion and hyperacidity. In place of transverse section, Stierlin therefore recommends that, in such ulcer cases in which the removal of the ulcer itself is not absolutely necessary, a simple circular incision be made, high up on the stomach, through the serous and muscular coats down to the mucosa, so as to interrupt the nerve paths without opening the gastric lumen, whereupon the incision is immediately closed by suture. Steinthal made a practical test of Stierlin's ideas in two cases. A patient aged 18, with marked atony and considerable hypersecretion with hyperacidity, was operated on by the Stierlin method. After the operation, normal peristalsis was reestablished, but the hypersecretion was not affected. In the second case, a patient aged 45, presented before the operation increased peristalsis, a considerable six hour residue and hypersecretion. After the operation, motility was unchanged and gastric secretion was if anything increased.

Primary Suturing of Muscle to Goiter Stump After Strumectomy Without Drainage.—Following the example of Züllig, Dubs during the last three years, in a series of 100 strumectomies, has sutured at once without drainage. The procedure unfortunately makes the formation of hematomas more likely and also increases the danger of the healing of the wound being disturbed. At first Dubs had occasionally fistulas with seropurulent secretion in the line of suturing; also hematomas appeared in several instances. With more experience he has been able to prevent the formation of hematomas. He is extremely careful to arrest all hemorrhage, and the several muscular layers are sutured separately and exactly. The cervical fascia, which at the beginning of the operation was loosened up for some distance above and below the wound, is sutured in three or more tiers. On the supposition that hematomas are caused by the slight oozing from the goiter stump, Dubs has, of late, in a series of unibilateral and bilateral resections, sutured the sternothyroid muscle to the goiter stump. Since using this method no hematomas have formed in unilateral operations and in only two out of twenty bilateral cases. The improvement over former conditions was marked, but the method does not furnish an absolute guarantee against hematomas.

The Sterilization of Instruments.—Rebula states that in many textbooks on surgery instructions for the sterilization of instruments read somewhat as follows: "Instruments may be sterilized by boiling in a 1 per cent. soda solution, which also prevents rusting." That such inaccurate statements should be made by famous surgical experts he finds quite pardonable, since "*de minimis non curat practor,*" but does not think that such nonsense should be perpetuated in the smaller textbooks destined for the use of nurses. He asserts that neither sodium carbonate nor sodium bicarbonate will prevent the rusting of instruments. It is the carbon dioxid in the water that causes the instruments to rust. Neither sodium carbonate nor sodium bicarbonate combines with the carbonic acid of the water. In order to prevent the rusting of instruments 2.5 gm. of sodium hydroxid (NaOH) should be added to 1,000 gm. of water. The sodium hydroxid should be allowed two minutes in which to dissolve and to combine with the carbonic acid of the water, before the instruments are put in the solution.

Zentralblatt für Gynäkologie, Leipzig

Oct. 16, 1920, **44**, No. 42

Rare Injuries Resulting from Coition. E. Weinzierl.—p. 1181.
Source of Danger in Using the Kielland Forceps. Sachs.—p. 1186.
Phantom Abdominal Tumors. T. Micholitsch.—p. 1186.
Operation for Pendulous Abdomen. M. Linnartz.—p. 1190.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 11, 1920, **2**, No. 24

*Vasomotor Trophic Neuroses. H. Bolten.—p. 2535.
*Case of Porphyrinuria. J. J. van Straaten.—p. 2539.
Bacterial Nomenclature. J. J. van Loghem.—p. 2541.

Vasomotor Trophic Neuroses.—Bolten rejects the theory of spasmodic contraction of vessels as the explanation for trophic neuroses. He argues that some disturbance in the sympathetic innervation is the responsible factor. The analogy with other neuroses which are traceable to a congenital insufficiency of the sympathetic nervous system, the unstable vasomotor balance, the abnormal distribution of the blood, and the defective blood supply to the tissues—all these elements in the clinical picture testify that the underlying cause is hypotonia of the sympathetic nervous system. Treatment which restores proper tone to the sympathetic has a favorable action on the neurosis. The slight vasomotor and trophic disturbances, which are found in all neuroses, are usually the first to disappear under careful thyroid treatment. Even the neuroses affecting hands and feet, in which these vasomotor and trophic disturbances are so pronounced, show regularly great improvement or are cured by treatment directed to the sympathetic system. He adds that this explanation is more plausible than the assumption of a still unproved spasm of the superficial vessels. With a neuropathic constitution there is a predisposition to acroneuroses, and any derangement of the normal distribution of the blood is felt of course most seriously in hands and feet, the regions where conditions are least favorable for the circulation.

Porphyrinuria.—Van Straaten relates that a West Indian negro was brought to the hospital with the diagnosis of ileus. As the symptoms of ileus subsided under enemas, etc., in the course of two weeks, porphyrin was found in the urine, and the arms became paralyzed, but this paralysis seems to be very slowly subsiding. The nerves in the upper arm were still tender three months later and the pulse was still 120, but no further porphyrin could be found. The man had a history of old syphilis but the Wassermann reaction was negative. He had complained of abdominal pains for six months before the attack of ileus.

Norsk Magazin for Lægevidenskaben, Christiania

January, 1921, **82**, No. 1

Aqueous Humor and Its Secretion in the Human Eye. S. Hagen.—p. 1.
*"Encephalitis" Neonatorum. F. Harbitz.—p. 25.
*Chronic Peritonitis with Milky Ascites. F. Harbitz.—p. 30.
The Blood and the Circulation in Infants. K. Utheim.—p. 35.

"Encephalitis" Neonatorum.—Harbitz found a shriveled liver with jaundice and ascites and hemorrhages at necropsy of the prematurely born infant, 14 hours old. Nothing was found to suggest actual inflammation, but signs of this were manifest in another infant with inherited syphilis. In both there was hydrocephalus, but nothing to indicate syphilis in the first case.

Chronic Peritonitis with Milky Ascites.—In Harbitz's two cases the women of about 52 had presented symptoms of cirrhosis of the liver and ulcers in stomach and duodenum with chronic peritonitis. There were also a number of cysts in the mesenteric lymphatic glands and bowel walls. These cysts were filled with milky fluid which had produced chylous ascites as the cysts had burst. The thoracic duct seemed to be intact. Both women had had a dermatitis with leg ulcers.

Upsala Läkareförenings Förhandlingar

Nov. 8, 1920, **25**, No. 5-6

*Cystin Calculi in the Urinary Passages. C. T. Mörner.—p. 265.
*Pressure Variations in Artificial Pneumothorax. A. Bjure.—p. 287.
*Generalized Osteosclerosis. H. Laurell and A. Wallgren.—p. 309.

Cystin Calculi in the Urinary Passages.—Mörner gives a historical review of our knowledge of cystin in the animal body. The substance is an amino-acid, found in the urine and kept in solution at body temperature to the extent of one grain. Cystinuria is a rare disease, yet the number of observed cases rose from twenty-two in 1838 to 114 in 1914. Its etiology is a relative insufficiency of the reduction of various amino-acids. Clinically the condition becomes manifest by a urinary sediment, in rare cases by a calculus formation (47 in 5,292 cases of calculus formation).

Pressure Variations in Artificial Pneumothorax.—Bjure found in three cases (of thirteen) an increase of pressure by inspiration and a lowering of pressure by expiration. These paradoxic variations occurred in two cases only with abdominal breathing, in one case also with costal and common breathing, but only with increased pressure. Radiograms demonstrate clearly the phenomena. The interpretation of these variations is that a real extension of the cavity took place at the outset, the diaphragm functioning in less degree than the levator costae. The tension in the adhesions grows, however, steadily greater, and consequently the initial decrease develops into an increase in pressure. All three cases were men, and their relatively stronger developed diaphragm may account for their greater predisposition for this condition. The practical result of the observation is that when paradoxic manometer oscillations occur, the patient should alternate costal and abdominal breathing. If the point of the needle is located in the thoracic cavity, the oscillations are typical with costal breathing only, but if the needle is within the abdominal cavity, the pressure variations will be paradoxic with both forms of breathing.

Osteosclerosis.—Laurell and Wallgren describe a disease of the skeleton originally observed in a boy of 12. The skeleton showed general fragility, with a marble-like appearance. Two fractures had occurred early, one in each leg. Examination showed that the thyroid was nonpalpable. All osseous structures showed an enormous deposition of lime, especially in the cranium and the trunk. There was a history of hydrocephalus. The long bones showed condensed lime rings and lateral bands. Experiments were made with a view to determine a possible retention of lime in the metabolism, but the result was negative. The diagnosis, founded on history and feeding experiments is: Initial rachitis, complicated by hydrocephalus and a fundamental disturbance of the internal secretion glands: thyroid, hypophysis and perhaps others, resulting in lime condensation, and some secondary symptoms (serous meningitis, atrophy of optic nerve, anemia). Four similar cases are known. Eight plates show the pathologic structure.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 9 CHICAGO, ILLINOIS February 26, 1921

DERANGEMENT OF THE SEMILUNAR CARTILAGE

OBSERVATIONS IN SEVENTY-SIX OPERATIVE CASES *

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In this paper we shall endeavor to correlate the preoperative findings, surgical pathology, and postoperative results in a series of cases of derangement of the semilunar cartilage of the knee joint. Of this series we have ascertained the end-results in fifty, and in recording seven unsatisfactory results we shall, by way of explanation, call attention to possible sources of error in diagnosis and operative technic.

In 1803, as it was in the days before Lister, Hey [1] justifiably recommended conservative treatment. Since the beginning of aseptic technic, however, that is, since about 1840, there has been an increasing tendency toward operative procedure. In 1906, Barker,[2] while recommending operative treatment, advised the conservative procedure of suturing the loosened or fractured cartilage in place when such a method was mechanically feasible. About the same time, Cotterill [3] and Allingham [4] report series of operative cases in which both suturing and excision were employed, and definitely express themselves as favoring the latter technic. Some writers have recommended partial excision in all operative cases;[5] but the present tendency is toward as complete excision as possible.[6]

While series of cases are reported in the British literature, Henderson [7] is the only American who has published any detailed end-results. He reports eighty-seven cases of knee joint derangement, of which sixty-one involved the semilunar cartilage. Our series of seventy-six cases extends over a period of seventeen years; the most recent operation was performed over a year ago. The operations in our group were performed by five different surgeons; fifty-one of the last sixty-seven operations were performed by one individual.

SEX AND AGE

Sixty-one per cent. of the patients in this series were males. Practically all of the cases were traumatic in origin, many of the derangements being sustained while the patients were taking part in athletics. Owing to this fact, and in view of the more hazardous occupation of men, this distribution is to be expected. Power [8] reports the percentage to be 80, while Walton [9] reports it as 89. The last figure is to be explained by the fact that Walton's observations were made in a British coal-producing region; in fact, the condition has been styled "miners' disease." [10]

The average age at operation was 29 years, and varied from 10 to 61. The distribution shows that the frequency of occurrence at various ages corresponds closely to the activity and probable exposure to injury at those ages. From the sixteenth to the twentieth year the individual is very active; but as he has not attained full strength, the preponderance of cases at this age may be doubtless accounted for.

SYMPTOMS AND SIGNS

The duration of symptoms before operation varies from less than three months in the majority of cases, to more than seven years in four. The less perfect postoperative results, not explicable on pathologic grounds, are among those whose symptoms were of long duration. Any long-standing derangement of the knee joint leads to arthritic or periarthritic changes, which one should not hope entirely to overcome by removal of the cartilage; the process may be arrested, however, and some functional improvement may be expected to result. Allison [11] argues prompt operative treatment on this basis.

Local pain or tenderness over the site of the involved cartilage was present in forty-eight cases, or 63 per cent. This undoubtedly is the most characteristic diagnostic symptom, and has been referred to as being as constant as tenderness over McBurney's point in appendicitis.[12] That this characteristic was not more frequently mentioned is undoubtedly due to imperfections in the records and to the fact that emphasis has been placed on it only in recent years.

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* From the Orthopedic Clinic of the Carney Hospital.

* Read before the Boston Orthopedic Club, Jan. 17, 1921.

[1] Hey, William: On Internal Derangement of the Knee Joint, Practical Observations in Surgery, London **1**: 327, 1803.

[2] Barker, A. E. J.: Seventeen Cases Operated on for So-Called "Internal Derangement of the Knee Joint," Lancet **1**: 7 (Jan. 4) 1902.

[3] Cotterill, J. M.: Notes of Fifteen Cases of Operation for Internal Derangement of the Knee Joint, Lancet **1**: 510 (Feb. 22) 1902.

[4] Allingham, H. W.: Some Remarks upon "Internal Derangement" of the Knee Joint, Lancet **1**: 731 (March 15) 1902.

[5] Henderson, M. S.: Mechanical Derangements of the Knee Joint, J. A. M. A. **68**: 321 (Feb. 3) 1917.

[6] Martin, A. M.: Injuries to the Semilunar Cartilages: A Personal Experience of Four Hundred and Forty-Nine Cases of Operation, Proc. Roy. Soc. Med., Surg. Sec. **4**: 23-24, 1912-1913. Allingham, H. W. (Footnote 4).

[7] Henderson, M. S.: Injuries of the Semilunar Cartilages of the Knee Joint, Ann. Surg. **71**: 658 (May) 1920.

[8] Power, D'Arcy: The Results of the Surgical Treatment of Displaced Semilunar Cartilages of the Knee, Brit. Med. J. **1**: 61 (Jan. 4) 1911.

[9] Walton, A. J.: Injury of the Semilunar Cartilages, Proc. Roy. Soc. Med., Surg. Sect. **4**: 1-22, 1912-1913.

[10] Robson, A. W. M.: Observations on a Series of Cases of Fractures of the Semilunar Cartilage of the Knee, Together with Other Cases of Operation for Loose Cartilage, Brit. M. J. **1**: 877 (April 12) 1902.

[11] Allison, N.: Operative Treatment of Knee Derangements, Am. J. Orthop Surg. **9**: 475 (Feb.) 1912.

[12] Morison, R.: Injury to the Semilunar Cartilages of the Knee, Lancet **1**: 604 (Feb. 27) 1909.

Locking was present in thirty-nine cases, or 51 per cent. This small percentage is contrary to the general conception as to the relative frequency, but agrees with the observations of Jones,[13] who finds it present in less than 50 per cent. In addition, however, fifteen patients mentioned a sense of derangement in the joint variously described as a "dislocation," "something slipping," etc. This, we believe, is due to the displacement of the loose cartilage, which probably becomes jammed between the articular surfaces of the tibia and femur, and immediately slips back again to the normal position. In such cases the injury is often slight and is not followed by much effusion.

It is stated twenty-one times that the cartilage is palpable. Since the actual cartilage is palpable only when a loose anterior end is pushed forward or the cartilage itself is much swollen, the positive findings in such a large percentage of the cases may be due to the fact that a thickened movable capsule to which the chronically inflamed cartilage is attached is considered to be really the cartilage and cannot readily be distinguished from an actually palpable cartilage.

In the physical examination, swelling is mentioned only twenty-eight times, or 37 per cent. While effusion is a constant sign in recently deranged conditions, it is less marked with each recurrence; and as operations are generally performed after the acute symptoms have disappeared, it is seldom found on a preoperative examination. The long-standing cases usually show capsular or periarticular thickening, and it is in these cases that it is often stated that the cartilage is palpable.

In seven cases, or 11 per cent., definite mention is made of a "click" which has the same mechanical origin as the sense of derangement, but is more violent, and at times is actually audible to a person standing near. Weakness is mentioned specifically in only five cases. Limited knee motion and stiffness were present in only a small percentage of cases. Preoperative roentgenograms were invariably negative. Preliminary oxygen injection has never been used as recommended by Painter,[14] who has found the procedure to be of value in diagnosis.

Sixty of our cases involved only the internal cartilage, thirty being in the left knee, twenty-six in the right, and four not mentioned. Thirteen involved only the external cartilage, eight of which were left, four right and one not mentioned. There was only one case of combined involvement of the external and internal cartilage, which occurred in the right knee, and the record states that the two cartilages were removed by the same incision. One other patient was operated on first for internal involvement in the right knee, and later had a recurrence in the other knee, from which the external cartilage was excised with relief from symptoms. This shows the internal cartilage deranged almost five times as frequently as the external. Jones[13] finds the proportion 7 : 1, while Henderson,[5] writing in 1917, reported that he had never found it necessary to remove the external cartilage. We have been able to ascertain the end-results in eight cases of external cartilage involvement; and since seven have had no recurrence of symptoms whatever, it is only reasonable to conclude that this cartilage is a source of trouble, and may sometimes possibly be overlooked.

SURGICAL PATHOLOGY

Owing to the brevity of some of the operative notes, the surgical pathology is not as complete as might be desired. There are reported fourteen cases of "hypermobile cartilages," five of which were found to be detached anteriorly, four posteriorly, four at the middle or rather laterally, and one attached only posteriorly. Eight cases are described as fractured, and eight dislocated, three of the latter of the "bucket handle" type of Morison.[12] In addition, four were found thickened, two calcified, two atrophic, and in one, no pathologic condition was made out. The cartilage in the last instance was left intact and not removed, as recommended by Parker[15] under similar conditions. Abnormal appearing fat tabs and fringes were also excised in eleven of the cases. Six were combined with free bodies in the joint which were also removed at the time of the operation. Twelve cases showed signs of injection or inflammation, probably traumatic in origin, as only one of them did not show a good operative result.

In view of the foregoing facts we cannot agree with Morison that fracture is always present in hypermobile cartilages. It is our belief that a hypermobile cartilage can be a definite entity, although it is probable that some of the hypermobile and dislocated cartilages had unobserved marginal fractures. Nor do our investigations indicate that the "bucket handle" type is the most common lesion, as has been stated.[7] It is interesting to note that only once in the last six years has the operator recorded the removal of fat pads.

Complete excision was performed in sixty-six cases, or perhaps it would be more accurate to state as complete excision as possible, for a complete excision through the usual lateral incision cannot be done. Partial excision, stated as such, was reported in seven. As complete excision tends to eradicate all potential source of trouble, at least from the cartilage, it is difficult to justify partial excision. Temporary drainage was noted in one very early case in which the operation was performed more than fifteen years ago. In all cases the lateral incision described by Jones[13] was employed. In no case did joint sepsis result. It would appear, therefore, that formaldehyd-glycerin or other preoperative chemical injections are unwarranted. Local anesthesia, as advocated by McWhorter,[16] has not been used.

POSTOPERATIVE RESULT

In reporting end-results we have considered as of primary importance: (1) satisfaction of the patient; (2) recurrence of symptoms; (3) limitation of motion; (4) stability of the joint; (5) strength of the operated knee as compared with the other; (6) pain since operation; (7) duration of convalescence, and (8) ability to return to former occupation. Questionnaires were sent to all patients who were operated on, and fifty replies were received.

Forty-three, or 86 per cent., were completely satisfied with the results of operation; three expressed themselves as being dissatisfied, and four as not being entirely satisfied. The last mentioned seven have all suffered recurrences of preoperative symptoms. Sixteen patients (31 per cent.), including six of the seven dissatisfied, had some limitation of motion. Three were limited in flexion only, three in extension only, and six in both flexion and extension. A complete analysis of the unsatisfactory cases will be given later in this paper.

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[13] Jones, Robert: Notes on Derangements of the Knee, Ann. Surg. **50**: 969 (Dec.) 1909.

[14] Painter, C. F.: Internal Derangements of the Knee Joint, Am. J. Orthop. Surg. **1**: 416 (July) 1919.

[15] Parker, C. A.: Derangements of the Semilunar Cartilage of the Knee Joint, Chicago M. Recorder **36**: 143 (March) 1914.

[16] McWhorter, M. M.: Arthrotomy of Knee Joints Under Local Anesthesia for the Removal of the Medial Meniscus, S. Clinics, Chicago **4**: 155 (Feb.) 1920.

Insecurity and weakness following operation seemed to be the chief complaint. In the seven unsatisfactory results, all the patients have impairment of strength, and all but one of stability. Among the satisfied patients, two complain of some instability, nine of weakness, and eight of both instability and weakness. Weakness is therefore present to a more or less extent in 53 per cent. of the cases. Power[8] records it in 44 per cent.; some feeling of insecurity, he states, is present in an additional 36 per cent. In other similar series of cases, this important point is not stated or considered. Judging by the number of perfect results, the absence of the excised cartilage cannot account for it. The atrophy that is bound to occur to a more or less extent in the tissues making up the joint undoubtedly has a good deal to do with the sense of weakness that is present in such a high percentage. Furthermore, the original trauma, depending on the severity, of course, must often involve other joint structures sufficiently to cause permanent injury. When one bears in mind the relatively poor regenerative power of joint capsules and ligaments in general, it is not difficult to understand that when the articulating surface of the tibia and femur are separated sufficiently to allow the impingement and traumatization of the cartilage, the internal aspect of the joint capsule, in which is included the so-called internal lateral ligament, must suffer more or less permanent injury.

Pain was present in twenty-one cases, but in eleven of these is termed "occasional pain," or "depending on the weather." Power[8] recorded it in 52 per cent. of his cases, about a quarter of them "dependent on the weather."

The average time for the full strength to return to the operated knee was eight months. The usual after-treatment was immobilization in a plaster cast for about ten days, followed by baking and massage and passive motions, followed soon after by active motion and weight bearing. Practically every patient returned to the former occupation or one more strenuous.

REVIEW OF THE UNSATISFACTORY CASES

We have endeavored personally to examine all patients that reported unsatisfactory results on the returned questionnaires.

Case 1.—A man, aged 50 at present, was operated on sixteen years ago for "snapping in his right knee," which had continued for five years, and which started when he gave his knee a bad wrench getting off a street car. At operation the cartilage was seen to be displaced and thin. It was dissected out and a lipomatous growth also was removed. On his questionnaire he states that the result was unsatisfactory, that he has had recurrence of symptoms consisting of an occasional sense of derangement, limitation of acute flexion, some degree of instability, impaired strength as compared with the knee on the other side, and some pain when tired. He was seen personally. The physical examination was entirely negative. He states that he is experiencing the sense of derangement at increasingly rare intervals, the last time being more than six months ago. The instability was found to be noticeable only when he runs or subjects it to some unusual stress, and the pain occurs only when he is tired. He is still a carpenter and is doing heavy work without inconvenience. He admits that his leg is much better than before operation. A recent roentgenogram suggests a mild hypertrophic process, there being no evidence of any free body in the joint. In this case the long-standing preoperative condition would predispose toward comminution of the cartilage and consequent formation of bodies more or less free in the joint which could easily have been overlooked at operation and which may be the explanation in this instance. The prognosis in such a case should necessarily be guarded. He is unwilling to undergo another operation, and in view of his age and slight amount of disability there seems to be little indication for operative interference.

Case 2.—A man, aged 27, was operated on eight years ago for recurrent locking and swelling that had extended over a period of two years, the original injury being sustained while playing football. At operation the "whole of the cartilage was removed and the joint washed out with sterile salt solution." The diagnosis given in this case was "lacerated internal meniscus," and although laceration was not mentioned specifically in the operative note, the fact that the joint was washed out, which was not done as a routine, suggests that the operator was fearful of leaving a fragment behind. On his questionnaire, he states that he is not satisfied, has had recurrence of locking, and that the knee is weaker than the other. He has experienced no pain, and is continuing at his occupation as mechanic. A free body was subsequently removed at another hospital by the same surgeon, with temporary relief from symptoms and later recurrence. This surgeon states that the man has still another free body in his knee and refuses further operation. This is another case in which the condition of the cartilage showed that a poor prognosis should have been given.

Case 3.—A man, aged 28, was operated on seven years ago for the sensation of "something giving way in his knee causing marked pain" when he "walked fast or ran," having suffered with it for three years. He originally injured his knee while playing football. At operation "a portion of the cartilage, well out of normal position," was found. This was freed from the capsule and removed. On his questionnaire he states that he is not entirely satisfied; that he has had recurrences, and has some instability, weakness, and pain. When seen personally, he walked without a limp, saying that he had discomfort only when tired. He had enlisted in the army, serving throughout the war. His knee had so far improved that he again attempted to play football. He again "put it out," and since that time his knee has bothered him as noted above. The physical examination is negative. He is unwilling to undergo another operation. He said that previous to his original trauma, he had recurring attacks of "rheumatism," and that the knee was the joint frequently involved. In this case the result is probably due to the subsequent loosening of the part of the cartilage left behind in the joint, and his pain and discomfort are due to the chronic arthritic process already existing and augmented by the cartilage derangement. We could not persuade him to come to the hospital to have a roentgenogram taken.

Case 4.—A woman, aged 45, was operated on five years ago for a stiff knee. She twisted the knee in falling six months previously. She was unable to walk for three months, and had limped since. A hypermobile cartilage was found which was removed. There was no mention of any abnormal condition of the tissues. On her questionnaire she stated that she is not satisfied with the results; the condition has been worse since operation; she is unable fully to extend or flex the joint, and it is unstable, weak, swollen and painful. She was seen personally. Examination of the knee showed marked bony proliferation at the edges of the articular surfaces of the femur and tibia, particularly the latter, giving the joint almost a dislocated or rather a subluxated appearance. She was unable to put any weight on it without extreme pain. Fifteen degrees permanent flexion was present, with 45 degrees motion. There was apparently no fluid in the joint, but the capsule was much thickened. We talked to her family physician, who said that she had an advanced tuberculous process in her lungs and had recently been failing rapidly. We consequently gave up our plan of trying to take a roentgenogram as her physician thought the trip would be too much for her. The condition was doubtless a tuberculous knee too early to be recognized at operation, and of a slowly progressing, proliferative type.

Case 5.—A man, aged 34, was operated on between two and three years ago for intermittent swelling initiated by hurting his knee thirteen months previously, in getting out of a wagon. He had no pain except in bad weather. An exploratory arthrotomy was advised because of his lack of improvement under such palliative treatment as baking, massage and plaster. This was done and a hypermobile cartilage was removed together with "a large piece of inflamed villous tissue, looking suspiciously like tuberculosis." A piece of this tissue was sent to the pathologist, who reports "chronic inflammation, no evidence of tuberculosis." There was no doubt but that at the operation there was some question of a pathologic condition present other than simply the hypermobile cartilage. A Wassermann test, unfortunately, was not made. He did not answer his questionnaire, and writes that he has not been satisfied with the result, that the swelling is the same as before, and that he cannot bend his knee as well as he could before being operated upon. He was seen personally. He walks with a marked limp, and on examination of the knee there was found to be rather marked bony proliferation about the edges of the articular surfaces, periarticular thickening of the capsule and neighboring tissues, and some fluctuant swelling on each side of the ligamentum patellae, but no evidence of any excess of fluid in the joint. Motion was limited in the extremes, and there was considerable coarse crepitus. With some difficulty we persuaded him to come to the hospital for a roentgenogram. This suggests a beginning Charcot joint. He would not permit us to obtain blood for a Wassermann test. In view of the record, we feel justified in calling this joint either tuberculous or syphilitic. We believe that at the time of operation, the condition had not progressed sufficiently to warrant a positive diagnosis. The antagonism of the patient makes further investigation impossible at present.

Case 6.—A woman, aged 61, was operated on two years and a half ago for continuous pain in the region of the inner condyle, accompanied by swelling and limitation of motion. This followed an accident nine months before, when she twisted her left knee in getting off a moving street car. At operation "a loosened cartilage was removed." On her questionnaire she does not state whether she is satisfied or not, that she has had recurrences "in some way," some limitation in motion, weakness and continual pain. She has not been able to return to her work. As she lives at some distance from the hospital, we wrote to her family physician, who made an examination and states that "extension is limited to 45 degrees, no swelling of any account, no fluid demonstrable in joint at present. Palpation shows marked localized tenderness both internally and externally along the upper edge of the tibia midway. In my opinion there remains from some source a loose fragment in the joint or else a partially detached portion of cartilage." This conclusion seems justified, and a fragment of the excised cartilage which was not removed at operation is probably the cause of her trouble.

Case 7.—A woman, aged 19, was operated on a year and a half ago for intermittent periods of swelling and pain in her knee initiated by an injury sustained when her knee was forcibly pressed against an iron upright, the force coming from the outside. At operation "the tip of the internal cartilage presented itself at the incision through the capsule and was found to be broken one-half inch from its anterior attachment. The entire cartilage was removed." In her questionnaire she states that she is not satisfied with the result; she has recurrence of symptoms consisting of limitation in extension, instability, weakness and pain. She lives in a near-by city and has been seen and examined recently by a member of the orthopedic staff of this hospital, who states that she has a perfectly satisfactory result, but that she is endeavoring to get more money from an insurance company. This, he believes, is her motive for returning such a poor report.

It may be seen from the foregoing reports that of the seven returning unsatisfactory questionnaires, one can be ruled out because of a satisfactory examination and ulterior motives, and two can be explained by the presence of coexisting disease, which leaves actually only four poor results. The reason for these undoubtedly lies in the removal of an insufficient amount of the offending cartilage.

CONCLUSIONS

1. The most reliable diagnostic features in this condition are: (*a*) traumatic origin with recurring disability; (*b*) definite localized pain or tenderness; (*c*) "locking"; (*d*) sense of derangement or feeling of insecurity, and (*e*) swelling.

2. We believe that simple hypermobile cartilage is a definite entity requiring surgical treatment, and that it is more common that fracture of the cartilage.

3. As complete excision as possible is the operation of choice, and with proper aseptic technic can safely be performed.

4. Once the diagnosis is definitely established, prompt operative interference should be seriously considered, provided, of course, there is sufficient disability.

5. The prognosis should be more or less guarded in cases with long-standing symptoms, and when on operation the cartilage is found to be lacerated or comminuted.

6. Operative results are better than statistics indicate, untoward results being due to the facts that, first, the deranged cartilage is only a symptom of an unrecognized and sometimes undeveloped condition such as a syphilitic or tuberculous joint; second, the original trauma and consequent atrophy cause permanent injury to other joint structures in addition to the cartilage derangement, which is logically not improved by its excision; and third, too much of the cartilage is left in the joint either as an unattached extremity or as fragments.

GASTRIC ANALYSIS

II. THE INTERDIGESTIVE PHASE OR THE PRINCIPLES GOVERNING THE PHENOMENA OF THE RESTING STOMACH *

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A study of gastric phenomena throughout a single day reveals the fact that gastric digestion consists of a series of cycles. These cycles are first those in response to the entrance of food into the stomach, or the digestive cycles, and then the long or short pauses which we have called the interdigestive periods. One thing is certain: the fact that the digestive cycle is a constantly changing one, from the first entrance of food into the stomach to its final passage into the small bowel. This cycle is a composite of many factors which we shall shortly discuss in another communication. It is followed by a different series of changes which, collectively, are represented by the residuum or the contents of the fasting stomach. This interdigestive phase in health is accompanied by the phenomena of hunger as well as by a secretion of comparatively low velocity. In certain diseases of the stomach, the digestive cycle may infringe on the interdigestive phase and may obliterate it altogether. This has two effects—one the continuation of the factors which make up the digestive phase, and the other a shortening or cessation of the essential factors of the interdigestive period. If, however, the digestive phase

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* The expenses of the investigations on which this article is based were defrayed by funds furnished by Mrs. M. H. Henderson.

is unduly lengthened, it may even obliterate the long rest period or the nocturnal interdigestive phase, resulting in the so-called twelve hour retention of clinicians.

FACTORS MAKING UP THE INTERDIGESTIVE PHASE

A study of the characteristics of the residuum or fasting stomach on 100 normal men[1] showed these factors as characteristic of the interdigestive phase:

1. The average quantity in our studies as previously reported was 52.14 c.c., whereas Fowler and Zentmire,[2] in eighty samples from normal women, found it to be 49.44 c.c., thus making 50 c.c. the average normal residuum in health. This indicates that the stomach is never empty, and in health always shows an appreciable content indicative of an active secretion. Contrasted with the digestive phase, therefore, the secretion during this stage is much reduced and is poured out at a reduced velocity. The residuum has in every instance the qualities of a physiologically active secretion, and for that reason we have taken the opportunity of suggesting that the stomach is never inactive.

2. The total acidity of the normal residuum in health among men was found to be 29.9 and among women (Fowler) 30.3 in terms of tenth normal sodium hydroxid, or an average total acidity of 30, which is less than one half of the total acidity of the digestive phase. The significance of the marked lessening in acidity during this phase is discussed at a later point. The same thing is true of the free acidity. The average free acidity among men was found to be 18.5 and among women 15.6, with an average in both sexes of 17. This figure contrasts strongly with the free acid figures developed during the digesting period.

3. The pepsin concentration as measured by the Mett method gave an average among men of 2.8 and among women of 3.3, or an average in both sexes of 3, again different from the digestive phase.

4. Trypsin tested by a method developed in our laboratories,[3] studied in sixty-three samples from women, gave an average of 5.2 units; in twenty-six cases from men the average was 9.1 units, and for both sexes the average was 7.1. This is of considerable significance, as we shall attempt to show.

5. In 56 per cent. of our reported cases the residuum was bile stained, and in 68.1 per cent. of the Fowler series the same point was noted, showing that there had been active regurgitation of bile in considerably more than one half of the cases, a phenomenon which in itself cannot be considered pathologic.

6. The cryoscopic index in our cases was 0.470, which is distinctly less than that of the blood (0.560) and indicates that there is a tendency for osmosis of material to take place from the blood into the lumen of the stomach.

7. We also pointed out that the residuum was one of the lightest fluids in the body, showing an average specific gravity of 1.0056, and was found to be inversely proportional to the total acidity.

In our studies, we pointed out two important facts: that (1) apparently the trypsin content was inversely proportional to free acidity, and (2) for low acid values the pepsin ran more or less parallel to the total acidity. These facts are important, because they attempt to supply the basis for a normal standard so far as the interdigestive phase is concerned. From another angle, however, the factors making up the interdigestive phase might be thus enumerated:

1. Motor function is totally altered. Instead of active peristalsis, we have the so-called peristole function, by means of which the walls of the stomach are approximated. Then we have another series of changes recognizable by means of the intragastric balloon and the kymograph, namely, the appearance of tonal and hunger contractions. It is furthermore a part of the phenomena of the interdigestive period that in all probability in health the pylorus is relaxed. This is borne out (*a*) by the evidence of active duodenal regurgitation observed during this phase and (*b*) by the frequent observation on the fluoroscopic screen in which immediately after the administration of an opaque meal part of the meal is seen to enter the duodenum, after which the pyloric sphincter closes. We then have, as characteristic of the interdigestive or rest phase, motor phenomena very different from those seen during the digestive phase, accomplishing clearly two functions: (*a*) approximation of the gastric walls, and (*b*) relaxation of the pylorus, permitting a ready reflux of the alkaline duodenal secretion.

2. The secretory function during this period is different. Two points stand out clearly: that (1) the titratable acidity is less than one half of that encountered during the digestive phase, and (2) secretory velocity is much slower. This is very apparent in our studies on the psychic secretion.[4] Three explanations seem possible: In the first place, the secretion is different, as it lacks both the psychic stimulus and the chemical secretagogues. It would seem that this interdigestive secretion as distinguished from the hunger secretion, which in many instances must contain psychic components, is possibly from a physiologic and chemical standpoint a different form of secretion from that which is elaborated during the digestive phase. Another explanation would be to consider this secretion as similar to that secreted during the digestive phase, but hypothetically neutralized by a neutral secretion arising possibly in the antrum. A third explanation of the distinctly reduced acidity of the interdigestive secretion is its neutralization by the regurgitation of the alkaline duodenal secretion. Lessened tonicity of the pylorus toward and during this period would favor this interpretation; and, as mentioned above, this contention is borne out by the finding that the trypsin content is inversely proportional to the free acidity.

3. A third and important phenomenon connected with the resting stomach is the one discussed last, namely, the undoubted effect of the duodenal secretion and its apparently reciprocal relationship during this period. During digestion, the pylorus clearly shows heightened tonus with but little regurgitation during that period as a result except that which is essential to maintain optimum acidity. On the other hand, during the interdigestive phase, these phenomena seem to be reversed, and unquestionably the statement made above regarding the inverse proportion between free acidity and the tryptic content of the fasting stomach is correct.

PATHOLOGIC STATUS OF INTERDIGESTIVE PHASE

From these facts, therefore, it is not difficult to deduce the things that occur in the presence of pathologic changes. In the first place, the interdigestive phase may be prolonged, diminished or altogether obliterated, and secondly, the normal factors making up this period will be altered.

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[1] Rehfuss, M. E.; Bergeim, Olaf, and Hawk, P. B.: Gastro-Intestinal Studies, I, The Question of the Residuum Found in the Empty Stomach, J. A. M. A. **63**: 11 (July 4) 1914. Fowler, C. C.; Rehfuss, M. E., and Hawk, P. B.: Gastro-Intestinal Studies, II, An Investigation of the Gastric Residuum in Over One Hundred Normal Cases, ibid. **65**: 1021 (Sept. 18) 1915.

[2] Fowler, C. C., and Zentmire, Zelma: Studies of the Gastric Residuum, I, A Study of Eighty Samples of Gastric Residuums Obtained from Apparently Normal Women, J. A. M. A. **68**: 167 (Jan. 20) 1917.

[3] Spencer: J. Biol. Chem. **21**: 165, 1915.

[4] Miller, R. J.; Bergeim, Olaf; Rehfuss, M. E., and Hawk, P. B.: Am. J. Physiol. **52**: 1 (May) 1920.

By far the most frequent manifestation of disease is a curtailment or shortening of the rest period; or, to put it the other way, prolongation of the digestive period at the expense of the interdigestive period. These causes range from mild atonies to pronounced organic obstruction, with a total disappearance of the interdigestive period. How pernicious this vicious cycle can become can scarcely be appreciated until all the factors enumerated as characteristic of health are equally well known in diseased conditions. Several series of phenomena occur, however:

1. *Motor.*—There is a prolongation of the motor phenomena of the digestive period, namely, peristalsis, with a delay in the appearance or, as in dilatation, a disappearance of the peristole function. Another type of organic obstruction in which there is muscular fatigue or paresis presents the picture of almost complete disappearance of both the peristalsis of the digestive phase and the peristole of the interdigestive phase.

2. *Secretory.*—With the exception of certain malignant diseases and inflammations, a prolongation of the digestive phase and a reduction of the interdigestive phase is almost always accompanied by a continuance of all the secretory phenomena of the digestive cycle. The secretory velocity seems to continue high, the total and free acidities remain nearly those of the digestive phase, and there is every indication that the exalted secretion of the digestive period continues into the interdigestive period. The result, then, is the frequent finding of continued secretion or hypersecretion, with comparatively high acid figures, even after all food has left the stomach. In other words, the initial velocity of the digestive period continues over into the interdigestive period exactly as do the motor phenomena. In fasting, hypersecretion, or Reichmann's disease, we have an example of this fact, namely, that all the characteristics of the digestive secretion continue over into the interdigestive phase, with the exception that, whereas the stimuli to the digestive secretion undoubtedly arise from the presence of food, in the case of the syndrome mentioned above it is due to another stimulus and probably heightened tonus of the secretory nerves.

3. *Abnormalities in Gastroduodenal Correlation.*—While it is true that in health the normal individual shows evidence of increased regurgitation of the alkaline duodenal secretions and presumably from the evidence offered above lessened pyloric tonus, it is likewise true that in a certain group of gastric delays with elongation of the digestive period this mechanism is disturbed. We also have evidence to offer, suggesting that in certain pathologic conditions the normal regulatory mechanism is even disturbed during the digestive phase. The recognition of the importance of this mechanism as an important part of the normal digestion is essential to an understanding of some of the disease anomalies that occur. In some cases, the mechanism cannot be detected. Just what the significance of this is we are not at present fully prepared to state.

SUMMARY AND CONCLUSION

1. Normal digestive activity in the stomach comprises two periods interrelated with one another: one of gastric work in response to a stimulus which we call the digestive period, and the other the period of gastric rest between the work periods, which we prefer to call the interdigestive period.

2. The digestive period is a constantly changing one, gradually merging into the interdigestive period, which shows marked differences both in motor and secretory phenomena. One thing is clear, however—the stomach is never empty, and the secretion in the stomach, even during the interdigestive phase, is physiologically active.

3. We have attempted to enumerate the characteristics of the normal interdigestive or rest period on the basis of our previously reported findings on men and Fowler and Zentmire's observations on women, together with our subsequent observations, in order that some basis might be arrived at for a normal mean to serve in the interpretation of pathologic data.

4. The interdigestive period reveals three phenomena: the first motor, in which peristole and tonal and hunger contractions supplant peristalsis; the second a lessening in secretory velocity and a reduction of the titratable acidity to less than half of that seen in the digestive phase, and the third an alteration in the status of the stomach and duodenum during this period, which accounts for some of its characteristics.

5. In health, a satisfactory balance is maintained between the digestive and interdigestive periods. In disease, on the other hand, this balance is ruptured and altered, and the interdigestive period may be completely obliterated—a condition comparable to incompetence in other organs of the body.

6. In a subsequent communication, we intend to discuss the characteristics of the residuum in disease and suggest a basis for interpretation.

INDIRECT EXPULSION OF THE PLACENTA

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In the past, extraordinary devices have been resorted to in attempts to accomplish the delivery of the placenta. All of these had one thing in common: the application of force to take the place of the lost force that had expelled the fetus. These measures included drugs to produce sneezing and vomiting; violent kneading and pressing on the abdomen; vigorous shaking of the entire body; weights and strong traction on the cord, and direct manual removal.

The essential problem consists in aiding the overstretched abdominal wall with its diastased recti. Among women of uncivilized races, a posture is assumed which overcomes this problem: All crouch forward against the pubes with sharply flexed thighs, precisely as with difficult defecation.

To Ireland belongs the credit for having first shed scientific light on the problem. John Harvie of Dublin, in 1767, wrote about the change in uterine outline that occurs with separation of the placenta, and advocated pressure on the fundus to deliver it. William Dease of Dublin, in 1783, said: "Never attempt delivery of the placenta until the uterus is hard and the placenta detached. Delayed detachment can be facilitated by gentle friction of the uterus."

Meanwhile the great French pioneer, Baudeloque, had recognized and described, in 1781, the two essential steps in spontaneous delivery of the placenta: (1) separation, and (2) expulsion.

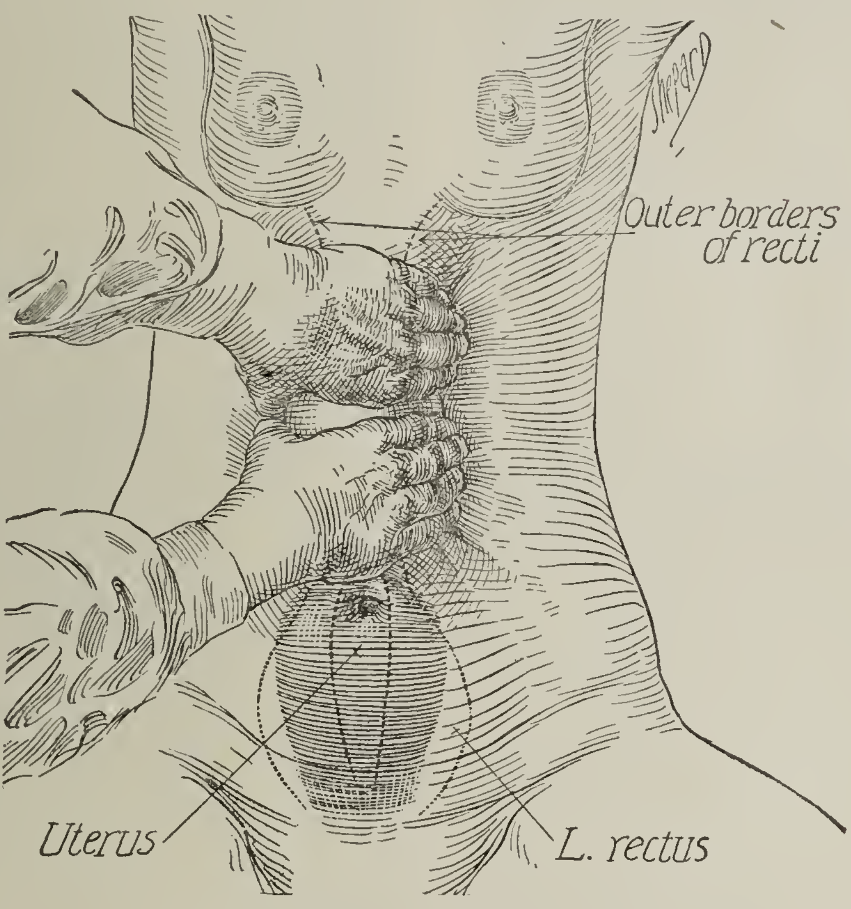
The nineteenth century saw the development of four distinct schools for the treatment of the third stage of labor:

1. French obstetricians, in spite of Baudeloque's observations, recommended traction on the cord, the line of pull being guided by frequent vaginal examinations. Champetier de Ribes, in 1883, omitted traction, and Auvard, in 1890, omitted the vaginal examinations, substituting light massage followed by pressure on the fundus with gentle traction on the cord.

2. In Dublin, Joseph Clarke, in 1817, advocated constant pressure on the fundus during birth and through the third stage, waiting from two to twenty-four hours. Macan, in 1887, advised friction every fifteen minutes and firm pressure at the height of the contraction. Byers, in 1900, came back to steady pressure on the fundus, no attempt to massage or stimulate, and when the placenta separated, delivery by pressure on the fundus during a pain.

3. In 1853, Credé in Leipzig suggested that from fifteen to thirty minutes after delivery, massage of the uterus be employed, becoming stronger, until at the height of a contraction, the uterus is compressed with resulting expression of the placenta. In 1861 he urged rapid emptying of the uterus as the normal treatment, massage and compression being done at once, averaging four and one-half minutes postpartum. The resulting retained membranes, fever and hemorrhages led him, in 1892, to go back to a thirty minute delay and then compression.

4. In 1898, Ahlfeld adopted the other extreme of "hands off the abdomen." Hemorrhage was merely observed by frequent change of pads and by the pulse, not, however, permitting excessive bleeding. After one and one-half hours he catheterized, massaged and expressed. Leopold went further in that he cut the cord and membrances at the cervix and waited up to twenty-four hours.



Crosswise grasp of abdominal wall above umbilicus, pulling recti together while woman bears down and expels the separated placenta.

Out of all this has come a routine which is recognized by nearly all the American textbooks of today. Separation of the placenta must be allowed to develop spontaneously except in hemorrhage. Whether the fundus is lightly held, the abdomen untouched, or the hand sunken crosswise in the abdomen above the fundus, as is taught in the Michael Reese Maternity, there must be no massage. After thirty minutes, if separation has occurred, the placenta is expelled from its position in the lower birth canal by pushing the contracted uterus against it down the axis of the inlet, using the uterus as a plunger in a syringe. If separation has not occurred, "Credé" compression of the contracted uterus in situ is done, using massage if necessary and so expressing the placenta from the uterine cavity.

Separation of the placenta is easily determined by many signs such as:

1. Advancement from 10 to 15 cm. of a marker placed on the cord, all slack being removed first.
2. Elevation of the fundus level from 5 to 7 cm.
3. Anteroposterior flattening of the corpus uteri.
4. Greater mobility of the uterus.
5. Soft swelling just over the symphysis.
6. A furrow between this swelling and the overlying corpus.

Unfortunately, physicians generally do not distinguish closely between the separated and the retained placenta, and the third stage is usually terminated by a handling of the uterus, which far more resembles Credé compression than the simple plunger descent, which is all that is necessary in the vast majority of cases.

Since unskilled handling can definitely stir up a metritis, produce late hemorrhage, or rupture a pus tube by a lateral instead of a median grasp of the fundus, any method of ending the third stage that does away entirely with handling the uterus is worthy of consideration.

A procedure has been described[1] which is a reversion to nature's spontaneous method, utilizing the full power of the abdominal muscles to drive the uterus down against the separated placenta and so expel it:

> After the usual period of waiting, averaging half an hour, the placenta being separated, the uterus being in the midline and at the height of a contraction, as evidenced by its hardness and the pain the woman is experiencing, the abdominal wall is grasped by one or two hands, crosswise above the umbilicus, the fingers on one side beyond the rectus, and the thumbs on the opposite side also beyond the rectus. The recti are then pulled together and held firmly, thus taking up all the slack in the relaxed overstretched wall. The woman is now urged to bear down exactly as in the second stage of labor. Cooperation is essential but need last only a moment, the placenta being expelled exactly as in the spontaneous cases. Successful cooperation can be told by the tensing of the recti and their tendency to pull apart. The correct grip prevents this and the force is properly transmitted, that is, against the uterus.

The method is applicable only after separation has occurred; but even if used as a routine in all cases because of inability to recognize separation, its failure is harmless and can always be followed by a simple expression or a "Credé," as the case may require.

An analysis of 400 consecutive cases in the Michael Reese Maternity gave these results. Nineteen men participated, of whom seventeen were interns. In forty-eight cases the method was not used because of complications, such as eclampsia, inertia uteri, exhaustion and Credé for retained placenta. In sixty-three cases the placenta was delivered spontaneously. Therefore, in 289 cases in which the method was tried, 237 were successful at the first trial (thirty minutes postpartum), eleven cases were successful at the second trial (forty-five minutes postpartum), and one was successful at the third trial (sixty minutes postpartum), a total of 249 successful, or 86 per cent. Twenty-two cases were listed as "no cooperation" (inability to bear down). Eighteen cases were listed as "failure" after sixty minutes.

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[1] Baer, J. L.: A Method of Delivering the Placenta, J. A. M. A. **72**: 1543 (May 24) 1919.

Study of the forty unsuccessful cases shows that sixteen occurred in primiparas; but this is about the ratio of primiparas to multiparas in the whole series. Among the eighteen cases listed as "failure," twelve occurred with one intern. If his cases were entirely eliminated, the series would stand: method tried in 277 cases; successful in 249 cases, or 90 per cent.

CONCLUSION

A method of delivering the placenta which is 90 per cent. efficient in the hands of seventeen men of limited experience, and which entirely avoids manipulating the uterus, is worthy of a fair trial and possibly adoption as a routine.

PERFORATIONS OF THE NASAL SEPTUM DUE TO INHALATION OF ARSENOUS OXID

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In the process of copper smelting, volatile gases, chiefly arsenous oxid and sulphur dioxid, are given off as waste products; passing through the flue system of the smelter, they cool off and deposit as flue dust. Formerly this dust, which was about 20 per cent. arsenous oxid, was purified for the arsenic in it, or put back into the furnace to get out the contained gold, silver and copper. About two years ago a Cotrell treater was installed, through which the smoke passes, and the solid particles are precipitated by the polarizing action of the charged plates. The arsenic molecule is attracted to the positive or negative pole and then shaken into a hopper below. This is 20 per cent. arsenous oxid and a mixture of silica, sulphur, iron, etc. The dust is transported to another furnace and the fumes, or volatile arsenic, passed through another Cotrell treater, and the recovered precipitate is from 75 to 90 per cent. arsenous oxid. This is pure enough for "weed-killer." However, some preparations need a higher proof arsenic; then this 75 to 90 per cent. arsenic is treated in a refining furnace and the fumes are deposited in arsenic kitchens. At about 420 C. or less, the arsenic is deposited as a fine white powder from 99 to 100 per cent. pure, although lumps may occur which may necessitate grinding. Thus the men at the treaters, and the loaders, railway crews, dumpers, furnace men, refiners, kitchen wheelers and men barreling all come in contact with tons of arsenous oxid daily.

This arsenic dust is breathed into the nose and, coming in contact with moisture, forms arsenous acid, which causes necrosis of the septal mucosa at Kiesselbach's area. The traumatism of the air currents alone often keeps this portion of the septal mucosa irritated, especially if there is a deflection or ridge of any sort. A white, slightly elevated area about 5 mm. in diameter develops. If proper care is taken to protect this area with a camphor-menthol-liquid petrolatum mixture on cotton, the condition will resolve to normal. However, most workmen neglect the condition until there is a perforation of from 7 to 10 mm. through the mucosa and perichondrium down to the cartilage on one side. Even at this stage the process can be controlled by persistent local medication. If this is not done, the other side of the septum undergoes a similar process of necrosis, and the cartilage disappears from dystrophy. The 7 to 10 mm. area of cartilage rarely comes out *en masse*.

The perforation completed has the appearance of a squarely amputated finger, the cartilage being flush with the mucosa. The mucosa swells to twice its normal thickness on each side; the edges are gray, sloping, edematous and everted. It then separates from the cartilage from 0.5 to 1 mm. as though elevated mechanically, as in a submucous resection. Curiously enough, no septal abscesses have been noted, probably because of free drainage. The cartilage becomes slightly thicker than normal. Since the thickened cross-section of the perforation is swollen into each naris, there is marked obstruction. The cross-section of cartilage and mucosa, having no mucous glands, aids in the formation of extensive hard crusts, also obstructive. The perforations extend forward to within 1 cm. of the columna nasi, upward to only 1 cm. of the roof, so that saddle-back nose never results; backward even as far as the perpendicular plate of the ethmoid but never into it, as does syphilis, and downward even to the crest of the vomer.

Spontaneous physiologic cure of the crusting results when the cartilage near the perforation, being separated or only loosely in contact with the mucosa, disappears by necrosis and the mucosa to mucosa approximation takes place. Then only a large perforation with no discomfort, crusting or symptoms remains. The cartilage anterior to the perforation thins out by absorption in a few weeks. The absorption of the cartilage above, behind and below is a more prolonged and delayed process averaging from three to five years in the cases seen. Two cases of thirty years' duration, and many of twenty years and less, show the completed process of a thin-edged perforation with no crusting.

This spontaneous physiologic cure of perforations too large for successful plastic flaps, namely, those 1 cm. or more in diameter, led to an operation which gives the same result in ten days instead of from three to five years. The quadrilateral cartilage anterior to the perforation being absorbed and the mucosa to mucosa approximation automatically occurring here without any interference, it remains only to elevate the mucosa above, behind and below the perforation. This is done as in a submucous resection under cocain and epinephrin anesthesia. The cartilage is removed in all directions from 0.5 to 1 cm. from the perforation, to allow the flaps to approximate. In some deflected septums a submucous resection was performed, Simpson splints were inserted in each naris for twenty-four hours, and a camphor-menthol-oil spray used thereafter.

Naturally, in perforations of 1 cm. or less, a plastic operation of the Hazletine type, in which a vertical incision is made posterior to the perforation and the flap brought forward, is performed. There is not enough mucosa anteriorally to bring a similar sliding flap backward from the other side without leaving an exposed mucocutaneous junction. In one case in which the perforation was 7 by 12 mm. with the long axis horizontal, the incision was made above the perforation, just below the nasal roof, and the sliding flap sutured down with success.

A third procedure fraught with difficulty, and obviously less practical in treating such an enormous number of perforations, but valuable in any other type of perforation, consists in making an impression of the hole with dental compound. From this model is made a pair of platinum-gold or vulcanite plates; on the inner surface of each a male and female clasp is attached as on a glove, one is inserted in each nostril, and then the two are snapped together. The difficulty of making an impression of each individual perforation and finely calipered measurements of the distance which must separate the plates in front, behind and below, and the cost of platinum-gold preclude its use as a routine. Winans has spent considerable time and energy on various obturators to close perforated septums, but the same objections obtain to these.

TYPICAL HISTORIES

The subjoined histories are typical of arsenical septal perforations as they occur in the arsenic department of the largest copper smelter in the world, in which I have treated seventy-five such cases in the last few months and have observed many more.

A man, aged 37, married, began work in the arsenic plant ten weeks before I saw him. After one week the nose became obstructed. Large crusts were blown out night and morning. There was no nasal discharge, rhinorrhea, pain or headache at any time. The nose whistled sometimes. After removing the crusts from the septum for three weeks, he could feel the tip of his little finger extend to the opposite side of the nose from the one he was picking. There was no epistaxis at any time. (There is usually a slight epistaxis the first two or three weeks.) The nasal obstruction caused mouth breathing with resultant pharyngitis, and one week later a low grade subacute laryngitis ensued. The patient was also nervous and suffered from insomnia for several weeks after beginning work, but recently had become better adjusted. There were no gastro-intestinal disturbances. Arsenic makes tobacco smoke taste sweet. From the first week there was an acute arsenic dermatitis involving the skin of the face, especially around the nares where the dust came into contact with moisture or skin abrasion. This skin was stiff, and movement was painful. There was also from the first week a palpebral dermatitis with redness, swelling and ichthyosis-like change of the skin of the eyelids, and a persistent keratoconjunctivitis which will be more fully described in another paper. Examination revealed a 1 cm. perforation of the cartilaginous septum filled with a hard, thick crust. The edges of the hole were sloping, everted, hyperemic, edematous and covered with a thin, white exudate. There were no granulations of healing. The rest of the nasal mucosa was hyperemic, contributing to nasal obstruction. The turbinates were not involved. The blood Wassermann test was negative.

A man, aged 50, single, had been working on the Cotrell treaters six months. There was no nose trouble. He was referred from the medical department for treatment of acute arsenic laryngitis. He could not talk above a whisper. Examination after such a negative history revealed a deflection of the septum to the right and a concavity on the left. There was a crust on the left side of the septum. When the crust was removed, a perforation through the mucosa and perichondrium down to the cartilage appeared which was 7 mm. vertically by 10 mm. horizontally. It was situated 17 mm. from the columna nasi, 15 mm. from the roof, and 10 mm. from the floor of the nose. The mucosa perforation edge was 4 mm. thick behind but, when the sloping edge was measured, 5 mm. The mucosa was only 3 mm. thick in front. The edges of the ulcer thus were regular, sloping, deep and covered with a thin layer of gray adherent exudate, which on removal presented pin-point oozing blood vessels.

In an unusual case there was a 1 cm. perforation of the mucosa and cartilage in the right nostril and a destruction of mucosa 2 cm. in diameter in the left nostril, but the exposed cartilage remained intact over one month under observation, through the nourishment received from the right mucosa.

COMMENT

Most patients have a slight epistaxis during the first three weeks in the ulcerative stage. In a series of ten consecutive cases, the blood Wassermann tests were negative. This, with the direct history and a septal perforation involving only the quadrilateral cartilage and never bone, precludes a syphilitic etiology.

Prophylaxis by wearing a gas mask is not feasible for a workman on an eight hour shift. Nose guards and respirators cause an accumulation of moisture around the edges in contact with the face, resulting in severe dermatitis. Cotton plugs in both nostrils cause resultant pharyngitis and laryngitis. The camphor-menthol ointment and "bag-house" salve[1] (ferri hydroxidum cum magnesii oxido) are efficient prophylactics if used constantly.

Kober and Hanson[2] state that after perforation is complete there is no further inconvenience, which is not borne out by my experience. The crusting and resultant nasal obstruction and the sequelae, pharyngitis and laryngitis, are distinctly distressing. Similar to chrome workers, the majority of workers in contact with arsenous oxid develop perforations of the nasal septum within six months. Neither age nor race provides protection.

I am inclined to differ with Rothstein as to the theory that these perforations are due to primary injury of the Kiesselbach area by the finger-nail in picking the nose, as occurs in tabetics. I am convinced that the inhalation of arsenous oxid and hydration to arsenous acid on this area of least resistance of the septal mucosa cause a tissue necrosis and defense reaction of hyperemia. Obstruction follows. This leads to vigorous blowing of the nose, all of which factors form the basis of the original abrasion. Contrary to other observations, the many cases seen here have presented local and not systemic effects.

Arsenic is found in most Rocky Mountain copper ores, and this report is made because workers in mining communities are prone to be floaters, and the crop of perforations from one such community can furnish material for observation by many physicians. Also, as Davis[3] so aptly wrote, "physicians should be kept alive to the additional health hazards incident to the recent widespread development of the chemical industries of the United States."

SUMMARY

1. Arsenous oxid is a valuable by-product of the Rocky Mountain copper ore smelting, and many workers come into contact with tons of the pure product daily.

2. Arsenous oxid causes a characteristic septal perforation and associated pathologic condition of the skin, throat and eyes.

3. Treatment consists of: (*a*) resection of cartilage, producing mucosa to mucosa approximation, or, in smaller perforations, (*b*) plastic operation or (*c*) a mechanical obturator to relieve the objectionable crusting.

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[1] "Bag-house" salve is so called because it was used by men who worked in a room of bags through which the flue dust passed, separating out the arsenic, before the days of Cotrell treaters.

[2] Kober, G. M., and Hanson, W. C.: Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916, p. 5.

[3] Davis, B. F.: Two Cases of Perforation of the Nasal Septum Due to the Inhalation of Arsenic Trioxid, J. A. M. A. **68**: 1620 (June 2) 1917.

ANGINA PECTORIS OF DIABETES

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Of the ills that the diabetic is heir to, not the least annoying are the attacks of angina pectoris to which some of them are subject. Among diabetics, a man of middle age, a woman nearing her menopause or during her climacteric will frequently complain of the distressing pain in the region of the heart. The physician passes it by lightly and ascribes it to an attack of "nerves." He listens to the heart sounds and finds them normal; the blood pressure also is normal, and the patient is assured that "everything is all right."

It seems to me that clinicians have not been impressed with the cardiovascular changes that are present in diabetes. This angina pectoris to which I wish to call attention is especially overlooked. In the excellent work of Sir Clifford Allbutt on "Diseases of the Arteries Including Angina Pectoris" no mention is made of diabetes in relation to this condition. He does speak of blood pressure in diabetics, but that is as far as he goes. If one looks at the index of Joslin's book on "Diabetes," one finds no mention of angina pectoris or heart complications.

The diabetic patient who does not suffer from granular changes in the kidneys usually has a low blood pressure. It was Potain, according to Allbutt, who seems to have originated the supposition that diabetes was a disease of high blood pressure. This, however, was denied by Elliott, Janeway and Allbutt. If arteriosclerotic changes are found in the arteries of diabetics, the condition may be ascribed to some toxic factor, rather than to high tension. The diabetic who shows a marked increase in blood pressure with cardiac hypertrophy has invariably a marked pathologic condition of the kidneys, either induced by the diabetic state itself or as a concomitant condition.

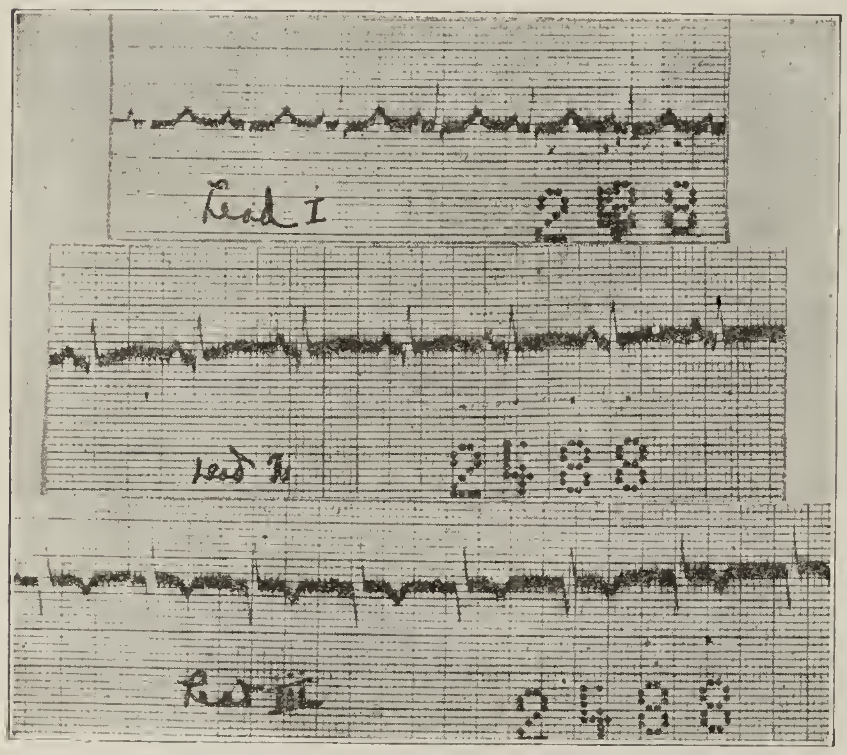

Fig. 1.—Electrocardiographic tracings in Case 1.

In the accompanying tables are shown figures of systolic and diastolic blood pressures that I have obtained in a large series of cases. I have chosen for presentation here seventeen cases of "pure" diabetes and eleven cases of diabetes complicated by cardiorenal disease, for I did not think it necessary to present the entire series. It will be seen that patients with uncomplicated diabetes have a normal or subnormal blood pressure, whereas those patients who also show a pathologic condition of the kidneys have the high blood pressure common in that condition.

Nevertheless, in the middle aged patient with normal or low blood pressure, the physician frequently finds one whose main complaint is the attacks of angina pectoris. The pain may not be very excruciating but still induces marked anxiety. The patient is compelled to stop whatever work he does. If he is walking, he suddenly has to halt and one will see him press the left side of the chest. Often the pain radiates to the neck or left shoulder and arm.

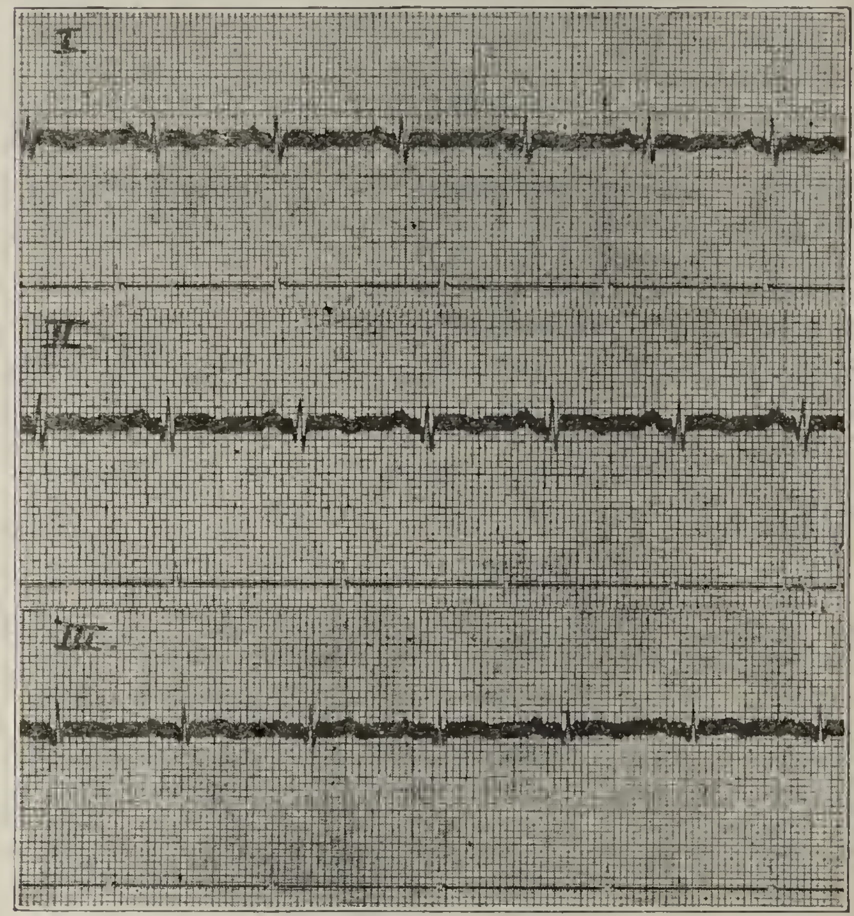

Fig. 2.—Electrocardiographic tracings in Case 2.

These anginal attacks do not seem to occur when the patient's glucose tolerance is not exceeded. A high blood sugar with glycosuria in such an individual will frequently cause the recurrence of the attack. Such a person will soon learn that eternal vigilance is the price of freedom from pain, and he will scrupulously obey the physician's orders.

It appears that the carbohydrate storage in parts of the heart has something to do with cardiac conductivity. It has been found by certain investigators, notably Saigo, that the fibers of the bundle of His are markedly richer in glycogen granules than the ordinary cardiac muscle fibers. It is logical to assume that in the condition of diabetes there is a lowering of the glycogen storage here as elsewhere in the body, with a resultant distinct disturbance in the nourishment of the cardiac musculature, terminating in myocardial pathologic changes.

Cardiographically, a number of the diabetic patients suffering with this condition will show an inversion of the T wave in one or more of the three leads. Until recently this was thought to be a normal, unexplained variation in the curve. Willus,[1] however, has recently pointed out that such an inversion is usually due to some myocardial pathologic condition.

REPORT OF TYPICAL CASES

The three cases of diabetes reported here were chosen from a large number; two of the patients had low blood pressure and attacks of angina pectoris; the third, high blood pressure and cardiorenal complications.

Case 1.—Mrs. B. L., aged 48, who had two children, and whose venereal history was negative, had diabetes, the symptoms of which began four years before examination. Sugar in the urine was 4.2 per cent.; blood sugar, 0.37 per cent. The systolic blood pressure was 122; diastolic, 82. The phenolsulphonephthalein test was 42 per cent. in the first hour and 37 per cent. in the second hour. The urine showed no albumin or casts. There was marked oppressive pain in the chest on exertion, radiating to the neck and the left shoulder. The electrocardiogram showed inversion of the T wave in the third lead.

TABLE 1.—BLOOD PRESSURE DETERMINATIONS IN UNCOMPLICATED DIABETES

Case		Age	Sex *	Systolic	Diastolic
1	M. W.	32	♂	110	76
2	B. F.	46	♀	128	82
3	M. M.	27	♂	116	70
4	B. L.	48	♀	122	82
5	R. S.	30	♀	118	74
6	J. B.	26	♂	110	64
7	J. G.	45	♂	126	80
8	I. A.	60	♀	140	90
9	L. S.	42	♂	128	86
10	I. A.	37	♀	122	70
11	B. A.	40	♀	134	68
12	S. A.	55	♀	138	76
13	A. B.	41	♂	132	74
14	D. B.	10	♀	110	60
15	I. M.	6	♂	108	62
16	B. F.	9	♂	112	70
17	D. B.	37	♀	126	74

* In the tables, ♂ indicates male and ♀ female.

TABLE 2.—BLOOD PRESSURE IN CASES OF DIABETES COMPLICATED BY CARDIORENAL DISEASE

Case		Age	Sex	Systolic	Diastolic
1	D. B.	36	♀	168	104
2	M. S.	57	♀	180	116
3	R. L.	58	♀	170	110
4	I. D.	60	♀	186	118
5	L. B.	27	♂	166	96
6	B. B.	55	♀	170	90
7	I. E.	56	♂	164	100
8	B. F.	67	♂	178	110
9	M. F.	38	♂	140	85
10	J. G.	53	♂	166	104
11	G. K.	50	♀	156	92

Case 2.—Mr. L. S., aged 42, merchant, married, with three children and with a negative syphilitic history, had diabetes, the symptoms of which began three years before. Sugar in the urine was 2.6 per cent., in the blood, 0.28 per cent. The blood pressure, seated, was 128 systolic and 86 diastolic. The phenolsulphonephthalein kidney test was 38 per cent. in the first hour and 32 in the second hour. There was no albumin or casts in the urine. Sometimes, while the patient was walking, an attack of pain began in the left forearm with the sensation of a marked constriction in the cardiac region. He would become anxious and be obliged to sit or lie down. The pain lasted a short while, but recurred on exertion. On treatment and proper dietetic care the attacks disappeared but reappeared when the patient became lax in his diet. This patient also showed an inversion of the T wave in the first and second leads.

Case 3.—Mrs. D. B., aged 36, with three healthy children, and with a negative venereal history, had diabetes, the symptoms of which began two years before, following an attack of gallstones. Sugar and albumin were very heavy in the urine, with many casts; the renal function was very poor. The systolic blood pressure was 168; diastolic, 104. The patient did not complain, it happened, of any cardiac oppression.

CONCLUSION

It appears to me that, in treating a diabetic patient complaining of cardiac distress, the physician should make a thorough examination of the heart, and determine whether or not the case is complicated by renal disease, and should prescribe the rest and quiet so essential in its relief, besides using the various medicinal remedies in his armamentarium as well as controling the diet. The bromids and codein may be used as a sedative. One should particularly remember the fact that diabetes is essentially a disease of low blood pressure and one should not, on hearsay, prescribe the various drugs that induce reduction of blood pressure in his attempt to ameliorate the pain of angina pectoris.

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[1] Willius, F. A.: Am. J. M. Sc. **160**: 844 (Dec.) 1920.

SPLENOMEGALY WITH MULTIPLE ABSCESSES OF THE LIVER

REPORT OF CASE

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While it is generally understood that more or less splenic enlargement commonly occurs with diseases of the liver, especially the cirrhoses, no satisfactory explanation of the relationship between hepatic disease and splenomegaly is available. Whether the changes encountered in the two organs are the result of a common toxic cause, or whether the splenic hypertrophy ensues as a direct consequence of affections of the liver, are questions still unsettled.

It is also well known that in severe septicemias the spleen often attains considerable size; but of the exact nature of the process of hyperplasia, little has been learned.

Classifications of splenomegalies according either to etiology or pathologic changes in the organ are often disappointing, and not infrequently an enlarged spleen even of conspicuous degree is a finding difficult to correlate with other evidences of disease.

The case reported herewith presents several interesting features; especially does it exemplify an unusual degree of splenomegaly occurring in the course of a severe infectious disease and also in the presence of profound hepatic disturbance.

REPORT OF CASE

History.—M. L., a married white woman, aged 35, entered the Johnston-Willis Hospital, Nov. 27, 1919, complaining of abdominal pain, jaundice and swelling of the abdomen. The family history was unimportant. The patient's health had been excellent prior to 1915. One child, aged 5 years, was living and healthy; there had been no complications of pregnancy, and no miscarriages. The patient had not menstruated in four years. In 1915 she began to suffer attacks of epigastric pain which required morphin for relief and were followed by jaundice and clay-colored stools. After these had occurred for six months she was operated on, and one small stone was found in the gallbladder. Cholecystectomy and appendectomy were performed. Following the operation, drainage from the wound continued for four months; and when it ceased, jaundice and pain reappeared, accompanied by chills and fever. In May, 1919, she was operated on again on the presumption that a stone had been left in the common duct; but after a very dense mass of adhesions between the liver, stomach and duodenum had been separated, a probe passed into the duct detected no obstruction. At this operation no evidence of gross enlargement of the liver or spleen was noted, and during convalescence the jaundice entirely disappeared. For more than a year, however, there had been deep jaundice with dark urine, light colored stools and frequent attacks of pain. For four months the abdomen had been gradually increasing in size, and there had been considerable dyspnea on exertion, with moderate swelling of the ankles. For three months the ends of the fingers had been enlarged.

Physical Examination.—The patient was emaciated; breathing was labored; the skin and conjunctivae were deeply jaundiced. The fingers showed definite clubbing. The heart appeared to be displaced slightly to the left, but was otherwise normal; the blood pressure was not increased. The lungs were negative except for moderately diminished expansion, resonance and breath sounds at the right base posteriorly. The abdomen was distended and tense, with shifting dulness, fluid wave and a large indistinct mass filling the upper half. No enlargement of the superficial veins was made out. Tapping in the median line resulted in the removal of 4,500 c.c. of deeply bile-stained fluid, and following this the liver and spleen could be plainly made out. The liver extended 3 inches below the costal margin, was smooth, not tender, and gave a well defined edge. The spleen reached beyond the median line and to within 1 inch of the crest of the ilium; the edge and notch were easily felt.

Laboratory Findings.—Blood examination revealed: hemoglobin, 60 per cent.; red cells, 3,000,000; white cells, 10,200; polymorphonuclears, 88 per cent.; small mononuclears, 2 per cent.; large mononuclears and transitionals, 10 per cent. The smear showed considerable variation in the size of the red cells, but no nucleated cells were found and there was no evidence of basophilic degeneration. The blood Wassermann test was negative. The urine was dark, turbid and acid; the specific gravity was 1.020; there was a distinct trace of albumin; there was no sugar; bile was present. Microscopically there was a moderate number of pus cells and a few granular casts.

Summary.—There had been cholecystectomy four years and exploration of the common duct eighteen months prior to admission to the hospital. There had been intermittent attacks of abdominal pain, with chills and fever and almost constant jaundice, for four years. There was rapid enlargement of the liver and spleen, with ascites and clubbing of the fingers.

Subsequent Observations.—The temperature was irregular and of a septic type, with frequent chills and sweats. The abdominal fluid reaccumulated and was removed by tapping about every ten days. Cough and signs of fluid at the right base increased. Roentgen-ray examination, Jan. 2, 1920, indicated a moderate amount of fluid in the right lower chest with displacement of the heart to the left. Further examinations of the blood revealed a slight leukocytosis with secondary anemia. Death occurred, January 23.

Necropsy Findings.—The abdomen was distended and contained about 3 gallons of clear, yellow fluid. The omentum was adherent to the abdominal wall anteriorly at the site of several puncture wounds. A dense mass of very strong adhesions bound the stomach, duodenum, liver, colon, right kidney and diaphragm. The liver weighed 2,394 gm. and contained numerous abscesses filled with greenish pus and varying in size from microscopic to the size of a hen's egg. The upper surface showed two openings through which abscesses had ruptured through the diaphragm into the right lung. The ducts were patent and no stones were found. The spleen weighed 1,888 gm., and was smooth and rather soft. No gross or microscopic abscesses were found, and no evidence of thrombosis. The microscopic appearance was that of an acute splenic tumor such as is found in the septicemias. The right lung showed pockets filled with pus. The heart was small, with evidence of fatty degeneration in the myocardium; otherwise it was normal. The kidneys were rather large, the capsule stripped readily, and no abscesses were found. The uterus was slightly distended, and pressure expelled pus of the same appearance as that from the liver and lung. Cultures from the pus showed a pure growth of a gram-positive diplococcus of the pneumococcus group.

COMMENT

A discussion of the factors underlying a given splenic enlargement is, of necessity, largely speculative. Little is known of the physiology of the spleen, while the etiology of the several clinical entities in which the organ attains great size is poorly understood. The splenomegaly in the case reported far exceeded that usually encountered in septic conditions, and appears to have been a much more rapid process than that accompanying hepatic cirrhosis. Clinically, there were present many of the features of hypertrophic biliary cirrhosis, jaundice, enlarged liver and spleen, fever, pain and clubbed fingers. Portal obstruction, however, occurred early.

The case is of interest in that it shows an unusual combination of clinical and pathologic findings, probably arising as a result of an acute cholangeitis.

JUVENILE TABES *

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The extreme rarity of tabes in the young as compared with its incidence in later life is so striking that most standard textbooks on neurology comment particularly on the absence of tabetic phenomena in early life. Some authors casually mention a few cases reported by others, from which we may infer that they had not observed any personally. This is particularly true of American authorities; in a measure this applies to foreign authors as well, with the notable exception of Oppenheim,[1] who states that there is no doubt that a tabetic process may begin in childhood (although Gumperts, Kalischer, Marie and von Leyden [quoted by Jones [2]] had denied its existence), and mentions the interesting fact that he had observed a dozen cases.

To Remak [3] must be given the credit for bringing juvenile tabes to the notice of the profession in 1885. At that time he reported three cases and made the interesting statement that Henoch, in 1875, at a meeting of the Berlin medizinisch-psychologische Gesellschaft [4] had mentioned the fact that he had seen the development of tabetic symptoms in a 6 year old child, but had hesitated to make the diagnosis, since all the subjective phenomena had disappeared. In the discussion following Henoch's remarks, Westphal stated that he also had observed a boy showing well defined tabetic phenomena whose symptoms had undergone considerable amelioration. He made the significant statement that both cases cited were possibly in a stage of remission.

The next important contribution was made by Marburg [5] in 1903 from Fuchs' eye clinic. Dr. Marburg reviewed thirty-four cases in the literature and added some of his own. By this time juvenile tabes had evidently awakened considerable interest, so that case reports continued to appear, principally in the French and German literature. The greatest contributions to the subject have been made by the French, notably by

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* From the Neurological Department of the Hospital for Joint Diseases.

* Paper read and patient presented before the New York Neurological Society, Dec. 7, 1920.

[1] Oppenheim: Textbook of Nervous Diseases, 1912.

[2] Jones, Ernest: Brit. J. Dis. Child., April, 1908.

[3] Remak: Berl. klin. Wchnschr., 1885, No. 7.

[4] Arch. f. Psychiat. **6**: 609, 1875.

[5] Marburg, O.: Klinische Beiträge zur Neurologie des Auges: Infantile und Juvenile Tabes, Wien. klin. Wchnschr. **47**: 1295, 1902.

Cantonnet,[6] curiously enough an ophthalmologist. Remak, who brought the disease to the attention of the profession, reported his cases from an opththalmologic clinic. That the juvenile tabetic seeks the aid of the oculist rather than that of the neurologist is not surprising in view of the large number in whom early visual difficulties develop.

To earlier observers, the difference between juvenile tabes and Friedreich's hereditary ataxia was not always apparent; and as a result, considerable confusion was created by reporting as types of tabes cases in young persons who were the subjects of ataxia manifestations. Hildebrandt[7] was the first to call attention to this error, and after an exhaustive critical study of case reports rejected from twenty to thirty cases and selected ten as worthy of consideration as true juvenile tabes. Subsequent writers, notably Raymond,[8] Dydynski,[9] Brasch,[10] Linser[11] and Lasarew,[12] tried to restrict the number in successive publications. Malling[13] attributed the diffidence of observers in accepting juvenile tabes as a true clinical entity to the fact that no necropsy had been recorded to prove the existence of such a disease process. This attitude, he adds, is no longer tenable; for in 1910, he claimed the distinction of reporting the first necropsy record of a case which showed the characteristic pathologic changes of tabes so familiar to us from studies in the adult.

Are the differences between the juvenile and adult types of tabes so fundamental that earlier observers are justified in denying the existence of the former, or does it present special characteristics that make its recognition difficult? According to Gordon,[14] the tendency of such writers as Hildebrandt, Mendel, Kalischer, Berkez and Dydynski to ascribe special features to juvenile tabes is unjustifiable. While Gordon is assuredly correct in his attitude, so far as the symptomatology is concerned (for there is no symptom in the adult that has not been observed in the juvenile), certain differences in the clinical course of both types stand out prominently and will be dwelt on more fully later.

CHARACTERISTICS OF JUVENILE TABES

Having sketched in a general way the development of the recognition of juvenile tabes as a distinct clinical entity, we may proceed with an analysis of the various factors that create the syndrome of the tabetic in the young, and may note in what respects it differs from the accepted orthodox type as observed in the adult.

Age Incidence.—According to most observers, the average age when the disease first manifests itself is placed at 15 years. Mingazzini and Baschieri-Salvadori[15] report an onset at 3 years of age in the youngest recorded case. As a general average, the onset occurs in youth, about the same number of years after the primary infection as in the adult.

Etiology.—In the vast majority of cases, hereditary syphilis is responsible for the development of tabes in the young. There are authenticated reports of a few cases in which syphilis acquired in infancy from the nurse or parent was responsible for the disease in early youth. That hereditary syphilis can produce tabes in adults has also been observed. Nonne reports two such cases.

Sex Incidence.—In Cantonnet's analysis of eighty-nine cases of juvenile tabes from the literature, there were nearly twice as many females as males. Gowers' records show a striking reversal in later life and place the proportion as ten men to one woman. One may venture an opinion as to the cause of the greater frequency in men, but to account for the marked preponderance in young females would probably be a more difficult matter.

Onset.—The mode of onset in a large number of cases (between 35 and 40 per cent.) was an early visual difficulty which rapidly proceeded to optic atrophy and blindness. These figures are far in excess as compared with the visual disturbances noted in the adult type of tabes. Lancinating pains marked the onset in 25 per cent. of the cases, as compared with 70 per cent. in the adult. Bladder disturbances ushered in the disease in a considerable number of cases. Gait defect was the first symptom observed in a small number of cases. Cantonnet remarks that ataxia in juvenile tabes is conspicuous by its absence. This can readily be explained by the large number of patients that develop early optic atrophy. The absence of marked gait disturbance in the tabetic blind has been commented on by all writers on the subject and is emphasized by the following figures: In forty cases of tabetic optic atrophy in the young, 70.5 per cent. were without ataxia, in 20 per cent. there was slight ataxia, and in 9.5 per cent. pronounced ataxia. Crisis or girdle pains have not been observed at any time during the course of the affection in the young, nor have trophic phenomena been seen. Nonne reports one case in which there was a Charcot joint.

Thus it may be seen that juvenile tabes does present special features, a fact which was emphasized by Hildebrandt, Mendel and others, and to which Gordon so strongly objected. As far as the clinical symptomatology is concerned, this differs in no way from the adult type. Ernest Jones aptly remarks that no symptom occurs in juvenile tabes that has not been observed in adults. The prognosis is excellent for life but extremely bad for vision.

Diagnosis.—This should be a matter of simplicity if the case is subjected to a thorough neurologic study. Stephenson states that a diagnosis of tabes should be made in the young who present evidences of amblyopia and optic atrophy. In differentiating tabes from affections that simulate it, only cerebrospinal syphilis and Friedreich's hereditary ataxia need be considered seriously. That the latter, particularly, may cause confusion is evidenced by numerous writers. A careful study of the clinical symptomatology should easily separate the two affections. One does not find scoliosis, foot deformity, pyramidal signs, nystagmus, speech defects, etc., in tabes. Cerebrospinal syphilis presents a syndrome somewhat different from that of tabes and should be easy to recognize.

REPORT OF A TYPICAL CASE

In order to illustrate certain noteworthy characteristics of onset and clinical behavior, the history and clinical symptomatology of a typical case of juvenile tabes which recently came under observation is cited:

History.—A woman, aged 18, born in this country and not engaged in any occupation, was the second of five living children, the rest of whom showed no abnormalities of the neural

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6. Cantonnet, H.: Les manifestations oculaires du tabes juvenile, Arch. d'ophth. **27**: 708 (Nov.) 1907.
7. Hildebrandt: Ueber Tabes dorsalis in den Kinderjahren, Inaug. Diss., Berlin, 1892.
8. Raymond: Progr. méd. **32**: 33 (Aug.) 1897.
9. Dydynski: Neurolog. Zentralbl. **19**: 298, 1900.
10. Brasch: Berl. Ges. f. Psychiat. u. Nervenkrankh., Dec. 14, 1896.
11. Linser: München. med. Wchnschr., 1903, No. 15, p. 637.
12. Lasarew: Neurolog. Zentralbl. **19**: 988-1047, 1905.
13. Malling, K.: Monatschr. f. Psychiat. u. Neurol. **28**: 304, 1910.
14. Gordon, A.: New York & Philadelphia M. J., 1904, p. 872.
15. Mingazzini and Baschieri-Salvadori: Riv. di Patol. Nerv. e Ment. **11**: 580, 1906.

apparatus, so far as could be determined. Both parents were living and in good health. The patient insisted that she did not suffer the usual diseases of childhood or any acute illness within recent years. This statement was corroborated by the fact that she finished a complete high school course with excellent rating. It may be of significance to mention that when the patient was 12 years old, pupillary inequality was noticed by a school physician, who advised her to wear glasses.

At the age of 15, subjective disturbances first developed. These were severe lancinating pains, the nature of which is best expressed in the patient's own words: "just like a needle and thread pulling through both legs." This was practically the only symptom, with slight remissions, that disturbed the patient over a period of two years. At no time during the period were there vesical or visceral disturbances. There were no gait anomalies. Paresthesias, variable in character, but always affecting the lower extremities, principally the toes, had manifested themselves in the last year. This symptom was followed by a disturbance in gait which had been present for the last nine months. At no period of the development of the malady were there any visual difficulties. According to the patient's statement she was not aware of any at present.

Examination.—There were no abnormal attitudes of the voluntary motor system. The gait was somewhat disturbed by an ataxia which was considerably increased in the performance of Fournier's tests. In the performance of coordinative efforts, both of the equilibratory and nonequilibratory type, some disturbance was noted. At times considerable ataxia manifested itself, and then again the tests were performed quite well. In the main, one would say that all coordinative activity was performed in a fairly creditable manner.

All skilled test acts showed no gross defects and were satisfactorily performed. There was no dysmetria or adiadokokinesis.

The deep reflexes, both of the upper and of the lower extremities, were completely abolished. The superficial reflexes were present and equal. No pathologic reflex was elicited.

There were no abnormal involuntary movements, such as tremors, twitchings, athetoses, spasms or choreiform movements.

The muscle strength showed no gross defects, nor were any abnormal muscle changes noted. Hypertonicity and hypotonia likewise were absent.

There were no demonstrable abnormal associated movements.

The peripheral neural apparatus showed no pathologic alterations or impairment in its behavior.

The general sensory examination showed slightly diminished reactions for touch, pain, vibratory temperature, pressure and muscle-tendon sense. In the main the examination revealed satisfactory acuity in localization and discrimination.

Cranial Nerves: The pupils were fairly regular, markedly unequal, and did not react to light. Accommodative and consensual reactions likewise were abolished. The ciliospinal reflex was not elicited. The fundi oculi showed a narrowing of the larger vessels and an indistinctness of the smaller ones. The disk was grayish in appearance and showed distinct evidence of an early atrophy. The rest of the cranial nerves showed complete functional integrity. The systemic examination revealed a general deficiency in growth and development. The presence of hutchinsonian teeth had left its unmistakable imprint of hereditary syphilis. The blood Wassermann test was positive. The spinal fluid showed 130 cells per cubic millimeter, an increase in globulin, a positive Wassermann test, and a Lange colloidal gold reaction reading: 5544334555.

CONCLUSIONS

In the light of the facts that have been gathered concerning juvenile tabes, these conclusions seem justifiable:

1. Juvenile tabes may be considered a distinct clinical entity in view of the long accepted dictum that adults alone were subject to the disease. That the creation of separate entities in a disease that affects both young and old may be justly criticized as being clinically confusing and scientifically unsound is not denied; but in view of the rarity of its occurrence and the special characteristics of the affection in the young, juvenile tabes is deserving of special recognition.

2. Juvenile tabes is the result of an hereditary syphilitic infection in the great majority of cases. An insignificant number of cases are due to syphilis acquired during infancy.

3. Its symptomatology differs in no way from that of the adult type, but special characteristics in its onset and course are worthy of note.

4. Early visual difficulties proceeding to blindness and optic atrophy are characteristic of fully 40 per cent. of the cases.

5. Lancinating pains, ataxia, and visceral or vesical disturbances affect only a small number.

6. Trophic disorders are absent.

7. Females are particularly vulnerable to the affection; as twice as many girls show the disease as boys. The ratio in the adult type is placed as ten men to one woman (Gowers).

8. The prognosis is excellent for life, but extremely poor for vision.

370 Central Park West.

RECTAL INJECTION OF MASSIVE DOSES OF NEO-ARSPHENAMIN *

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Rectal injections of arsphenamin have been used by a number of clinicians with varying results. The French were the first to use this method, and French writers have been most enthusiastic in its advocacy. As early as 1912, Bogrow,[1] Mosion, Weill, Morel and Mouriquand [2] administered arsphenamin by rectum in suppositories and reported favorable results. The method was taken up and used for a time by several French clinicians, among whom were Dejerine, Balzar and Rajat; and, in the case of Rajat, at least, who reported 125 cases, favorable results were obtained. In view of the absence of subsequent reports from these men, it would appear that the method was dropped; but Brouchard,[3] in 1913, recommended its use for children, and in 1914 Benoit [4] used it extensively and formulated a technic for its administration by enema. As a result of his work he reached certain conclusions which were concurred in by Guiard. They were that the rectal method, as judged by the supreme criterion of the Wassermann test, was a satisfactory method of treatment and that in general it was less efficacious than the intravenous route, but that in simplicity and innocuousness it was far superior. He suggested that larger doses might be given by the rectal route but did not specify how large they might be. Azémar,[5] in 1919, used the method in comparison with the intravenous method and tested its efficacy by determinations of the arsenic in the urine excreted. He concluded that after rectal injection, the elimination of arsenic was not so great, so prolonged or so rapid as it was after intravenous injection. He also commended the method for its simplicity, and reported favorable clinical results.

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* This research was undertaken with financial assistance from the United States Government Interdepartmental Social Hygiene Board.

[1] Bogrow, S. L.: Berl. klin. Wchnschr. **49**: 108 (Jan. 15) 1912.

[2] Weill, E.; Morel, A., and Mouriquand, G.: Bull. Soc. de pédiat. de Paris **14**: 332 (Oct. 15) 1912.

[3] Brouchard, quoted by Azémar (Footnote 5).

[4] Benoit: J. de méd. de Paris, Jan. 24, 1914.

[5] Azémar: Ann. de dermat. et syph. **7**: 14, 1918-1919.

Boyd and Joseph [6] used the method in Panama and recommended its use for children. Schamberg [7] stated that in his opinion it was "an extremely feeble method of administering these drugs," and this opinion in substance was concurred in by Harrison.[8] The British Medical Research Committee summed up the subject with the statement: "The general opinion of experienced workers is that the rectal method is ineffective, and in this view the committee concurs."

It is probable that the conclusion of the committee is correct with the dosage used. But there are certain advantages connected with the rectal method that would commend it highly if an effective dose could be administered in this way. In children, in those whose veins are small or destroyed, in those who react unduly to intravenous injection, and in extremely nervous individuals, it is highly desirable to find a method of administering arsenical drugs other than the intravenous one. It occurred to the author that perhaps the clinical failures by the intrarectal method might be due to the fact that the doses were too small. It is conceivable that, owing to faulty absorption or to fixation by feces, only a small part of the arsenic injected by the rectum ever reached the blood stream, and if this is true the remedy might be found in larger dosage.

The work was begun with ordinary doses, intravenously and intrarectally, and the absorption and distribution were checked by determination of arsenic in the blood, urine and spinal fluid after each method of administration. The dose by rectum was gradually increased until 4 gm. of neo-arsphenamin was given by this route. A total of 160 injections was given rectally before the maximum dose was reached, and 4 gm. of neo-arsphenamin has been used in 125 cases.

TABLE 1.—ARSENIC IN BLOOD AFTER INTRAVENOUS INJECTION OF ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Arsenic Mg. per Hundred C.c.
0.6	4	5 Minutes	0.97
0.6	4	15 "	.48
0.6	4	30 "	.18
0.6	4	1 Hour	.077
0.6	4	4 "	.030
0.6	4	12 "	.011
0.6	4	24 "	.009
0.6	4	48 "	.000

The technic used for the intravenous injection was the usual one. For the rectal injection the patients were given a brisk purge on the day preceding the treatment. Two hours before the treatment they were given a colonic flush until the washings returned clear. Simultaneously with the injection, tincture of opium or paregoric was given by mouth, or, in some cases, morphin by hypodermic injection.

The arsphenamin or neo-arsphenamin was dissolved and neutralized just as for intravenous injection. The volume for each dose was 100 c.c. This was retained twenty-four hours, if possible. Blood was taken and analyzed, and urine was collected at varying intervals after the injection. In a number of cases spinal fluid was also taken and analyzed for arsenic content.

A modified Marsh method was used for the quantitative arsenic determinations. These were made by Mr. P. S. Williams, working under the direction of Professor Swain of the Department of Chemistry of Stanford University.

To begin with and to obtain controls, a series of intravenous arsphenamin injections (with a dosage of 0.6 gm.) was given and blood was taken at intervals following the injections and analyzed for arsenic. A total of forty-one specimens of blood was taken and the average results of the determinations for each interval are shown in Table 1. The arsenic is expressed in milligrams per hundred cubic centimeters of blood.

It will be seen from this table that, as might have been expected, the largest amounts were found immediately after the injection. After thirty minutes the amount was about one fifth as great as after five minutes; traces were found after twenty-four hours, but only amounts too small to be detected by our methods were found in forty-eight hours.

A second series of determinations of arsenic in the blood was made after 4 gm. of neo-arsphenamin had been injected rectally. At this dose the occasional appearance of toxic symptoms, particularly vomiting, seemed to indicate that the upper limit of dosage had been reached, and accordingly larger doses were not attempted. But 125 rectal injections of 4 gm. were given and the arsenic content of the blood after these injections was determined forty-six times. The results of these determinations are shown in Table 2.

TABLE 2.—ARSENIC IN BLOOD AFTER RECTAL INJECTION OF NEO-ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval Hours	Arsenic Gm. per Hundred C.c.
4	4	1	0.0015
4	4	2	0.003
4	3	3	0.005
4	6	4	0.011
4	4	6	0.009
4	3	8	0.008
4	2	12	0.025
4	4	14	0.020
4	2	16	0.0065
4	1	18	0.006
4	9	24	0.008
4	2	36	0.0025
4	2	48	0.0025

It will be seen that during one period from about the sixth to the fourteenth hour, the arsenic concentration in the blood equaled or exceeded that after the intravenous dose of arsphenamin (0.6 gm.); but at all times, even at the point of greatest concentration, the actual quantities of arsenic present were exceedingly small, and accurate determinations were, as a consequence, attended by great difficulty and some uncertainty.

TABLE 3.—ARSENIC IN URINE AFTER INTRAVENOUS INJECTION OF 0.6 GM. OF ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Total Arsenic in Urine Mg.
0.6	12	1st 12 hours	0.787
0.6	5	2d "	0.772
0.6	5	3d "	0.688
0.6	5	4th "	0.651
0.6	4	5th "	1.190
0.6	3	6th "	0.578
0.6	4	7th "	0.284

Because of this fact, it was decided that a more practical method of judging the relative absorption would be to determine the larger quantities that were eliminated in the urine. A series of intravenous injections was given and the quantities of arsenic eliminated in twelve hour intervals after injections were determined. The results obtained in the urine after 0.6 gm. of arsphenamin intravenously appear in Table 3.

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[6] Boyd, A. S., and Joseph, Morris: Intrarectal Administration of Arsphenamin, J. A. M. A. **71**: 521 (Aug. 17) 1918.

[7] Schamberg, J. F.: Therap. Gaz. **43**: 761 (Nov.) 1919.

[8] Harrison, L. W.: Quart. J. Med. **10**: 291 (July) 1917.

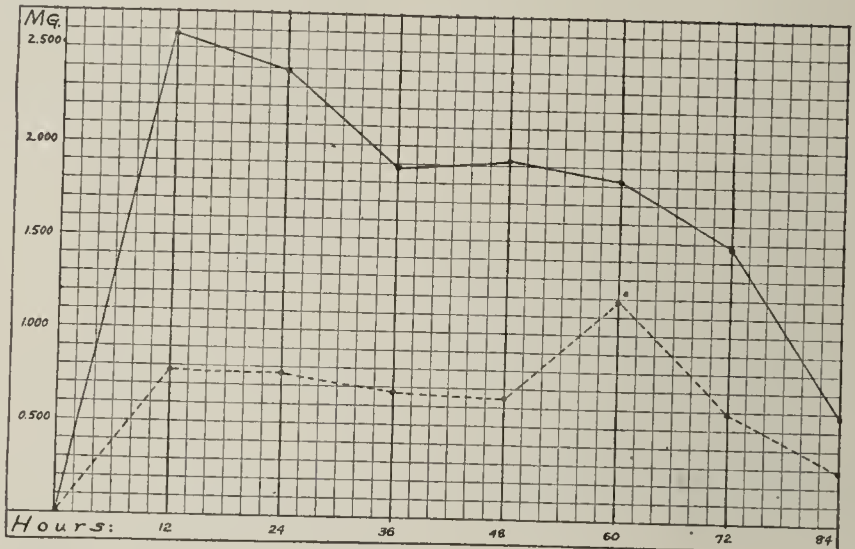
After 4 gm. of arsphenamin was injected rectally, urine was collected for the same periods as after the intravenous injections, and the arsenic content determined. The results of these determinations appear in Table 4.

TABLE 4.—ARSENIC IN URINE AFTER RECTAL INJECTION OF 4 GM. OF NEO-ARSPHENAMIN

Dose Gm.	Number of Determinations	Interval	Total Arsenic in Urine Mg.
4	10	1st 12 hours	2.573
4	11	2d "	2.397
4	11	3d "	1.886
4	11	4th "	1.933
4	9	5th "	1.822
4	7	6th "	1.473
4	6	7th "	0.578

The curves of arsenic excretion after the intravenous and the intrarectal methods are plotted together on the same graph to the same scale and appear in the accompanying chart.

While the results are not strictly comparable, owing to the fact that arsphenamin was used for the intravenous and neo-arsphenamin for the intrarectal injections, it will be seen that when such doses as 4 gm. of neo-arsphenamin are injected rectally, approximately three times as much arsenic was excreted in the urine as after an ordinary intravenous injection. Azémar, using the same dose by each route, found a larger excretion after the intravenous injection. The larger amounts shown after the rectal injections in our series would seem to be adequately explained by the tremendous doses that were given.



Arsenic in urine: solid line, after rectal injection of 4 gm. of neo-arsphenamin; broken line, after intravenous injection of 0.6 gm. of arsphenamin.

As a corollary to the other work, a series of arsenic determinations in the spinal fluid was made after each method. The spinal fluid was always taken eight hours after the injection. The results are given in Table 5.

TABLE 5.—ARSENIC IN SPINAL FLUID

Dose Gm.	Number of Determinations	Interval	Arsenic Mg. per Hundred Cc.
		Intravenous injection, arsphenamin	
0.6	20	8 hours	0.003
		Intrarectal injection, neo-arsphenamin	
4.0	17	8 hours	0.0025

It will be seen that the amounts present in the spinal fluid are practically the same after either method.

The clinical results in our series are difficult to estimate. This is due to two factors: In the first place, the patients were almost all tabetics or cerebrospinal syphilitics, and the clinical improvement shown by such patients after any method of treatment is slow. Also most of these patients received other treatment at the same time. However, when the neo-arsphenamin injected rectally was used in full doses (i. e., 4 gm.), improvement was at least as rapid as that formerly observed when the intravenous method was used, as judged by clinical manifestations, and more particularly by the clearing up of the Wassermann reaction and other reactions of the spinal fluid.

In the beginning of this work it was found that when we attempted to increase the rectal dose of arsphenamin, symptoms of rectal irritation appeared. For this reason, neo-arsphenamin was substituted and the doses run up to 4 gm. While arsphenamin was being used in the irritating doses, two patients reported that long standing cases of pruritus ani had been cured by the injection. The dose of 4 gm. of neo-arsphenamin was never repeated oftener than once in seven days, and the intervals were usually from ten to fourteen days. The only signs of toxicity observed after these doses were the occasional attacks of vomiting previously mentioned and puffiness under the eyes, which developed in two patients. Urine examinations were frequently made to detect possible damage to the kidneys. But several patients received seven of these large doses in a series without showing ill effects. The excretion of arsenic by other routes than the urine is being investigated. At present, samples of bile are being collected by means of the duodenal tube, and the arsenic in it estimated.

CONCLUSIONS

1. Neo-arsphenamin can be safely given intrarectally, in doses as large as 4 gm.

2. Arsenic is absorbed into the blood after such injections, and larger quantities are eliminated in the urine than after ordinary intravenous injections of arsphenamin.

3. Arsenic persists longer in the blood in perceptible quantities after the rectal method with large doses than after ordinary intravenous methods.

4. About equal concentrations in the spinal fluid are obtained with either method.

We believe that, all things being equal, the intravenous method of administering arsphenamin and neo-arsphenamin is still the method of choice in most cases. But, based on the foregoing conclusions, we feel that the rectal administration of neo-arsphenamin has a place in therapy when massive doses are used, especially in the cases of children, those with difficult or impossible veins, and in the case of those in whom, for any reason, intravenous injections are dangerous or undesirable.

Hospital Social Service.—The basis of hospital social service is its relation to the medical care of the patient. The restoration and maintenance of health depend in many instances not only on accurate diagnosis and direct medical treatment of pathologic conditions of the body, but also on dealing with the patient's personality, and on the alteration or adjustment of his home conditions, occupations, habits and community relations. Social treatment must have as its aim the promotion or accomplishment of the doctor's plan of treatment—a plan that has taken into consideration the personal and environmental elements as well as the medical.—*Hospital Social Service* 3:2, 1921.

SAFETY-PINS IN THE STOMACH

PERORAL GASTROSCOPIC REMOVAL WITHOUT ANESTHESIA

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Foreign bodies that have reached the stomach spontaneously without instrumental interference will usually pass the pylorus spontaneously. The exceptions are in cases of an abnormally small pylorus or of foreign bodies of unusual character as to size or shape. Most of the cases occur in infants and very young children, in whom it is not always certain that the pylorus is normal in size. However, our usual custom in the Bronchoscopic Clinic not to interfere with foreign bodies in the stomach until after a month or two of fluoroscopic watching has almost invariably been justified by the natural passage of the foreign bodies, even open safety-pins, by the rectum, usually within three days. The two cases reported herewith are important exceptions. It was not possible to determine whether or not the pylorus in either case was a fair average normal in size; but there were no clinical evidences of stenosis.

Case 1.—*Two safety-pins removed from the stomach of a 6 months infant by gastroscopy, after a sojourn of twenty-seven days.*—A boy, aged 6 months, while lying on the bed, placed in its mouth two safety-pins, each 2 inches long, which had been linked together closed. The mother later found the infant choking and endeavoring to vomit, which symptoms, however, soon disappeared, the baby appearing as well as before. The family physician, Dr. G. F. Enoch, was consulted and advised a roentgenogram, which being taken by Dr. William H. Morrison, showed the pins at the cardiac end of the stomach. No symptoms of any kind were present at any time and the pins were noted by frequent roentgenographic studies to remain in the same position. Dr. Willis F. Manges finally decided that the pins were too large to pass the pylorus, and that even if that orifice were passed, the pins, because of their length, would not take the turns in the intestine without lodging and creating intestinal obstruction. A glance at Figure 1 will show the enormous size of the pins relatively to the size of the infant.

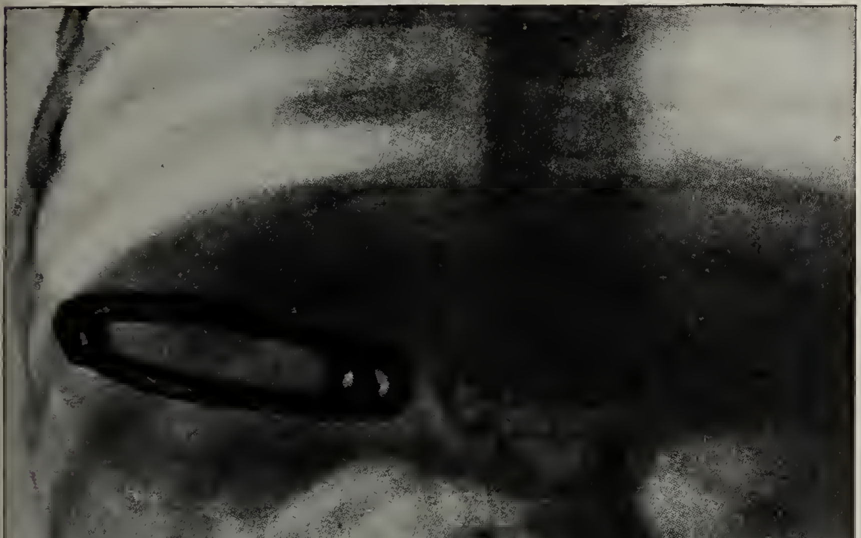
Fig. 1 (Case 1).—Two closed safety-pins, linked and entangled together, in the stomach of an infant, aged 6 months. After a wait of nearly a month for them to pass they were removed, bloodlessly, through the mouth by gastroscopy without anesthesia, general or local. The roentgenogram (by Dr. Willis F. Manges) is taken from the back; the pins are to the left side of the spine, and occupying almost the full width of the infant's stomach.

A watchful waiting of almost four weeks having corroborated Dr. Manges' opinion that the pins could not pass, gastroscopy without anesthesia or sedatives was performed in Jefferson Hospital. The pins were found wrapped in folds of the stomach wall, and both the walls and the pins were in constant motion. There were many opportunities to seize the pins during the course of the gastroscopy, but each time it was an unfavorable portion that presented itself. I had decided on one of the keepers as the most favorable part of the double foreign body to seize, and it required the full time (twenty-six minutes) to get the pins turned so that one of them would present the keeper end for traction. Drawing gently on this one end, the second pin formed a second link to the chain during withdrawal. Great care was required in getting the keeper end of the second pin through the hiatus and later past the cricoid. The pins caused no trauma in their removal.

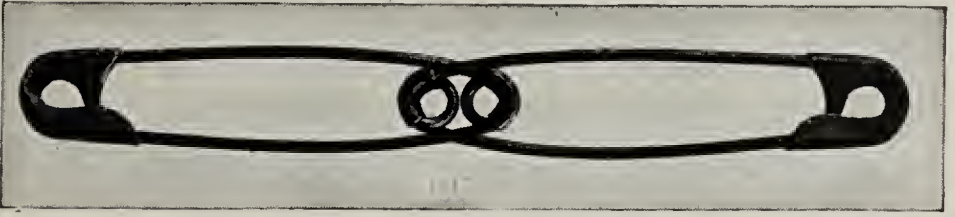
Fig. 2 (Case 1).—The two safety-pins, linked together (compare Fig. 1). Removal required disentanglement and seizure by one end only. Illustration is actual size.

The baby seemed none the worse for the rather trying procedure, and fell asleep immediately. No reaction followed the gastroscopy, and the swallowing function continued normally. After a good sleep, the baby laughed and played as if nothing had happened and, the day after the gastroscopy, was taken home. Later reports stated that the child remained perfectly normal.

Ordinarily, a closed safety-pin in the stomach is practically certain to pass out by rectum. Dozens of such cases have come to the Bronchoscopic Clinic. They are watched daily with the fluoroscope, and the time of escape from the stools is noted. Rarely is longer than three days required. The peculiarity about the present case is that the enormous size of the two safety-pins, clamped together as they were all the time they were in the stomach, as shown by the repeated fluoroscopic studies of Dr. Manges, made it impossible for them to escape through the pylorus. Whether the pylorus was smaller than normal, or whether the pins entered the stomach extended in a chain as shown in Figure 2, are interesting questions. Dr. Manges felt sure in the beginning that the pins could not pass, and, if they did, that their length would prevent their making the turns necessary to pass through to the rectum. It is to be assumed that the pins were swallowed as successive links in a chain; for when grasped in their clamped together position as they lay in the stomach, they were too large to come through the hiatus esophageus (no resistance was felt at the cardia) without stronger traction having to be exerted than was deemed safe. It was not until the pins were disentangled and one keeper alone was grasped that the foreign body could be drawn into the esophagus through the hiatus.

Case 2.—*Open safety-pin in stomach for seven weeks; regurgitated into esophagus, and removed by esophagoscopy.*—A 12 month old daughter of an officer overseas was referred with the history that eight weeks before admission she had swallowed an open safety-pin, 1 inch long, which she had placed unnoticed in the mouth while being dressed. A roentgenogram at that time by Dr. J. F. Armentrout (Fig. 3) showed the pin at the cardiac end of the stomach. No symptoms arose, and frequent fluoroscopic examinations showed the pin still in the stomach, where it remained for seven weeks. At the end of this time a vomiting attack caused the pin to regurgitate into the lower esophagus, point downward, where it was located roentgenographically by Dr. Armentrout. A second attack of vomiting carried the pin to a higher position, where it remained. Fever, restlessness and attacks of vomiting developed, and one week later Dr. Stuart MacGuire was consulted, who at once advised that the child be sent to me. She was admitted to Jefferson Hospital, very ill, with temperature elevation of 105.8 F. There was no apparent dysphagia or odynphagia. Except for a mild bronchitis, physical examination of the chest revealed nothing abnormal.

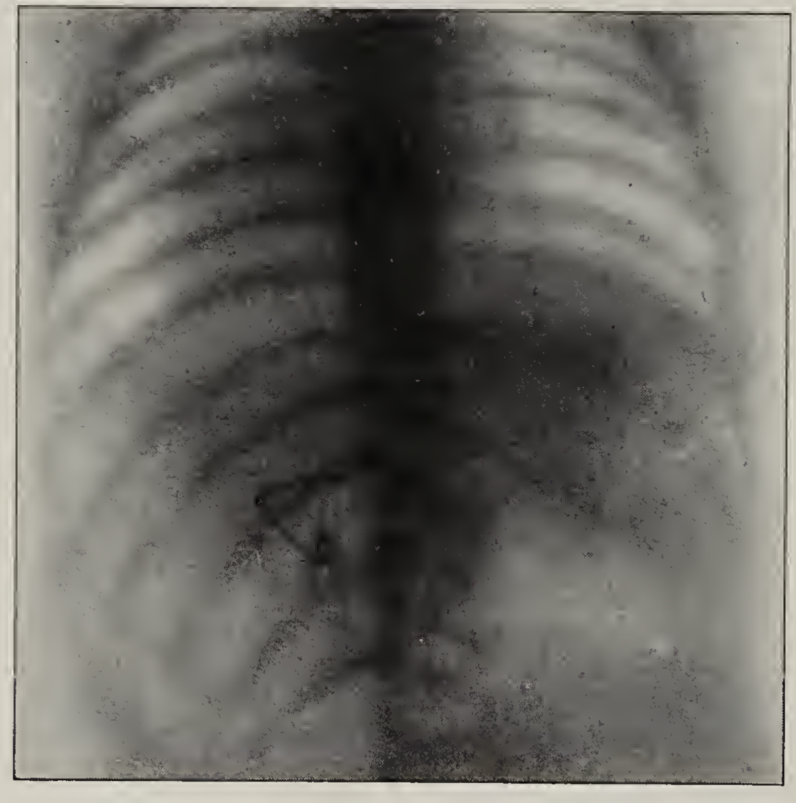

Fig. 3 (Case 2).—Open safety-pin in stomach of an infant, aged 12 months, which after seven weeks was regurgitated into the esophagus, as shown in Figure 5. The shadow of the pin has been strengthened for illustrative reproduction. (Roentgenogram by Dr. J. F. Armentrout.)

Dr. Willis F. Manges, who made a roentgen-ray examination, reported that there was an open safety-pin, open end down, in the esophagus below the level of the bifurcation of the trachea. The point was forward and slightly to the left. The safety-pin was about 1 inch in length. The ring end of the safety-pin was at the level of the sixth rib posteriorly (Figs. 4 and 5).

Esophagoscopic removal of the pin was effected without anesthesia, general or local, and required fifty-nine seconds. The thoracic esophagus was observed to be closed, and failed to dilate during inspiration. The pointed branch of the safety-pin was buried up to the spring in the anterior wall of the esophagus, the curled spring and spring-cap being visible. The point was directed toward the pericardium, so that the slightest push on the pin would have been serious. The spring was seized with forceps and the pin drawn into the esophagoscope and thus removed.

Within a few hours after the removal of the foreign body the temperature, which at the time of operation was 105.8, fell to 99, rose to 102 on the following day, and then dropped to normal. The general condition immediately improved; the vomiting ceased. The child left the hospital well three days after the esophagoscopic removal of the pin, and is reported to be in continued good health.

This case is unusual from many points of view. Foreign bodies, even open safety-pins, pass the pylorus and are expelled by rectum in most cases in which they have entered the stomach spontaneously; i. e., they are not pushed through the hiatus esophageus. Even when they remain in the stomach for a long time we rarely encounter regurgitation of foreign bodies into the esophagus. Retention of objects in the stomach for weeks is not uncommon, and they may usually be let alone for a considerable time unless there are symptoms of perforation; although, it seems needless to say, they should be watched at frequent intervals with the fluoroscope, as was this case, and every stool should be searched in the interim. Immediate roentgenographic localization of the foreign body should be the procedure in all such cases, and especial commendation is due the physicians in charge for their careful study of the baby and watchfulness over it. The wait of seven weeks was fully justified. In such cases we have advised waiting even as long as two months, in the absence of symptoms. The absence of any symptoms while the foreign body remained in the stomach is quite usual; it was only after the regurgitation of the pin into the esophagus that disturbances arose. The upward movement of the pin after it had entered the esophagus illustrates the rachet-like action of pointed objects, especially safety-pins, because of their spring. They are free to be moved in a direction away from the pointed end, but progress in the opposite direction is prevented by the point catching in the mucosa. The severe symptoms were due undoubtedly to the perforation of the esophageal wall by the pin; mediastinal emphysema and inflammation were endoscopically evidenced by the fixation of the thoracic esophagus and its failure to dilate during inspiration. The hyperpyrexia (105.8 F.) indicated an infective process, but the rapid fall in temperature after the removal of the pin would seem to indicate that pus had not formed. Recovery from such a condition is exceedingly rare. To some extent the irritation of the pin itself may have been a factor in the production of the grave syndrome. The position of the pin rendered manipulation exceedingly dangerous, and emphasizes the importance of the introduction of the esophagoscope under the direct guidance of the eye; for with the esophagoscope inserted with the aid of a mandrin or by other blind instrumentation, the pointed end of the pin would

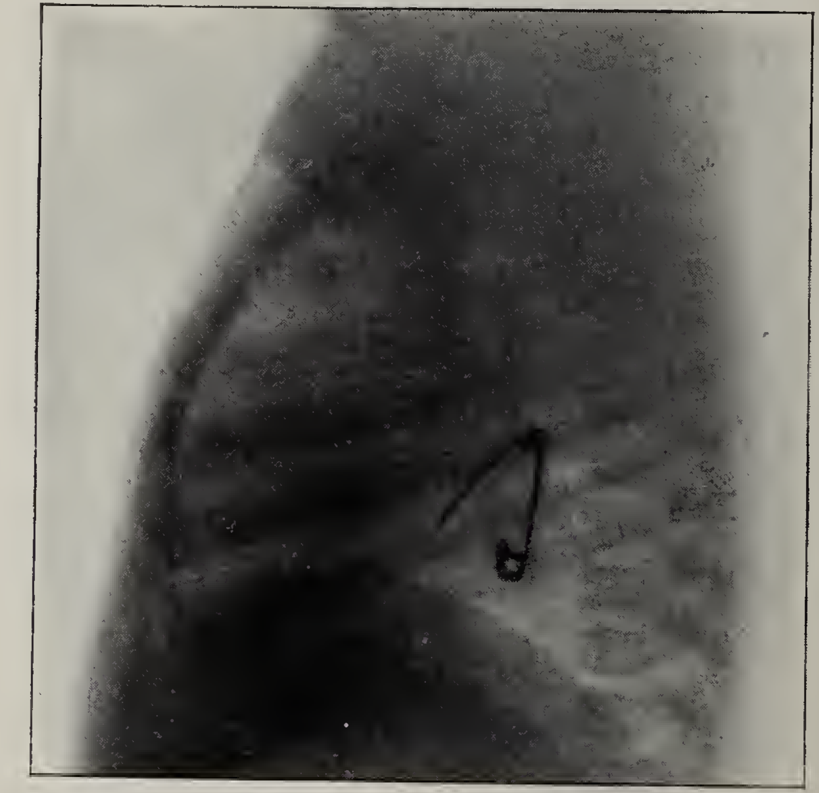

Fig. 4 (Case 2).—Safety-pin in the esophagus, into which it had been regurgitated after a seven weeks' sojourn in the stomach as shown in Figure 3. Removed from esophagus by esophagoscopy through the mouth without anesthesia, general or local. (Roentgenogram by Dr. Willis F. Manges.)

probably have been forced into some of the vital mediastinal structures. The wall of the esophagus is exceedingly thin and delicate, which renders the removal of a safety-pin, even with the esophagoscope, a procedure requiring skill and experience.

There was no clinical evidence that the pylorus was of less than a fair average normal size.

Included in the following conclusions are a few deductions from experience in other cases at the Bronchoscopic Clinic.

CONCLUSIONS

1. In most cases, foreign bodies that have reached the stomach spontaneously (i. e., without being pushed down) will pass out harmlessly through the intestinal tract.

2. There are a sufficient number of exceptions to this rule to render imperative the necessity of watching the foreign body by a skilled fluoroscopist at frequent intervals until the intruder is recovered from the stools.

3. During the watchful waiting period, no change from the usual diet should be made and laxatives should not be given.

4. There are a number of cases in which an open safety-pin has passed by rectum; but in view of the cases herein reported, removal from the stomach is advisable in two classes of cases: (*a*) those in which the pin is of such large size relatively to the patient that the opinion that it will not pass is warranted, and (*b*) those in which a watchful waiting period of a number of weeks, say three to eight, has demonstrated that the foreign body is unlikely to pass.

5. Regurgitation of a foreign body from the stomach is so exceedingly rare that it is not to be waited for.

6. The safest and best method of removal of foreign bodies from the stomach is by peroral gastroscopy, provided an experienced endoscopist is available. Otherwise, external operation by a skilful surgeon is safer and more successful. No anesthetic, general or local, is required for gastroscopy. In the case of a large number of foreign bodies in the stomach of the insane, probably external operation is a preferable method of removal.

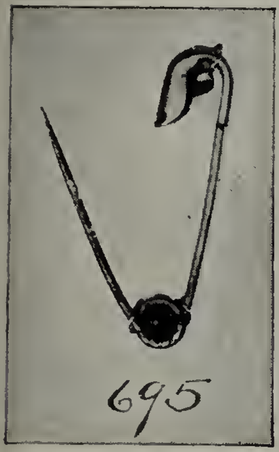

Fig. 5 (Case 2).—Safety-pin regurgitated into the esophagus after seven weeks' sojourn in stomach. Illustration is actual size.

7. The aid of the highest skill of the best roentgenologist is imperative in the study of these cases.

8. According to the experience of the Bronchoscopic Clinic, the foregoing principles apply to foreign bodies other than safety-pins.

Dangers of Whooping Cough.—The general public does not realize the importance of exercising the greatest possible care in dealing with whooping cough, especially when it affects children of tender years. When it is borne in mind that 40 per cent. of the deaths from this cause occur in the first year of life, constant advice and instruction should be given to all mothers attending infant welfare centers, on matters of prevention, and on the nursing and care of children suffering from this disease. It is important also that the homes of children suffering from whooping cough should be visited as is done in the case of measles, and advice given to the mothers to enable them to prevent, as far as possible, the onset of those pulmonary complications which so frequently lead to a fatal termination.—*Med. Officer* **24**:220, 1920.

HEREDITARY MULTIPLE CARTILAGINOUS EXOSTOSES

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During the last few years, numerous cases of multiple cartilaginous exostoses have been reported, and many excellent studies of the disease have been made, including studies of the calcium and magnesium metabolism in both early and late cases. It is our purpose here to report a rather unusual family group showing the hereditary factor which this disease usually presents.

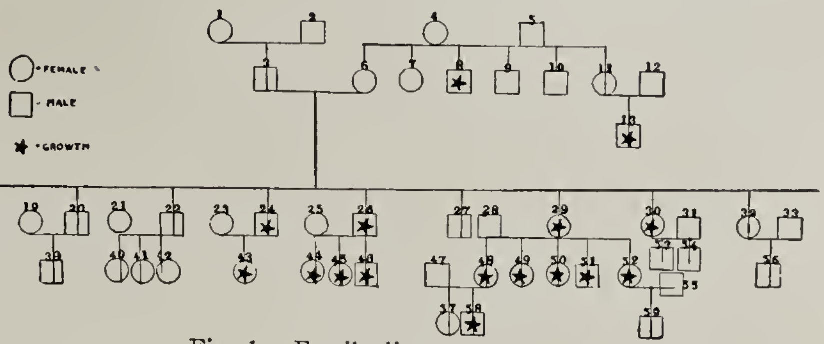

Fig. 1.—Family line.

That the hereditary factor is a strong one is borne out by the literature. Heymann [1] reports the history of a family, eight members of which (in three generations) bore growths. Drescher [2] reports a case in which the father, several brothers and a sister showed well marked exostoses; the patient, a woman, aged 30, died in childbirth, and the newly born child showed prominent exostoses on the right humerus. Fisher reports

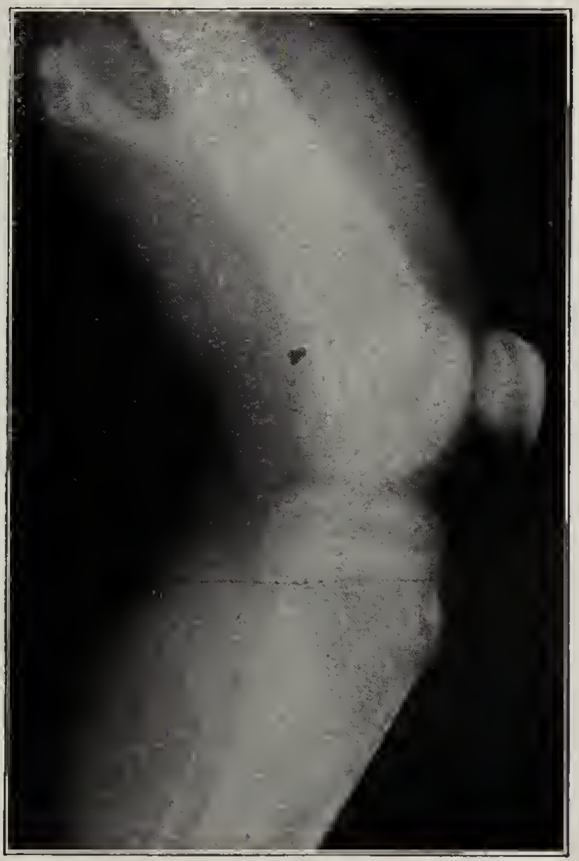

Fig. 2 (Case 46).—Lateral view of right knee.

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[1] Heymann, R.: Ein Beitrag zur heredität seltenerer Geschwulsformen multiplen cartilaginäre Exostosen, Arch. F. Path. Anat. u. Physiol. **104**: 145, 1886.

[2] Drescher, Adolf: Zur Casuistik der hereditären multiplen Exostosen, Thesis, Giessen, 1889.

five families in which there were exostoses. Maclean[3] reports six cases in one family, the father, daughter, three sons and a paternal aunt being affected. Weber, Carman and Fisher,[4] Mosenthin,[5] Gorsline,[6] Davis, Cox,[7] Dwyer[8] and many others have reported similar cases. In thirteen of thirty-three cases a positive history of heredity was obtained, the disease having occurred in some member or members of the patient's family.

It is rather interesting to note that in few of the cases were the growths noted at birth. In sixty-six reported cases only one case shows growths at birth. In twelve cases they were noted between birth and 5 years of age; in seven, between 5 and 10; in four between 10 and 15; in two between 15 and 20, and in only one case were they observed after the twentieth year. In the remaining cases no definite information was given as to the age at which the growths were discovered.

There seems to be in all cases reported a fairly large predominance of males over females affected. In the sixty-six cases reported, forty-seven were in males and only sixteen in females. In the present series there were seven males and nine females. No inference may be drawn from this, however, as the entire family was not examined.

The family tree, represented by Figure 1, began in Germany of pure German descent. The history of the early family is rather meager, and when any question as to the presence or absence of growth has come up the case has been treated as one without the exostoses. In Case 6, a woman of approximately 70 did not show growths at any time, so far as known, this instance rather supporting Ehrenfried's view that the disease can be transmitted by an unaffected mother. The woman, however, was not roentgenographed, and the growths could not be ruled out merely on physical examination.

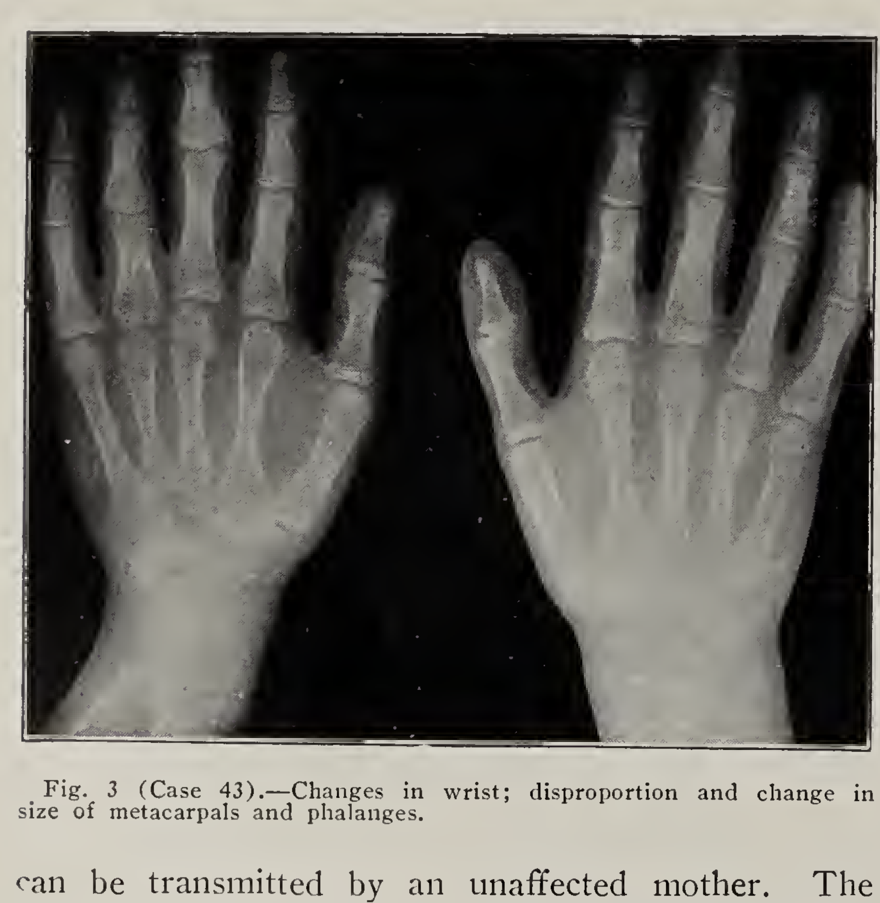

Fig. 3 (Case 43).—Changes in wrist; disproportion and change in size of metacarpals and phalanges.

Figure 2 is a roentgenogram of the right knee of a boy, aged 16 (Case 46), showing the typical exostosis and bone changes.

Figure 3 presents the changes in the wrist and the disproportion and change in the size of the metacarpals and phalanges in a girl, aged 13 (Case 43).

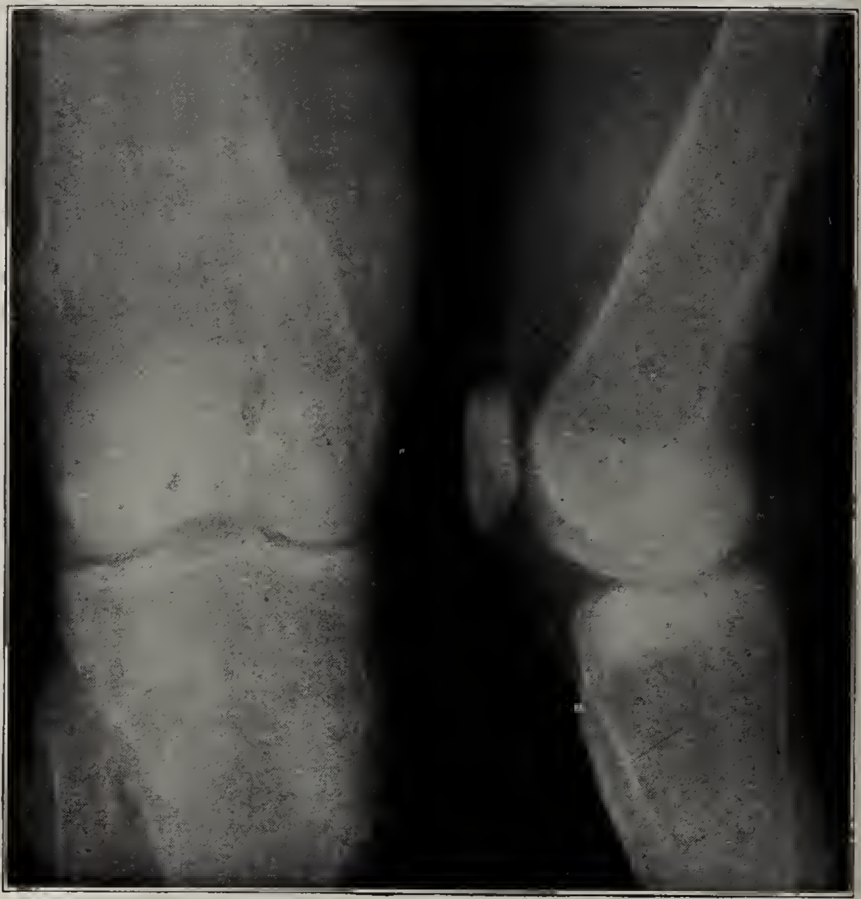

Fig. 4 (Case 24).—Anteroposterior and lateral views of right knee.

Figure 4 is a roentgenogram of the right knee of a man, aged 37 (Case 24), in which the small growth but great enlargement in the size of the femur may be noted.

Exostoses were present at birth in Cases 43, 44, 45, 46, 49, 50 and 51. No roentgenogram was taken in Case 58, in which the subject was an infant.

The family line is an extremely healthy one and there is no history of any systemic disease, such as rickets, syphilis or tuberculosis. This does not support the views of Volkmann, Herbst, Richter and many others that exostoses are due to rickets, or the views of Lortat-Jacob, Aubourg, Brun, Lejars and Heymann, who conclude that "tuberculosis plays an important rôle in the production of congenital osteogenic exostosis." Curtillet[9] also maintains that tuberculosis plays a large part in the production of exostosis, while Pissavy has found tuberculosis in great numbers of cases of exostosis.

Von Bergman[10] believes that the exostoses arise in abnormal anlages in the intermediary cartilage, and Pels-Leusden[11] contends that this abnormal anlage is always present at birth but may be too small to be observed at this early period, except on pathologic examination.

For a more careful detailed study of all the aspects of the disease the reader is referred to articles by

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[3] Maclean, E. J.: Multiple Cancellous Exostoses, Brit. M. Chir. J. **8**: 217, 1890.

[4] Carman, R. D., and Fisher, A. O.: Multiple Congenital Osteochondromata, Ann. Surg. **61**: 142, 1915.

[5] Mosenthin, H.: Seltenere Komplikationen der multiplen kartilaginären Exostosen, Deutsch. Ztschr. f. Chir. **128**: 241, 1914.

[6] Gorsline, C. S.: Familial Deforming Chondrodysplasia, Multiple Cartilaginous Exostoses, Am. J. Roentgenol. **6**: 271 (June) 1919.

[7] Cox, Robert: Notes on a Case of Multiple Exostosis, with Hereditary History, Lancet **2**: 701, 1915.

[8] Dwyer, H. L.: Chondrodysplasia: Multiple Cartilaginous Exostoses, Am. J. Dis. Child. **19**: 189 (March) 1920.

[9] Curtillet, J.: Quatre cas d'exostoses, du rôle probable des toxinfections dans la production des exostoses ostéogéniques, Rev. d'orthop. **3**: 193, 1912.

[10] Von Bergman: Frei Vereinig. d. Chir. Berlins, March 13, 1905, cited by Lenormand, A., and Lecène, P.: Rev. d'orthop. **7**: 203, 1906.

[11] Pels-Leusden, F.: Klinische und radiologische Studien über Exostosis cartilaginea multiplex, Ztschr. f. Chir. **86**: 434, 1907.

Honeij,[12] Ehrenfried [13] and Underhill, Honeij and Bogert.[14]

SUMMARY

1. The disease shows a marked hereditary factor.
2. It is transmitted by male or female.
3. It is probably present at birth or before birth.
4. There is little evidence that infection plays any part.
5. All cases should have roentgenographic examination before the absence of growths is considered to have been proved.

DISCERNMENT OF INTRATHORACIC NEOPLASMS BY AID OF DIAGNOSTIC PNEUMOTHORAX

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The diagnosis of intrathoracic neoplasms has been considered very difficult; most of the cases are recognized only at necropsy. The reasons are clear: During the early stages, when the tumor is small, it produces only slight symptoms, and the signs elicited on physical exploration of the chest are very indefinite. The similarity of the symptoms and signs with those of early pulmonary tuberculosis is responsible for the fact that most of these patients are treated for tuberculosis, often till the end. In about 50 per cent. of cases pleural effusions (serous, sanguineous or purulent) take place and the diagnosis is then rendered even more difficult. Others expectorate fetid sputum, have fever, and a diagnosis of abscess of the lung, pleural vomica, etc. is made.

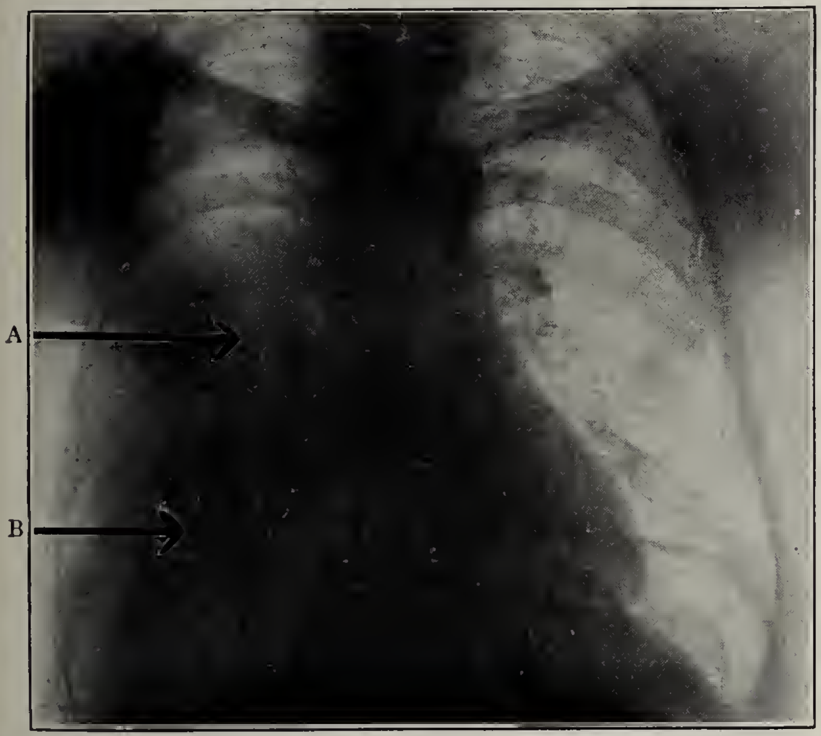

Fig. 1.—Neoplasm in right side of the chest with pleural effusion: *A*, tumor; *B*, effusion, which obscures the neoplasm.

Roentgenography is in many cases of immense assistance, but in others it is of slight value and, like the history, symptomatology and physical signs, can prove merely suggestive. When the tumor is small either it is altogether invisible on the plate, or when it does cast a shadow, this is often not unlike that cast by a tuberculous lesion of the lung. In many cases the differentiation of these shadows is extremely difficult. When an effusion takes place, the entire half of the affected side of the chest is obscured by a dense homogeneous shadow, and the roentgenographer reports merely "pleural effusion." Many of this type of cases have come under my attention.

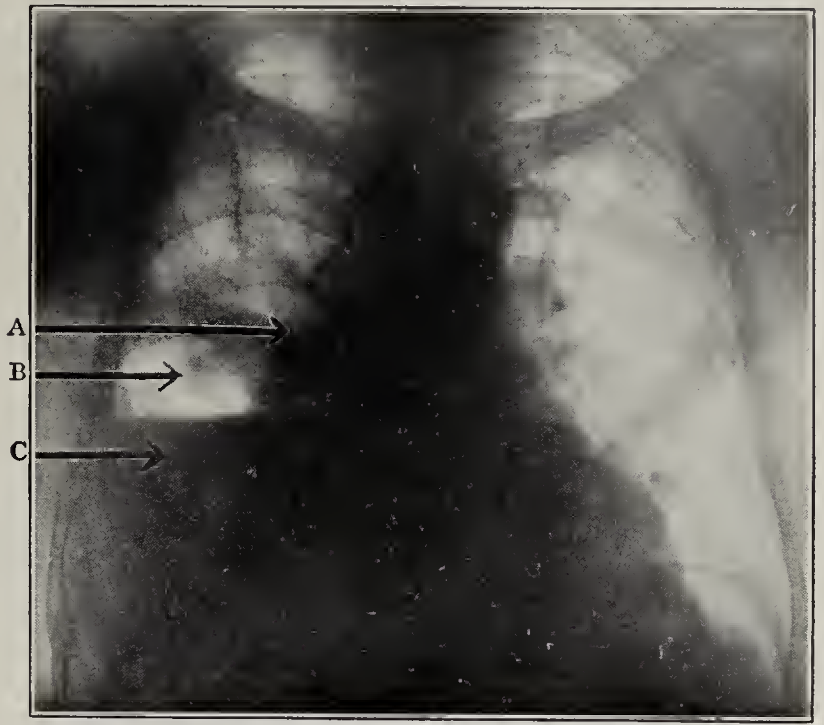

Fig. 2.—Same chest after a pneumothorax was induced: *A*, the tumor clearly differentiated; *B*, air in the pleural cavity; *C*, effusion.

While tapping a pleural effusion secondary to carcinoma of the lung, an intern at the Montefiore Hospital accidentally injured the visceral pleura and thus a pneumothorax resulted. A roentgenogram taken of this chest showed clearly a hydropneumothorax of the right side, and a tumor adjoining the mediastinum (Figs. 1 and 2). This accidental observation gave me the idea to utilize diagnostic pneumothorax for the purpose of discernment of intrathoracic neoplasms along the lines of pneumoperitoneum, used in intra-abdominal conditions. Carefully searching the literature, however, I found that this method had already been suggested by Brauer,[1] and attempted by Schroeder.[2] But it appears from the roentgenograms published by Schroeder that his success with this method was rather limited. It thus appears that the accompanying roentgenograms of diagnostic pneumothorax for intrathoracic neoplasms are the first that show the tumors clearly.

In cases in which there is no pleural effusions, the technic is simple. We employ the usual technic of artificial pneumothorax, injecting several hundred cubic centimeters of nitrogen or air into the pleural cavity, using any of the standard apparatus and a manometer for the purpose. When the lung is collapsed, the solid tumor is clearly seen on the plate. In those in whom an effusion has occurred and it is suspected that it is secondary to a neoplasm, the fluid is first withdrawn with a Potain apparatus. The pneumothorax apparatus may then be connected with the needle which is already in the chest, and the air allowed to flow in. In cases in which the fluid is purulent, and this is not at all rare in neoplasms of the lung and pleura, the needle used for tapping is withdrawn and an ordinary pneumothorax needle is inserted. The amount of gas allowed to flow into the pleura varies in accordance with the condition of the patient and the pressure read on the manometer. If the patient is comfortable, as much as 1,000 c.c. of air may be allowed to enter the pleural cavity. If he suffers from severe pain or dyspnea, less is injected. In our clinic we always stopped when the positive pressure registered in the manometer reached 10 c.c. of water.

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[12] Honeij, J. A.: A Study of Multiple Cartilaginous Exostosis, Arch. Int. Med. **25**: 584-627 (June) 1920.

[13] Ehrenfried, Albert: Hereditary Deforming Chondrodysplasia—Multiple Cartilaginous Exostoses, J. A. M. A. **68**: 502 (Feb. 17) 1917.

[14] Underhill, Honeij and Bogert: Studies of Calcium and Magnesium Metabolism in Disease, J. Exper. Med. **32**: 65-68 (July 1) 1920.

[1] Brauer, L.: Aerztl. Verein zu Hamburg, Session of May 7, 1912, München. med. Wchnschr. **59**: 1192, 1912.

[2] Schroeder, G.: Internat. Centralbl. f. d. ges. Tuberk. Forsch. **10**: 354, 1916.

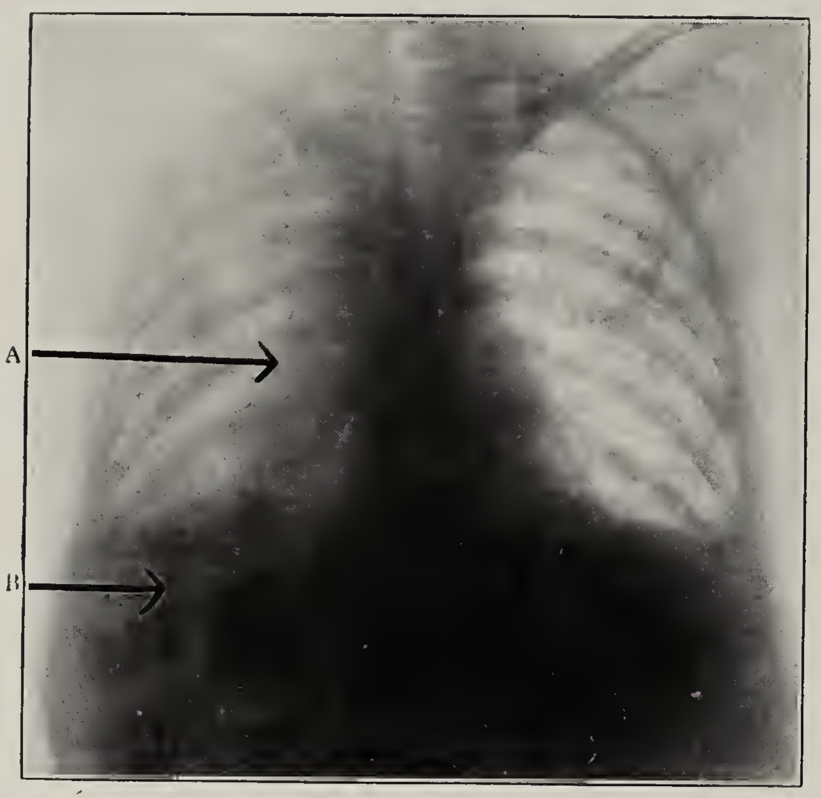

Fig. 3 (Case 3).—Large carcinoma in right lung; carcinomatosis all over left lung; effusion obscuring the tumor; picture almost typical of miliary tuberculosis with pleural effusion in right side: *A*, tumor; *B*, effusion.

Immediately after the pneumothorax has been induced, the patient is examined fluoroscopically, and one or two roentgenograms are made. It is important that the plates should be taken with the patient in the erect posture; otherwise the fluid within the chest, which is shifting, will spread out all over the pleural cavity and mar the picture.

REPORT OF CASES

Some of the cases in which roentgenograms were taken at the Montefiore Hospital will prove of interest:

Case 1.—B. K., a man, aged 56, had primary carcinoma of the right lung which invaded the anterior portions of the second and third ribs anteriorly. The right chest was filled with fluid in which large cells resembling alveolar epithelial cells, and also many polymorphous lymphocytes were found microscopically. No micro-organisms could be found in the fluid. Sept. 9, 1920, some pale, straw-colored fluid was withdrawn from the chest with a Potain apparatus, and 500 c.c. of air injected immediately. In the roentgenogram the air within the pleura was plainly visible in the lower half of the right chest near the axilla, while the tumor, which filled more than four fifths of the right half of the thorax, produced a dense, homogeneous shadow. It could not now be mistaken for fluid, and the pleurisy in this case was thus shown to be secondary to an intrathoracic neoplasm.

Case 2.—B. E., a man, aged 50, had primary papilloma of the left lung, subsequently verified by necropsy. There was no fluid in the chest. With a pneumothorax apparatus, 600 c.c. of air was injected into the pleural cavity and a roentgenogram taken immediately. This disclosed the pneumothorax in the left chest very clearly, while the tumor adjoining the mediastinum was clear-cut and unmistakable.

Case 3.—E. P., a woman, aged 42, had primary carcinoma of the right lung, subsequently verified by necropsy. As will be seen from Figure 3, roentgenography could detect with certainty only an effusion into the right pleural cavity. The mottlings all over both lungs fields were not unlike those produced by miliary tuberculous lesions. In fact, several experienced in reading plates have diagnosed miliary tuberculosis of both lungs with an effusion into the left pleura. Nov. 16, 1920, 500 c.c. of slightly turbid fluid was withdrawn from the right pleura; November 18, another 300 c.c. of fluid was withdrawn. Microscopically, lymphocytes and endothelial cells were found. A section of the sediment of the fluid also revealed tumor cells. The details of these cases will be reported later on.

Immediately after the second tapping, the needle used for withdrawing the fluid was connected with a pneumothorax apparatus and 650 c.c. of air was allowed to flow into the pleural cavity, till a positive pressure of 10 c.c. of water was registered on the manometer. The roentgenogram (Fig. 4) taken immediately after the pneumothorax was induced shows the right pleural cavity filled with air, the lung collapsed near the mediastinum; and two tumor masses, one extending from the second to the third interspace, and the other from the fourth to the sixth interspace can be made out very clearly. Necropsy performed December 25, confirmed these findings. The mottling all over both lung areas is thus shown not to be miliary tuberculosis, as would be thought at first sight, but miliary carcinomatosis.

COMMENT

In view of the harmlessness of the procedure, it appears that it should be utilized for diagnostic purposes in all doubtful cases. While most tumors can be diagnosed merely by a careful study of the history and physical signs of the cases, as will be shown in a later communication, this procedure of diagnostic pneumothorax will in many cases, especially those with pleural effusions, clear up the diagnosis promptly and decisively. It is doubtful whether it is advisable to induce a pneumothorax in cases with aneurysm.

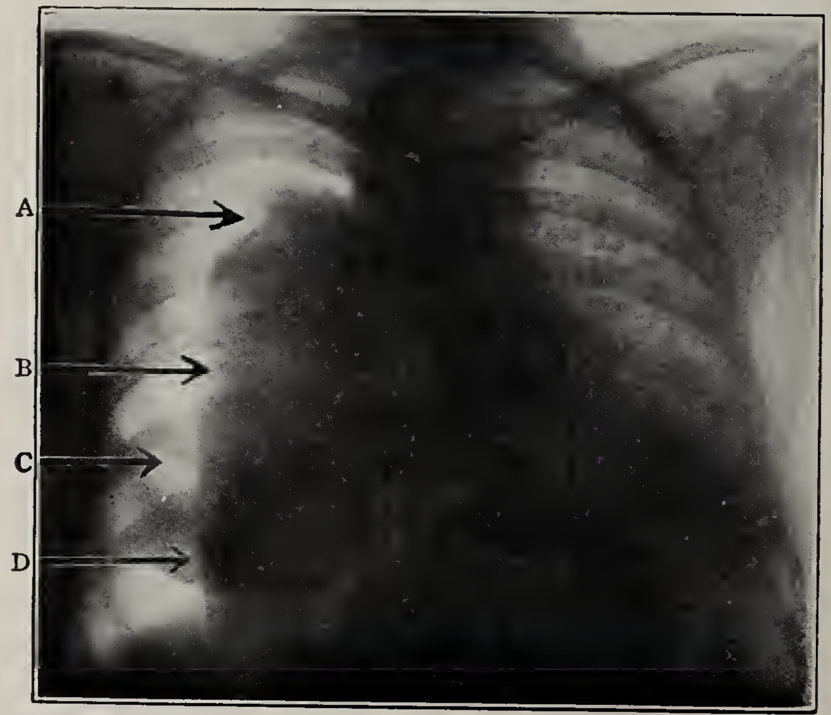

Fig. 4 (Case 3).—Appearance after fluid had been withdrawn and air substituted: *A*, *D*, tumor masses; *C*, pneumothorax; *B*, collapsed lung.

170 West Fifty-Ninth Street.

Psychology of Physical Diagnosis.—In the psychology of physical diagnosis nothing is more certain than that our apprehension of a patient's condition depends not on what we know of physical signs but on what we consciously apply to the subject under investigation.—H. Sewell, *Am. Rev. Tuberc.* **4**:824, 1921.

ALEUKEMIC LEUKEMIA WITH UNUSUAL SKIN MANIFESTATIONS

REPORT OF CASE

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When no definite leukocytosis is present, it is difficult to establish a diagnosis of leukemia, for most of our clinical knowledge and much of the pathology are based on that particular fact. That the disease may exist and can be recognized even though leukocytosis is absent is evident from the fairly frequent number of case reports in which the number of leukocytes was found at some time to be normal, and from the less frequent reports in which no abnormal leukocyte count was found at all.

Whether the disease may run its entire course with never a leukocytosis is another matter; but that the leukocyte count varies tremendously and may come to normal during a course of treatment or even without treatment is a common observation. Infections, which are a common complication in leukemia, affect the leukocytes usually to diminish their numbers. Cabot,[1] writing in Osler's Modern Medicine, says:

> Next to pyogenic infections, tuberculosis is probably the most common complication. The miliary form is most often seen, but ordinary chronic pulmonary tuberculosis also occurs, Pneumonia not infrequently occurs, and like other infections may bring about a temporary amelioration in all symptoms. As a rule these complications produce a rapid fall in the number of white cells.

From the records of Lakeside Hospital up to December, 1920, out of fifty-two leukemia cases six were found at some time during observation with a normal leukocyte count, and three of the six wefe never seen with an abnormal leukocyte count. King[2] reports from the Johns Hopkins Hospital that in 1917, from a total of 105 cases, fourteen showed no leukocytosis at some time while under observation.

In the great majority of cases the diagnosis must depend on finding an abnormal leukocyte count at some time in the course of the disease.

Skin lesions in the leukemias are fairly common, especially in the late stage when the disease becomes hemorrhagic and petechiae appear. Many other lesions have been described—none so frequent or so characteristic as petechiae—but they are all said to be of a common pathology, and when studied in section should be very useful in the diagnosis of leukemia.

Ordway and Gorham[3] say:

> There is a remarkable tendency to a great variety of skin lesions in lymphatic leukemia. These may occur in all types of the disease. Sections of such lesions will constantly show a lymphocytic infiltration of the leukemic type.

Hazen,[4] in 1911, summarized the literature on the skin lesions in leukemia, reporting that pruritus, prurigo, urticaria, bronzing, vesicles, pustules, localized infiltrations, nodules and tumors have been described. At that time forty-two cases had been reported describing other lesions than petechiae—chiefly eruptions and nodules.

Numerous other writers emphasize the importance of skin lesions in the diagnosis of leukemia.

The case here presented is one of lymphatic leukemia in which no abnormal leukocyte count was observed, and skin lesions were the most conspicuous symptoms of the disease.

REPORT OF CASE

History.—A man, admitted to Lakeside Hospital, Oct. 18, 1920, had been under observation by Dr. John Calhoun of Lisbon, Ohio, about nine months, during the early part of which period he was ill with influenza and pleuropneumonia, and was kept in bed four weeks. He was unable to return to his duties as locomotive fireman until four months later, principally on account of weakness, and then he worked only for a few days at a time until six weeks before his admission, when he went to bed again on account of weakness and soreness in his muscles and peculiar red spots on his chest. He developed a slight fever with this illness, and was sent to a hospital nearby for observation. During this hospitalization no diagnosis was established. Blood cultures had been negative and the blood Wassermann test negative. He was taken home and remained in bed at home, showing much the same general condition, except that crops of spots would appear and disappear at various places on his body.

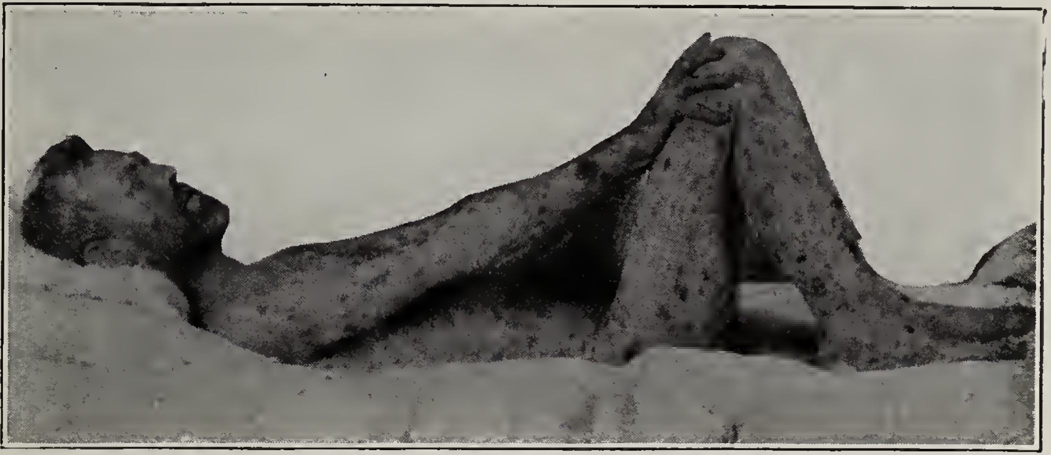

Fig. 1.—Appearance of patient.

Examination.—The patient, when admitted, was able to furnish a very clear history, and from the information he gave we were under the impression that he had been suspected of having syphilis and had been treated for it. When first examined at Lakeside, he was considerably emaciated and quite weak. The entire surface of his body (Fig. 1), including his scalp, the soles of his feet and the palms of his hands, was covered with very striking skin lesions. These were of various kinds and shapes, ranging from miliary points to patches more than 5 cm. in diameter. The majority of them were purple, hemorrhagic in appearance, and slightly elevated, thick and firm. Some of the lesions showed only extreme reddening, while in others there was a purple that had faded to a brown. Some of them were desquamated with a brown, dry scale, while others had superficial layers elevated by a sticky layer of creamy pus. None were deeply ulcerated, and all showed varying stages and degrees of infiltration and hemorrhage. In particular, no single lesion could be said to be a simple purpura unaccompanied by infiltration. The membranes of the mouth and conjunctivae showed the same lesions, but here superficial ulceration, complicated by secondary infection and encrusting, was more marked. The superficial lymph nodes were slightly enlarged.

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[1] Cabot, R. C., in Osler's Modern Medicine **4**: 664, 1908.

[2] King, J. T., Jr.: Bull. Johns Hopkins Hosp. **28**: 114 (March) 1917.

[3] Ordway, Thomas, and Gorham, Whittington, in Oxford System **2**: 703 1920.

[4] Hazen, H. H.: J. Cutan. Dis. **29**: 521, 1911.

The right pupil was fixed, the iris turbid in appearance and ragged in outline, showing the effects of a recent iritis. The left pupil showed a very active iritis with flecks of exudation at the margins of the pupil, with considerable turbidity of the iris and a sluggish reaction. The teeth were carious and the mouth foul. The chest moved fairly well in respiratory excursion, but the right side was smaller and its movements somewhat restricted in the lower portions. There was considerable dulness at the right base laterally and posteriorly, with coarse and fine râles over the dulness. There was nothing unusual to be found about the heart and blood vessels. The abdomen was scaphoid. The liver was enlarged in all the dimensions, being about 5 cm. below the costal margin. It was slightly increased in consistency, but the edge was smooth and a bit tender. The spleen was enlarged and about 5 cm. below the costal margin, with an edge that was blunt and freely movable. No notch could be felt. The scrotum was swollen and tender, being about 15 cm. in diameter. There were hard, irregular nodules representing enlarged epididymes, but the rest of the swelling was made up of double hydrocele. The knee jerks and ankle jerks were absent. The abdominal reflexes were present. The eye grounds were normal.

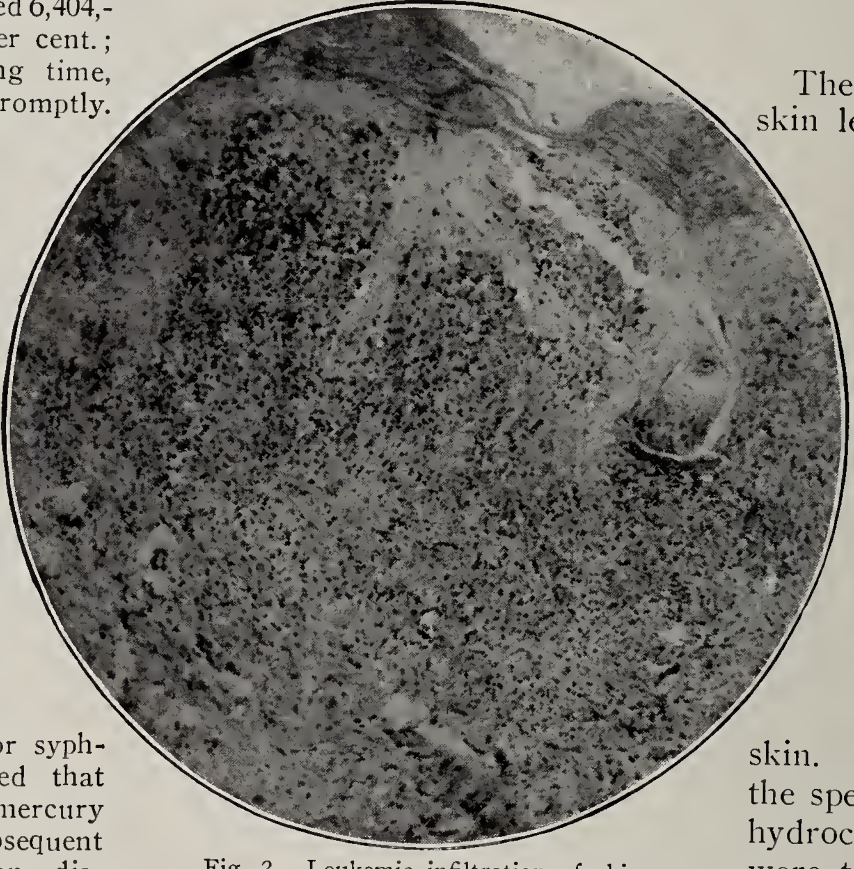

Fig. 2.—Leukemic infiltration of skin.

The blood examination revealed 6,404,000 red cells; hemoglobin, 80 per cent.; white count, 7,200, and bleeding time, increased. The blood clotted promptly.

The blood Wassermann test was negative. The urine showed a faint trace of albumin. Blood cultures were made, which grew out with a fairly liberal growth of *Staphylococcus albus*. In a few days there developed a rise of temperature ranging from 103 to 99, with no constant variation. The pulse corresponded to the temperature, and averaged about 100, with respiration in proportion.

On account of the fever and positive blood cultures, the patient was thought to have septicemia with unusual skin manifestations, purpuric in character. With the information that he had been treated for syphilis, several consultants proposed that the skin eruption was due to mercury and potassium iodid; but subsequent information from his physician disproved that diagnosis. Another diagnosis proposed was a hemorrhagic form of typhoid, but the chronicity of the disease and a negative Widal test were against such a diagnosis.

Clinical Course.—A differential count ten days after admission, with a white count of 5,000, revealed 4 per cent. large mononuclears; 6.5 per cent. small mononuclears; 85 per cent. neutrophils, and 2.5 per cent. eosinophils.

Lumbar puncture was performed, and a clear fluid was found under normal pressure; 7 mononuclear cells per cubic millimeter were found, and the globulin was normal. The Wassermann and colloidal gold tests were negative.

The patient continued with a fever of the same nature, and became rapidly emaciated and at times delirious.

A section of skin was removed for biopsy at two intervals, but no definite diagnosis was made. The discussion of these specimens is included in the pathologic report. The patient was so emaciated that it was thought inadvisable to take blood cultures again, but punctures were made of his hydrocele fluid with the hope of confirming the staphylococcus found in the blood. The hydrocele fluid was quite cellular and hemorrhagic, containing many mononuclears and polymorphonuclears. Cultures from this fluid grew out many staphylococci, among which *Staphylococcus albus* predominated, but a few *Staphylococcus aureus* colonies developed late.

About this time lumbar puncture was made with the same care of the skin as was used in the case of the scrotum, but nothing was grown from the spinal fluid.

About six days after admission the patient developed a toe-drop with complete anesthesia of the lower extremities from the middle of the leg downward, and an ataxia of his toes. This was interpreted as a peripheral neuritis.

Six days after admission the red count was 3,500,000 the white count 4,000, and hemoglobin 65 per cent. Thirteen days after admission the red count was 4,400,000, the white count 4,000, and hemoglobin 75 per cent. Seventeen days after admission and three days before death, the red count was 3,900,000, the white count 5,600, the hemoglobin 80 per cent. A differential count made at the time by one of us (M. A. B.) disclosed: small lymphocytes, 4.5; large lymphocytes, 1.5; large mononuclears, 4; transitionals, 2; polymorphonuclears, 88; eosinophils, 0; basophils, 0. Platelets were normal in number and distribution.

The patient progressed rapidly in the last few days of his illness, and died without showing any unusual development. Diagnosis at time of death was not definitely established, but staphylococcus septicemia, Hodgkin's disease or leukemia was considered the most probable.

COMMENT

The general appearance of the skin lesions, their hemorrhagic inflammatory and nontumorous nature, their tendency to superficial ulceration and very sluggish healing, the enlargement of the liver and spleen, and the degeneration of the spinal cord and peripheral nerves all pointed toward a generalized infection. The blood cultures were confirmatory evidence but not conclusive, because it was apparent that to make blood cultures a needle had to be introduced through a badly infected skin. To overcome this difficulty, the specimens for culture from the hydrocele fluid and spinal fluid were taken with the greatest possible care as to skin preparation; consequently, when staphylococci grew from the hydrocele fluid in large numbers but did not grow out of spinal fluid, septicemia of staphylococcic origin seemed the most probable diagnosis.

On the other hand, skin lesions such as the patient presented have been described commonly in leukemias, Hodgkin's disease and lymphosarcoma, but the familiar blood picture, the enlargement of the lymph nodes, and the tendency to hemorrhages were wanting. Furthermore, what little evidence of improvement the patient did show under observation was diminution in the size of the liver and spleen. The evidence obtained from examination of the skin at biopsy was also inconclusive, lying between chronic infection and lymphocytic infiltration. Owing to the extensive area of skin lesion and the ample opportunity for skin infection, it is probable that a staphylococcus bacteremia did exist, although playing no active part in the development of the symptoms and progress of the disease, unless it should be to ameliorate the symptoms of leukemia and diminish the leukocytes.

When the frequency of aleukemic leukemia—that is, leukemia in which the peripheral blood shows no abnormal number of white cells—is realized, and when it is understood that such leukemias may run a severe febrile course, going on to a fatal termination without ever presenting a leukocytosis, especially if an adventitious pyogenic infection is present—it should not be difficult to establish a diagnosis of leukemia from the skin lesions alone.

PATHOLOGIC REPORT

First Biopsy (Fig. 2, Oct. 25, 1920).—Specimen is a small piece of skin. The epidermis varies in thickness on account of desquamation of the superficial portion of it in some areas. In some of the sections a few small areas of hemorrhage are present within the epidermis. The entire corium is densely and diffusely infiltrated by two types of cell, namely: large and small lymphocytes, and atypical endothelial cells. In the lymphocytic type of cell degenerative changes are observed, chiefly pyknosis and karyorrhexis of the nucleus. The latter gives some of the cells the appearance of polymorphonuclear leukocytes. The endothelial type of cell varies considerably in size and shape. Mitotic figures are present in these cells in moderate abundance. In the subcutaneous tissue, in many cases situated about the sweat glands, there are present large, irregularly shaped, cellular masses, branches of which infiltrate the surrounding connective tissue. These masses are also composed of lymphocytes and endothelial cells — the latter predominating. There is no congestion, and very few vessels can be seen in the section. Lymphosarcoma, Hodgkin's disease and leukemia, as well as chronic inflammation, are to be considered in this case. The definite characteristics of typical Hodgkin's disease are wanting. The cells infiltrating the corium and subcutaneous tissue, especially those of the endothelial type, show many of the characteristics of neoplasm, yet a definite diagnosis of malignancy cannot be made, since similar pictures have been described in leukemia.

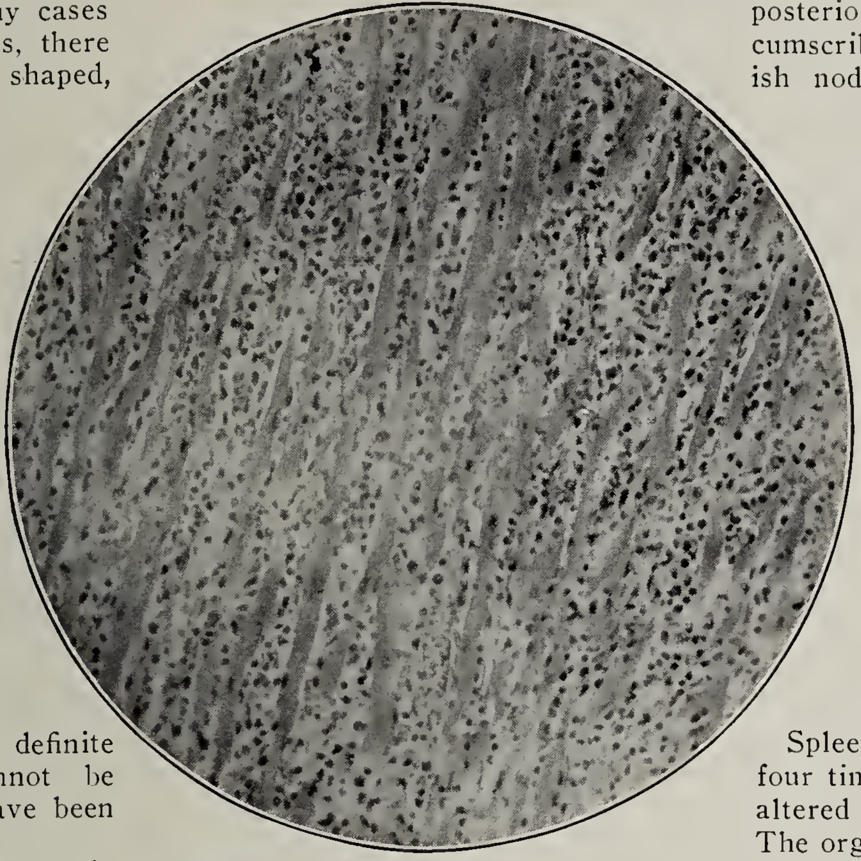

Fig. 3.—Leukemic infiltration of heart.

Opinion: Lymphosarcoma or leukemia of skin.

Second Biopsy (Nov. 5, 1920).—Histologic Description: Specimen of skin. In these sections the epidermis is intact. There are no hemorrhages. Cellular infiltration in the corium is very slight. In this specimen the infiltration, which, as in the other, consists of lymphocytes and endothelial cells, is localized principally to the region of the sweat glands. In these sections the picture does not permit of a definite differentiation between leukemia, lymphosarcoma and merely chronic inflammation. But the neoplastic characters which many of the cells showed in the other specimen are not as noticeable in this one.

Opinion: Probably leukemia or lymphosarcoma.

Summary of Necropsy (Nov. 7, 1920.).—External Examination: White man, apparently 40 years of age. The body is fairly well developed, but very poorly nourished. The skin of the entire body presents a mottled appearance owing to the presence of an eruption which is characterized by very numerous large or small, roughly circular, and for the most part macular patches, dark purple or light brown, the purple ones predominating. A few of these are slightly raised, and the subcutaneous tissue under them is moderately indurated. Some of the patches have fused to form very large, irregularly shaped ones. The purple color cannot be expressed from the tissue and appears to be due to old intracutaneous and subcutaneous hemorrhage. The epidermis of the whole body is scaly, this being most marked over the lesions described above. Some of the lesions are covered by a dark brown crust. Any attempt at removal of this crust lifts the superficial layers of the epidermis with it, and leaves a shallow ulcer with a dark brown, moist, unhealthy looking base. In a number of cases, especially over the back, the lesions are already ulcerated, the ulcers being deep, with a base that consists of moist, dark brown, necrotic looking tissue.

Internal Examination: Heart: Weight, 425 gm. The organ is slightly larger than natural, but retains the natural shape. The surface of the entire heart presents a patchy, grayish-yellow and reddish-brown appearance. The grayish yellow areas are not circumscribed and are present as patches and bands which infiltrate the entire muscle tissue. In the parts of the muscle tissue where the light yellow appearance is most marked, the tissue cuts with less resistance than natural, and appears very cellular. Although the appearance at first suggests diffuse fibrosis, yet the ease with which the tissue cuts indicates that we have here a process of marked cellular infiltration rather than of productive inflammation. On the endocardial surface the same patchy yellow and brown appearance of the muscle is seen. The valves are normal.

Lungs: At the base of the right lung, posteriorly, there is an indefinitely circumscribed, irregularly shaped yellowish nodule of consolidation which is similar in its gross appearance to the yellowish areas described in the heart. This area of infiltration is roughly 4 cm. in diameter. The visceral pleura of this lobe is about 1 cm. in thickness. It consists of semi-organized fibrin, and is moderately adherent to the parietal pleura. In the left upper lobe, near the interlobar fissure, there is present a multiloculated abscess lined by a pyoid membrane and filled with thick greenish-yellow, foul-smelling pus.

Bronchial Lymph Nodes: These are moderately enlarged, hyperplastic, and anthracotic.

Spleen: Weight, 525 gm. It is about four times the natural size and slightly altered in shape. The borders are sharp. The organ feels very firm, and cuts with increased resistance. The fresh surface is dark red, moist and bloody. The malpighian corpuscles appear larger than natural, are moderately abundant, and are quite distinct. The pulp does not scrape off easily on the knife and is only moderately friable.

Left Kidney: Weight, 525 gm. It is at least three times the natural size, but retains the natural shape. The capsule is of moderate thickness and strips easily, leaving a smooth surface which has a strikingly mottled and patchy light yellow and dark brown color. The tissue cuts with the natural resistance. The fresh surface of the cortex bulges slightly, and measures 1 cm. Throughout the cortex and medulla there are present numerous patches of light yellow which resemble markedly the patches seen both in the heart and in the lung. The natural vascular striations and the glomeruli in the cortex are quite distinct in the dark brown portions, but in the yellowish areas these are partially obliterated. The differentiation between the cortex and medulla is fair. In the region of the yellow patches, the tissue is unusually friable. The pelvis is relatively of the natural size and there is very little peripelvic fat.

Right kidney: Weight, 550 gm. This kidney resembles the other in all respects.

Suprarenals: These are large, but show no gross abnormality otherwise.

Pancreas: Weight, 125 gm. The organ is of the natural size and shape. The surface color, and on section, the color of the fresh surface, is an unusually pale yellow. The parenchyma is moderately friable.

Digestive System: The stomach, duodenum, small and large intestine and appendix show no gross abnormality.

Liver: Weight, 2,325 gm. The organ is moderately enlarged, but retains the natural shape. The border is slightly rounded. The surface color is light yellow, and the capsule is thin, smooth and glistening. On section, the tissue cuts with natural resistance. The fresh surface is very light yellow, mottled with very small red spots, the central zones, which are moderately congested. The tissue is only moderately friable.

Gallbladder: This shows no gross abnormality.

Genitalia: There is present a hydrocele of the left tunica vaginalis testis. It is the size of a goose egg and contains clear, watery fluid. The epididymis on both sides is very much enlarged, nodular and firm. The tissue is rather densely fibrous. The testes are of the natural size and show no gross abnormality.

Prostate: This organ is of the natural size, but feels much firmer than natural.

Bone Marrow: The bone marrow from the middle of the shaft of the tibia is light grayish brown in appearance. There appears to be a definite decrease in the amount of fat, and increase in the cellularity of the tissue. It is rather soft and mushy.

Histologic Examination. — Sections of Heart: In the sections taken both from the yellow areas and from the more normal looking reddish-brown areas, the muscle tissue shows very marked diffuse infiltration between the fibers by large and small mononucleated cells. These cells vary somewhat in size, but are mostly rounded. The nucleus is relatively large, stains moderately with basic stain, and the chromatin is fairly evenly distributed. In the smaller type of cell, the nucleus stains more deeply; the cytoplasm is present in relatively small amount, and stains lightly with basic stain. In some respects the larger cells resemble those in the germinal center of lymphoid follicles, and the small ones look like well differentiated lymphocytes. Occasional mitotic figures are present in the larger cells. In the sections taken from the light yellow portion of the muscle, the individual muscle fibers are separated widely from one another by this marked cellular infiltration, and continuity of the fibers is broken in many cases. Many of the fibers appear narrow and compressed by the infiltration. The cross striations are very distinct in all the fibers, and the nucleus appears normal. There is only moderate congestion throughout the tissue, and the vessels contain the normal proportion of red and white cells (Fig. 3).

Sections of Lung: In the sections taken from the consolidated nodule at the base of the right lung, the pleura is markedly thickened and consists of partly organized fibrin, moderately but diffusely infiltrated by plasma cells, polymorphonuclear leukocytes and lymphocytes. Young fibroblasts are present in moderate abundance. The interalveolar tissue of the lung is very markedly infiltrated by mononucleated cells, which resemble in all respects those infiltrating the heart muscle. In most cases, the alveoli are empty but compressed so that the lumen in some cases is not very evident. In some areas the combination of collapsed alveoli and markedly infiltrated interstitial tissue gives the appearance of inflammatory consolidation. A few of the alveoli contain mononucleated cells. There is no fibrin present. The vessels in the interstitial tissue are congested, but contain the normal proportion of red and white cells.

Sections of Bronchial Lymph Nodes: The capsule is of moderate thickness. The lymphoid follicles are large and hyperplastic. In many of them no germinal center can be identified. There is also moderate diffuse hyperplasia of the lymphoid tissue throughout the node, and a definite increase of the reticular connective tissue, which, in some areas, assumes the form of wide, dense bands.

Sections of Spleen: The capsule is of moderate thickness. Trabeculae are present in normal number and are of moderate width. The malpighian corpuscles are for the most part larger than normal, and they are indefinitely circumscribed. The sinusoids are markedly congested with red blood cells which are in most cases conglutinated. Throughout the pulp there is present a large amount of amorphous blood pigment. There is no increase in the number of lymphoid cells in the pulp.

Sections of Kidney: The capsule is of the natural thickness. Between the glomeruli and between the tubules throughout the kidney substance there is very marked and diffuse infiltration by large and small mononucleated cells, which resemble in all respects those described in the heart. In some of the sections the infiltration is so marked and the destruction of kidney substance so great that it is difficult to recognize that the section comes from the kidney.

Although the tubules are in many cases completely obliterated, the glomeruli are remarkably well preserved. An occasional glomerulus shows partial fibrosis and hyalinization, and Bowman's capsule is slightly thickened; but for the most part they appear normal. In the section in which the infiltration is less marked, the lining epithelium of the tubules shows marked parenchymatous degeneration with partial or complete desquamation. Casts are present in many of the tubules. There is rather marked congestion throughout, but the vessels contain red blood corpuscles and white cells in normal proportion (Fig. 4).

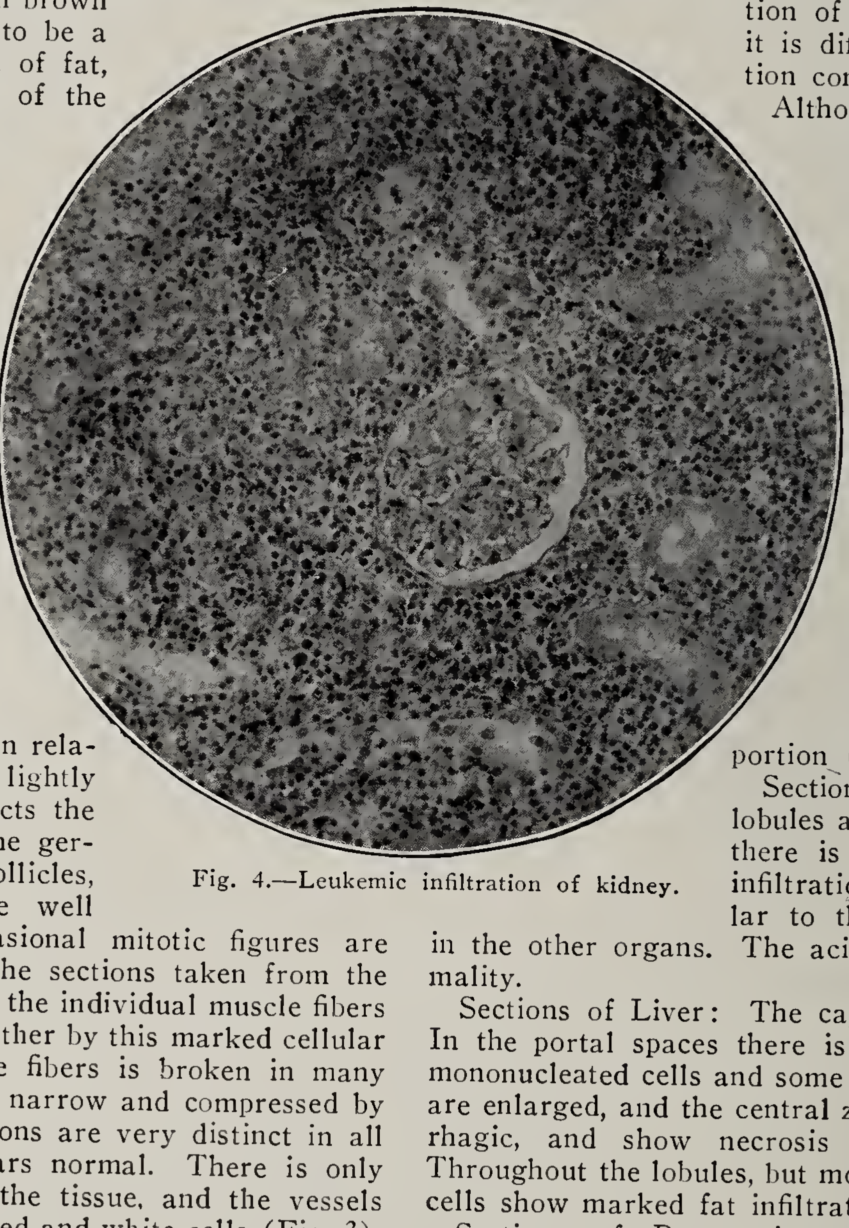

Fig. 4.—Leukemic infiltration of kidney.

Sections of Pancreas: Between the lobules and between the individual acini, there is found to be moderate diffuse infiltration by mononucleated cells similar to those that have been described in the other organs. The acini show no microscopic abnormality.

Sections of Liver: The capsule is of moderate thickness. In the portal spaces there is moderate infiltration by large mononucleated cells and some lymphocytes. The central veins are enlarged, and the central zones are congested and hemorrhagic, and show necrosis of many of the liver cells. Throughout the lobules, but most marked at the periphery, the cells show marked fat infiltration.

Sections of Retroperitoneal Lymph Nodes: With the exception of the absence of anthracotic pigmentation, these lymph nodes resemble the bronchial lymph nodes in all respects.

Sections of Bone Marrow: There is a relative increase of cellular constituents and decrease in the amount of fat, but the increase in the number of cells is not very marked, and their character is not altered from the normal. Practically the normal proportion of nucleated red cells, myelocytes, leukocytes and myeloplaxes is seen.

Sections of Epididymis: Sections show a marked recent subacute and an old inflammatory process. No definite evidence of tuberculosis can be seen.

Bacteriology.—Cultures were taken from the heart's blood and from the hydrocele fluid. From the heart's blood numerous colonies of a pure culture of *Staphylococcus albus* were obtained. The hydrocele fluid proved sterile.

DIAGNOSIS

1. Leukemic infiltration, lymphatic type, of skin, heart, right lung, kidneys, pancreas, liver, thoracic lymph nodes and abdominal lymph nodes.
2. Parenchymatous degeneration of kidneys.
3. Chronic passive congestion and fatty metamorphosis of liver.
4. Multiloculated abscess, upper lobe left lung.
5. Organizing fibrinous pleurisy, right lower lobe.
6. Epididymitis, subacute, bilateral.
7. Hydrocele, left.

TREATMENT OF AORTIC ANEURYSM BY WIRING AND ELECTROLYSIS

A FURTHER REPORT

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Previously, I[1] have reported a considerable number of cases of sacculated aneurysm of the aorta treated by wiring and electrolysis. Since then, three other patients have been so treated, all of them with excellent results, as the reports presented herewith show. The second case was so advanced when the patient came under observation that anything more than palliative treatment and brief prolongation of life could not be expected (Figs. 1 and 2).

As pointed out in my last report, and in the earlier reports, one of the most important effects of the operation is the relief of pain, which usually occurs almost at once in every case.

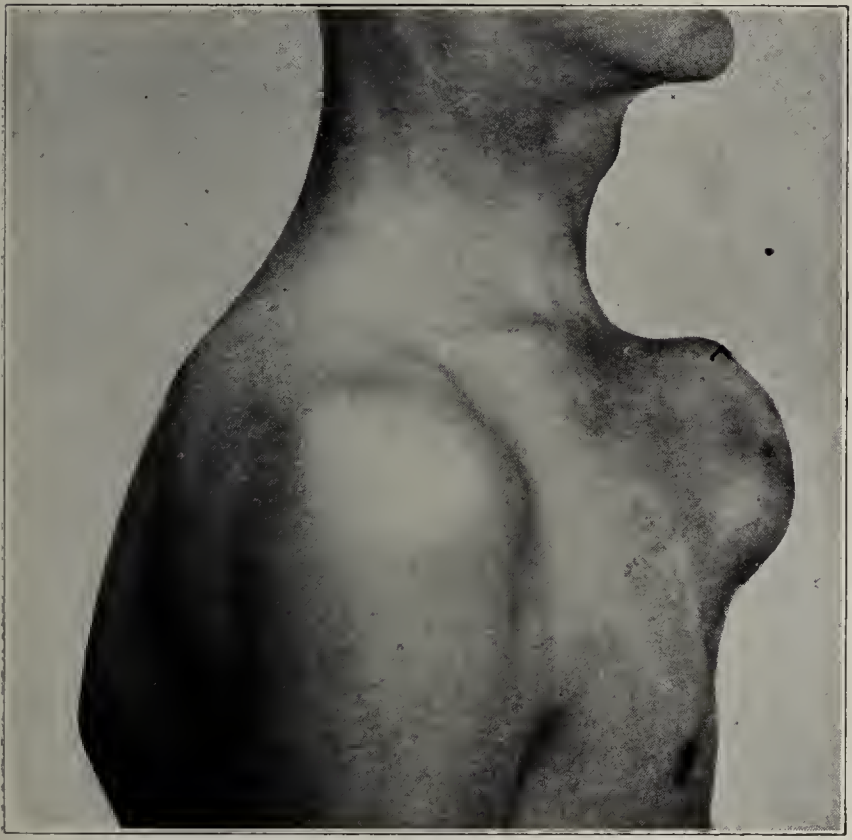

Fig. 1 (Case 2).—Right lateral view of aneurysm.

REPORT OF ADDITIONAL CASES

Case 1.—*History*.—A man, aged 49, referred to me by Dr. Harris of Franklin, N. C., had lost his right arm in a cotton machine. The tearing may have had some effect in producing the aneurysm, which did not erode the ribs, but which produced distinct pulsation in the second right interspace.

Operation and Result.—Dec. 1, 1919, 15 feet of platinum-gold wire was introduced and the current passed, beginning with 5 and reaching 50 milliamperes at the end of thirty minutes. The patient's chief complaint before operation was pain in the right side, and cough. The day after the operation he had no pain, and two weeks later he was allowed to sit up in bed. Four weeks after the operation he got out in a chair. The cough and pain at this time had almost ceased. The roentgen-ray report, made forty-eight days after the operation, reads: "Comparing 6 foot exposures before and after the wiring, the ascending arch of the aorta appears to be slightly smaller. This is believed to be largely due to the fact that there is very much less pulsation in it and, therefore, the outline is more sharply defined and has not the extra width of expansion."

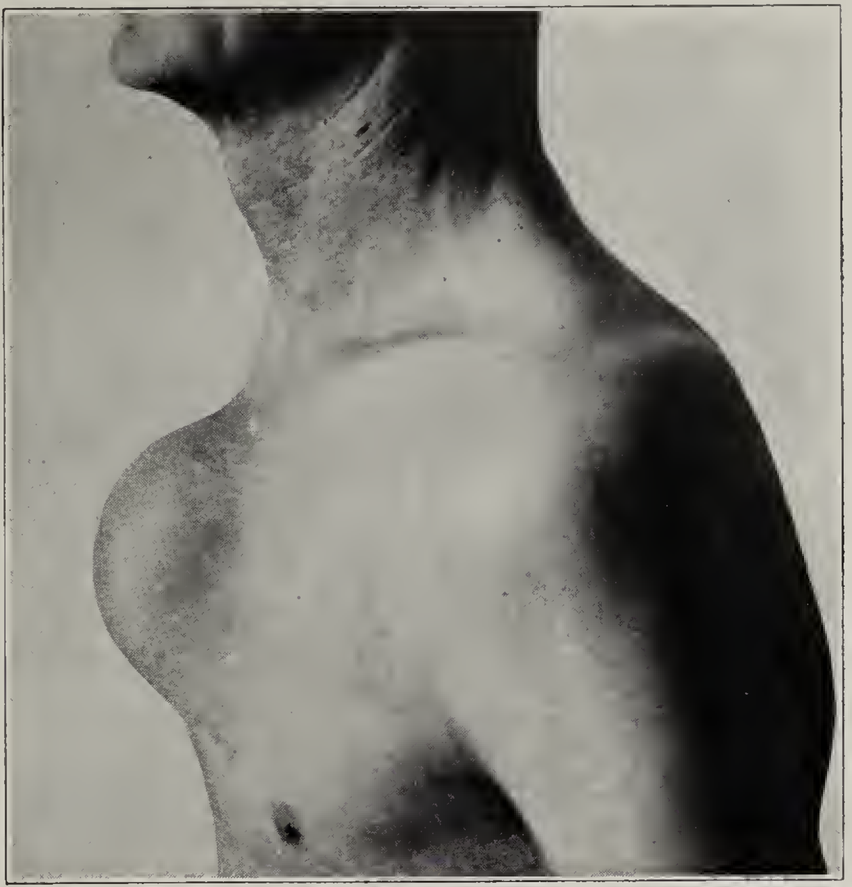

Fig. 2 (Case 2).—Left lateral view of aneurysm.

Dr. Harris' reports under date of Feb. 23, May 4, and Sept. 27, 1920, are of interest: "I am glad to be able to write very favorable news regarding ————. He stood the trip home finely and arrived in good shape. The aneurysm does not hurt him at all, and it is very perceptibly smaller. When I examined him a few days ago, I could not detect any bruit. His general condition is fine and, according to my judgment, the operation was as great a success as one could expect. He is in every way pleased with the result." And again: "I think he continues to improve, though he suffers from some pain in the chest when he lies on the left side. The aneurysm is reduced, pulsates less, and a bruit is barely heard. Getting about at times gives him some pain, but nothing like before the operation. I think on one or two occasions he exercised too much, but he traveled 60 miles and felt no bad effect, made the trip the next day and this caused some discomfort. His appetite is good, digestion fine, and he sleeps well." Lastly, about ten months after the operation: "I am pleased to write that ———— is doing finely. I can truthfully say that the results of the operation have been wonderful. I do not believe that he would have been living if it had not been done. I am sure he would not have lived if he got around as he has since the operation. His physical condition is fine, the picture of health, and he gets around a great deal; too much according to my judgment. He travels 30 miles in an auto, spends the day, takes in a ball game, walks around a great deal, and returns home. He has taken much longer trips, but when he does he has some pain."

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[1] Hare, H. A.: Therap. Gaz. **24**: 9 (Jan. 15) 1900; ibid. **27**: 19 (Jan. 15) 1903; The Treatment of Sacculated Aneurysm by Wiring and Electrolysis, J. A. M. A. **58**: 1088 (April 13) 1912; Three Cases of Wiring with Electrolysis for Aortic Aneurysm, ibid. **62**: 1217 (April 18) 1914;; Three Cases of Aortic Aneurysm Treated by Wiring and Electrolysis, ibid. **73**: 1865 (Dec. 20) 1919.

Case 2.—*History.*—The patient, referred to me by Dr. Hope of Mobile, Ala., stated that he had been in excellent health until five years before. At that time a pain developed in the chest, and a New Orleans physician told him he had an aneurysm. In November, 1918, he was in an accident in which he fell forward on his chest, striking an iron rod. Three days afterward he noticed a lump rising in his chest, the size of half a dollar, which had been growing until it measured 6 inches transversely and 6½ inches longitudinally outside the chest wall (Figs. 1 and 2). In this mass he experienced boring pain.

Examination.—The patient was well nourished but lean. The lump on the chest was actively expansile, and at the apex of the tumor there was a soft spot, the wall of which was very thin, somewhat ecchymotic and very expansile. The roentgen-ray report was: "An aneurysm involving the last portion of the ascending and extending to first portion of the descending arch. It projects directly forward through the chest wall with no lateral or posterior pointing although the rest of the growth is pushing backward to the left to the vertebral column." The roentgenologist also reported that he considered the case an unusually favorable one for wiring.

Operation and Result.—Feb. 12, 1920, I introduced 20 feet of gold-platinum wire, with the current gradually increasing from 5 to 45 milliamperes in the course of three quarters of an hour. On the 15th, it was noted that the mass was harder except for the soft spot near the lower part. Figure 3 shows the wire in the sac after operation. February 20, the soft spot was more limited. There was no pain but some cough. On March 4, the notes stated that the aneurysm was uniformly hard, and on March 7, against my advice, the patient went home. In this case also the boring pain was practically entirely relieved.

Under date of April 27, 1920, Dr. Hope writes: "I am writing to advise you of the death of ——— on April 21, two months and nine days after operation. The aneurysm ruptured into the esophagus and he died within five minutes. The skin over the tumor became inflamed, and finally, after five days, broke down, and he began to have slight hemorrhages from it at intervals of from twelve to twenty-four hours. I removed the wire after death and found quite a firm clot. I am sure he would have gone sooner had he not been wired.

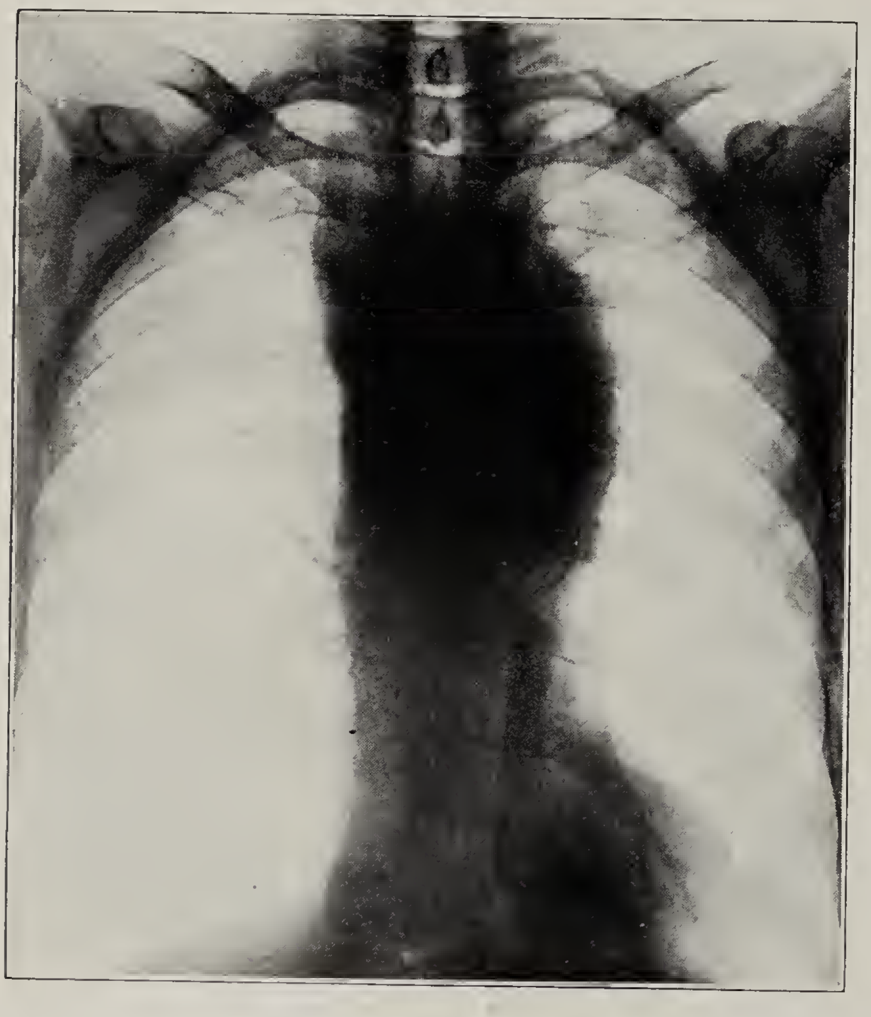


Fig. 3 (Case 2).—Anterior view of aneurysm of last part of transverse portion and first part of descending portion of the arch of the aorta, showing strands of wire in lower part.

Case 3.—*History.*—The patient was referred to me by Dr. Brown of Toledo, Ohio, presenting a case of sacculated aneurysm of the first part of the descending aorta, pointing to the third left interspace, anteriorly. It did not erode the ribs, but produced definite pulsation in the second and third interspaces, anteriorly. He had had considerable pain and there was a heaving impulse transmitted to the chest wall over a considerable area.

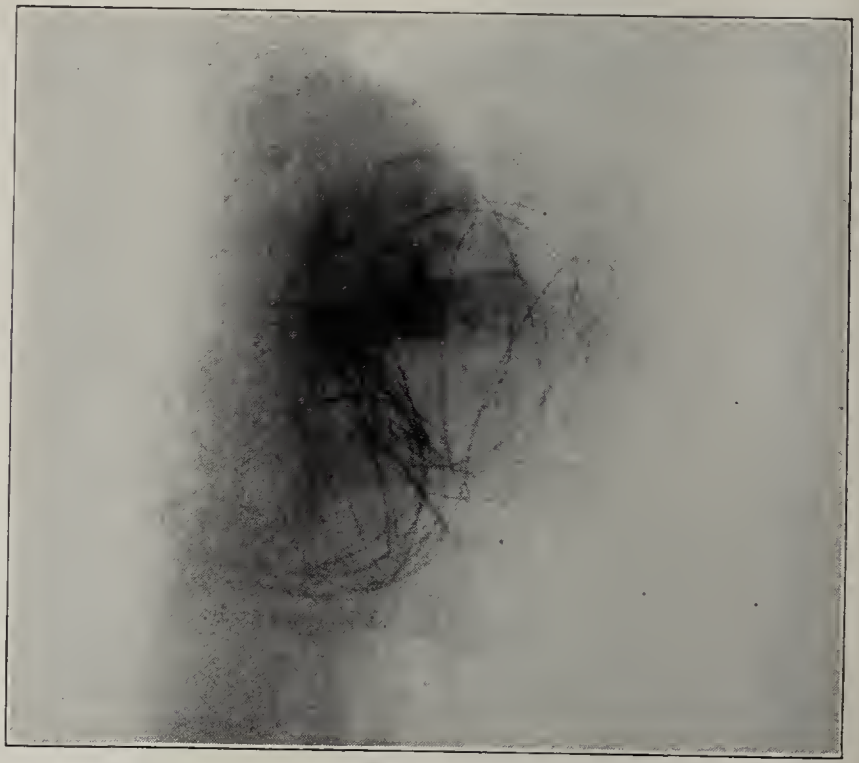


Fig. 4 (Case 3).—Anterior view of aneurysm showing wire in situ nineteen days after operation.

Operation and Result.—Wiring and electrolysis was performed, May 26, 1920. Figure 4 shows the aneurysm with the wire coiled in it. The roentgen-ray report of June 18 reads: "There is no evidence of localized bulging. The outer end of the wire is in the center of the area of maximum pulsation." On July 6, the roentgen-ray report stated: "We get the impression that the aneurysm is slightly smaller."

The patient returned home, July 7, 1920, stood the trip well, and was ordered to rest for at least four weeks. Under date of Dec. 6, 1920, he wrote: "I am getting along fine and working every day. I have very little trouble with my chest. I have not been taking any medicine."

1801 Spruce Street.

Infant Clinics and the General Practitioner.—At the Edinburgh infant clinics every effort is made to educate the mothers in the simple rules of infant hygiene; when curative treatment is called for, patients are referred to their own physicians, or failing such, to one or other of the curative clinics. Dr. A. Maxwell Williamson, observes (*Med. Officer* **25**:7 [Jan. 1] 1921) that there is no doubt that, as a rule, the class of mother who attends such clinics seldom seeks the advice of her physician before her child has become really ill. She often overlooks the very beginning of disease. One of the aims of a preventive clinic is to detect these very beginnings of disease so that a mother can be advised to consult a physician early and thus give him a chance to deal effectively with the condition in its most hopeful stage, and not when it is far advanced, for then the treatment is more difficult and the results often less satisfactory. The object of these clinics, therefore, is to cooperate with the general practitioner and not to take the treatment out of his hands. At Edinburgh, as elsewhere, experience has shown that those infants who are brought regularly to the preventive clinics mostly show a satisfactory weight curve, whereas those who for various reasons are brought at irregular intervals seldom show so satisfactory a result.

Clinical Notes, Suggestions, and New Instruments

THE SAVENAY ABDUCTION SPLINT MADE UNIVERSALLY ADJUSTABLE

Augustin A. Crane, M.D., Waterbury, Conn.

I will assume that the advantages of abduction in various degrees in the treatment of certain fractures of the humeral shaft or neck are conceded, and the only question that I shall consider here will be that of the simplest and most efficient way of producing such abduction. This form of treatment has probably never been carried out so extensively and so successfully as at Savenay during the activities of the American Expeditionary Forces. Wooden aeroplane splints were made from packing boxes in the workshops, by the enlisted personnel. Not a particle of new lumber was available for the purpose, but they got together a lot of stuff from packing boxes to keep the supply going. The ward surgeon would write a prescription for an aeroplane splint, prescribing the length of the pelvic-axillary strip, the degree of abduction, the length of the humeral strip, the angulation of the elbow desired, and whether for right or left side. From these directions the splints were knocked together and delivered at the ward in about twenty minutes. These were held on by a complicated arrangement of figure-of-eight bandages about the neck and axilla, which required special technic in order to apply them, and constant adjustment in order to keep them from pulling unbearably on the neck and axilla. For every change in abduction or in elbow flexion they had to be dismantled, returned to the shop, rebuilt and repadded. This worked very well there where the supply was plentiful, and the know-how general.

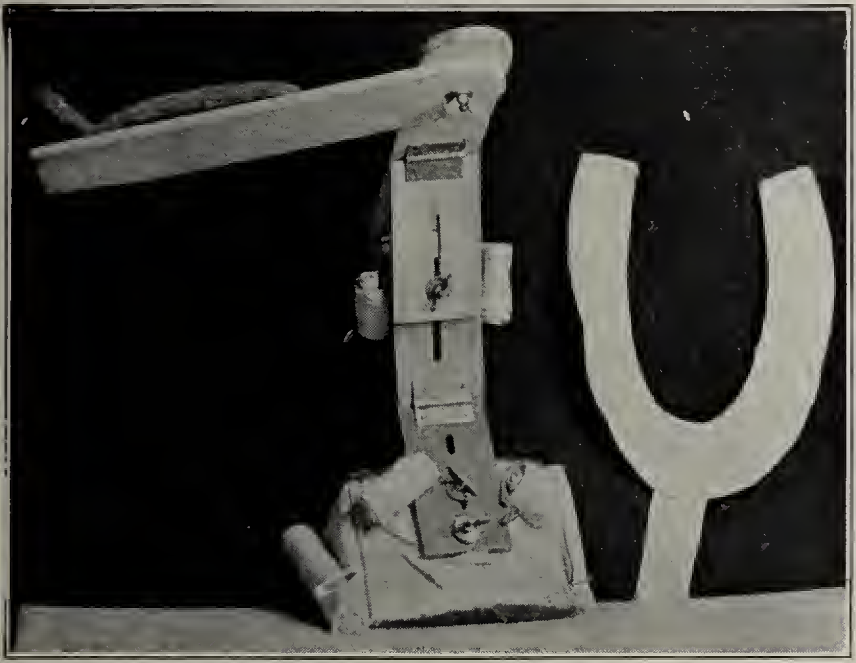


Fig. 1.—Splint with Jones cock-up shoulder girdle.

In endeavoring to follow this technic in private practice I found it necessary either to keep on hand a prohibitory number of these splints, or else to be constantly making alterations, each of which would be troublesome, and each of which would spoil the splint for the next patient. I have also found the pulling by figure-of-eight bandages about the neck and axilla to be a very awkward complication, and the necessity of having a duplicate supply of splints for right and left sides has been annoying. Therefore, I have devised, and herewith submit, a modified Savenay splint, which I do not claim to have any advantages over the Savenay article except the great one of adaptability. It is made of half-inch wood, sheet-iron for the pelvic pad, lined with felt, the joints are all made of half-inch hinges, and the adjustments made and locked with 1¼ by ¼ inch stove bolts with wing nuts and large washers. It is instantly adaptable to either right or left side; the pelvic-axillary strip has with its bolts to the iron pad an adjustment of 2 inches in length; the abduction is instantly adjustable anywhere between 90 and 45 degrees; the humeral length is by a slot adjustable for a space of 2½ inches; the elbow flexion is adjustable to any angle, and in later treatment can be left loose, permitting free active flexion by the patient. Jones' cock-up splint allowing for any length of forearm is attached to the forearm strip by either a screw or bandage. There is no need of any strut from the wrist to the pelvis, as there is no downward drag whatever on the forearm.

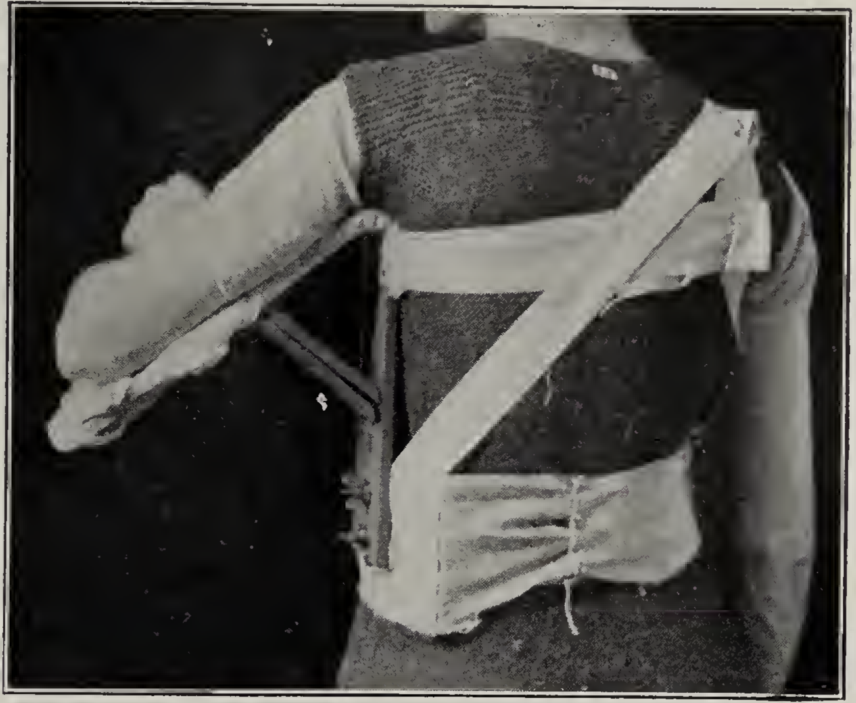


Fig. 2.—Abduction of 45 degrees; before bandaging.

The salient feature of the device is in the shoulder girdle. It took considerable fitting to devise the pattern whereby to cut a shoulder girdle which would lie vertically against the thorax under the axilla, and horizontally over the clavicle. This is made of heavy double canvas cut to pattern, with a felt pad over the clavicle. To this the four strips of webbing are pinned. As all of these pull in opposite directions to each other, the pull is neutralized, and the shoulder girdle is kept away from the axilla at every point, and cannot constrict. Nor does it come anywhere near the neck at any time. The freedom of this girdle from the axilla is increased by a band going downward from it to the horizontal belt. With the aid of a shoe-maker and my chauffeur I made the first one of these in an hour. Now that the patterns are standardized, we could make one in shorter time.

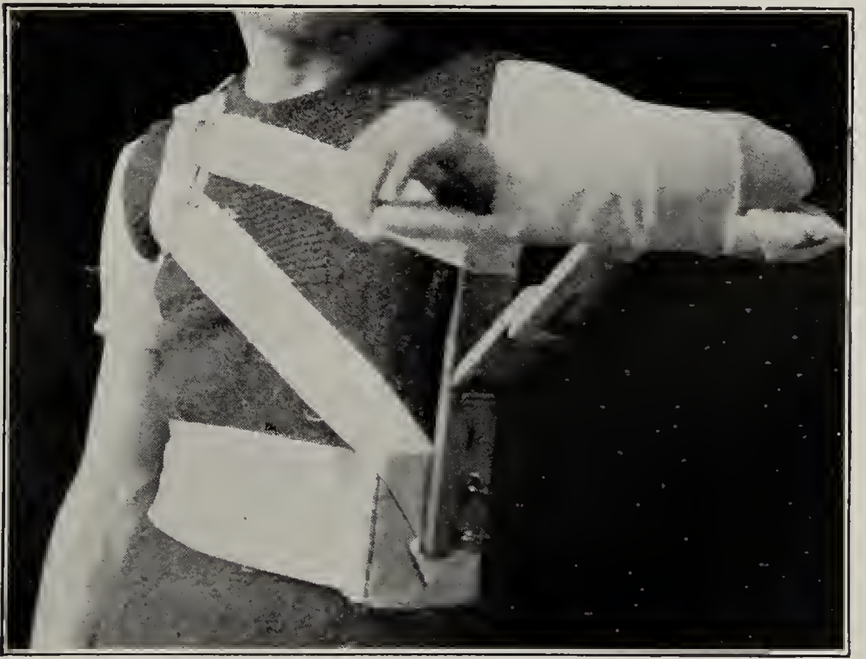


Fig. 3.—Abduction of 90 degrees; after bandaging.

It will be noted that there is no claim for this as a traction splint. There are numerous excellent traction splints, and this does not pretend to be one. A moderate amount of traction can be exerted from the radial surface of the upper forearm down to the point of the humeral strip of wood. After the first reduction, with the muscle strains all fully neutralized in abduction, there is usually very little need for traction. If these were to be made in quantities, it would probably be better to make them of metal and in the form of a trough, as it is not well to flatten out muscle bellies against a flat board for any length of time. The use of the Jones cock-up splint or its equivalent in some form is highly essential to the use of this or any other apparatus carrying the forearm. The original aeroplane splint of all, made by Dr. Leyva of South America, at the American Ambulance in Paris in 1916 was a pioneer in adjustable abduction splints, and had the advantages of furnishing very efficient traction; but the application of its main support to the thorax rather than, as in more modern splints, to the crest of the ileum, was a serious defect. The Jones abduction splint does not reach to the pelvis, does not completely support the entire under surface of the arm and forearm, does not support the wrist at all, and the pressure of its upper strap on the neck is uncomfortable.

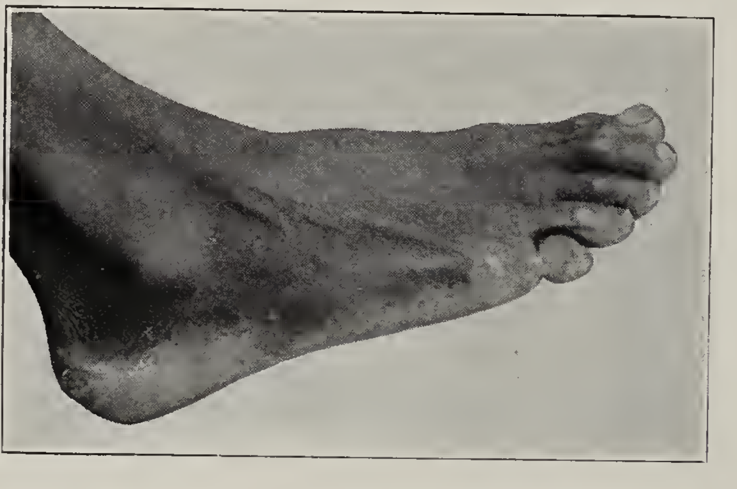
In the illustrations, padding and bandages are purposely omitted, for purposes of clearness.

300 West Main Street.

AINHUM, A FAMILY DISEASE

Keith M. B. Simon, M.B., D.P.H. (London), Belize, British Honduras, Central America

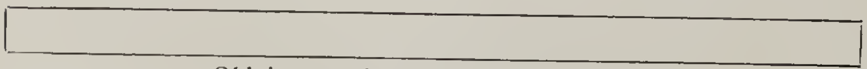
Ainhum is fairly common in British Honduras. It has been described as a chronic dystrophy of the fifth or fourth toe in native races, characterized by the formation of a furrow at the digitoplantar fold. This fibrosis extends, injuring the vessels, and producing an endarteritis obliterans and a rarefying osteitis. I have noticed a similar dystrophy in the little finger of an Indian. That the disease is inherited is proved by the fact that the father and brother of the patient, the condition of whose foot is illustrated herewith, suffered from the same condition, all ending in loss of the toe. The cause of this disease is unknown; but the theories that it is due to leprosy or self-mutilation are untenable. The condition resembles ground itch, except that in ground itch there is ulceration under every toe; in ainhum, under only one toe.



Appearance of the foot in ainhum.

The treatment consists of an incision longitudinally into the constricting band, allowing reestablishment of the circulation.

Esmarch Tourniquets Made from Old Inner Tubes.—Dr. Elwood Baker, Dermott, Ark., writes: Scraps of old inner tubes, which can be found in any automobile garage and cut with scissors to the size here given, will make good Esmarch tourniquets. They are more elastic, more durable and stronger than any rubber bands that can be purchased.



Old inner tube cut 36 by 1½ inches.

A CASE OF ABDOMINAL PREGNANCY AT SEVENTEEN MONTHS

Charles F. Davidson, M.D., Easton, Md.

History.—V. G., a married woman, aged 24, mulatto, was admitted to Easton Emergency Hospital, Dec. 2, 1920. The patient's temperature was 98; pulse, 76; respirations, 20. The family history was negative. She had measles when a child, and influenza several years before admission. Menstruation began when she was 13, and had always been regular and normal. When she missed the menstrual period in August, 1919, she thought she was pregnant; she had never been pregnant before. October 25, her family physician told her she was three months pregnant. During these three months she had some pains in the lower part of the abdomen, and for these the physician gave a placebo and told her she would be confined about May 1. He saw her again, May 9, 1920, and considered her at term. There were very active fetal movements, and palpation disclosed a child; but the fetal heart was not heard. May 13, he was sent for again. The patient thought she was in labor. The abdomen was in violent tonic contraction. One-fourth grain of morphin and 80 grains of bromid were necessary to relieve. During June the patient sent for the physician three times for pains and nervousness.

On admission to the hospital the uterus was normal in size and firmness (nonpregnant). The cervix was about the normal size and length. Pelvic measurements were: intercristal, 27 cm.; interspinous, 26 cm.; anteroposterior conjugate, 12.5 cm. No fetal heart or movements were noted.

A hard, round body like a fetal head could be felt in the left hypochondrium under the floating ribs. No body could be palpated. The balance of the tumor was a fluctuating mass with a wave from side to side when the abdomen was palpated. The whole mass could be mapped out, and the abdomen had the appearance of a nine months pregnancy with striae, etc. The patient had felt no fetal movements since May 13, 1920, the day she thought she was in labor. June 13, 1920, menstruation came on, lasted four days, and was normal in every respect, and had occurred every four weeks since. There was no menstrual period from July, 1919, to June 13, 1920.

Operation and Result.—An incision was made a little to the left of the median line from 2 inches above the umbilicus to the pubes, and a greenish gray tumor was brought into view, to which the abdominal wall was adherent. On the left side, the size of a silver quarter, the tumor was so firmly adherent that when separated it showed that a hole had been there and closed by the abdominal wall. As soon as these were separated, a large hole was torn into the sac wall and there was a gush of dark brown fluid, a gallon or more, filled with particles of dried fecal matter with no odor. The hole was torn larger and a child lifted out and the cord cut. The sac was then tied off with the right tube and ovary and taken out. Cutting the cord and tearing the opening in the sac was accompanied with no flow of blood. The sac, and the skin on the child had the feeling and appearance of leather that thad been soaked in water for a long time. The bladder in front and the intestines behind were adherent to the sac, and there was a good deal of oozing of blood while these were peeled off, and in some places ties had to be used. Three cigaret drains were placed, one in the pelvis, behind the uterus, one in the right iliac region and one from above. The wound was closed to the drains.

The sac with the placenta weighed 2 pounds, 14 ounces. The baby was 23½ inches long, 21½ inches across from the tip of the forefinger to the other, weighed 7 pounds, 7 ounces, and there was absolutely no blood in it. The cord was 9 inches long, the sac thick, 1 inch in some places, and thin as paper in others. The tube was very large and thick and had the appearance of having ruptured, and the sac and contents came out through the laceration in the tube. This rent was near the fimbriated extremity and on the top of the tube. The laceration in the tube evidently took place during early pregnancy. The pedicle that held the sac to the tube came from the inside of the tube through the rent in the tube.

The patient left the hospital, Dec. 24, 1920, in good condition. Jan. 20, 1921, her physician reported that she was entirely recovered.

PITUITARY EXTRACT IN CONJUNCTION WITH LOCAL ANESTHESIA

G. C. Otrich, M.D., Belleville, Ill.

In the last year there has been considerable investigation on local anesthesia. In going over the reports and records of the various investigators, I have not found mention of a combination which has proved more satisfactory than the one I have used for the last seven or eight years in the surgery of the nose, throat and mouth, when local anesthesia was applicable.

I use a 2 per cent. procain solution in combination with pituitary extract, 1 c.c. of the obstetric strength, to 5 c.c. of the procain solution. When a larger amount is to be used, I use the surgical strength.

My preference for pituitary extract to epinephrin is that the action is slower in taking effect and lasts much longer, which is proved by taking the blood pressure curve after the injection. The longer period of vasoconstriction gives a better chance for the organization of the clot. The slow passing effect and the slow returning to normal of the small vessels gives the clot a better chance for further fibrination, thus holding more securely. In epinephrin the action is very rapid and the effect passes with the same rapidity. Therefore, sufficient time is not given for clot formation and fibrination. Furthermore, in the sudden relaxation of the walls of the small vessels and arterioles, the clot will be washed away and the secondary hemorrhage will take place, and it will be harder to control than the original.

AN INTRATHORACIC TUMOR

Lorenz W. Frank, M.D., Denver

This case is reported on account of the unusual findings, and because I have been unable to find a similar case in the literature.

History.—Mr. N. J., aged 55, captain of a lighter, married, came to Colorado from Brooklyn, June 20, 1919, and he was examined, July 24, 1919. His present illness began, May 1, 1919, with cough and expectoration. The cough occurred between the hours of 1 and 3 a. m. The expectoration at this time was slight. He had had occasional night sweats; he could not sleep on the left side on account of the cough. He slept poorly, from four to five hours, and was very nervous. His average weight in health was 135 pounds. He had measles and influenza in January, 1919, and chancre, thirty years ago. Appendectomy was performed fifteen years ago. The left turbinate was removed ten years ago. He was told that he had had bronchial catarrh for the last ten years. Six or eight years ago he had a severe coughing spell with the expectoration of a large amount of mucopurulent sputum. The family history was unimportant. His wife, aged 41, and one child were living and healthy.

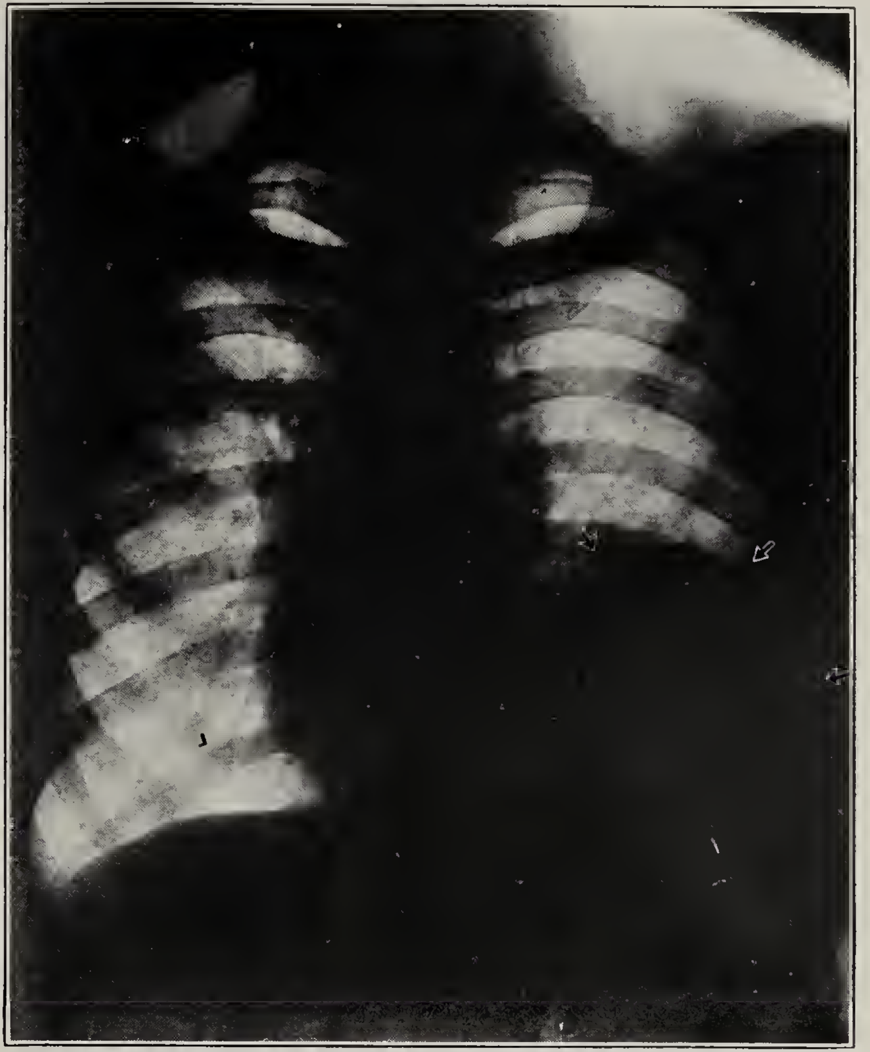
Physical Examination.—The patient was 5 feet 4 inches tall, and weighed 128 pounds. The pupils were equal and reacted to light and accommodation. The tongue was slightly coated. The teeth were in fair condition. The mucous membranes were anemic. The fingers were normal, the nails curved. The respirations were from 18 to 22 a minute. The pulse was 88 and regular. The temperature was normal. The chest circumference, on forced expiration, was 34 inches; on forced inspiration, 35½ inches. The heart was displaced 2 inches to the right. The left lower lobe of the lung was dull. Vesicular murmur was diminished over the entire left lung. The abdomen was negative.

Laboratory Findings: The urine and feces were negative. The sputum was positive for tubercle bacilli. Blood examination revealed: erythrocytes, 5,000,000; leukocytes, 11,200; hemoglobin, 60 per cent.; differential count: lymphocytes, 26 per cent.; large mononuclears, 3 per cent.; polymorphonuclear eosinophils, 5 per cent.; polymorphonuclear neutrophils, 66 per cent. The blood Wassermann test was negative.

Roentgen Examination of the Chest: The right diaphragm was mobile; the left was pushed down by a large tumor mass in the left lower anterior chest. The heart was to the right. There was some fibrous change about both hilums. The lung parenchyma was quite clear.

Operation.—The patient wished to return to his home for operation and was referred to Dr. Willy Meyer, who reports on the operation and findings as follows:

> On October 25 I performed thoracotomy on the patient and found a semifluctuating tumor the size as shown by the roentgenogram. It was subpleural and broadly attached to the left side of the diaphragm. The wall showed quite a number of calcareous deposits; the lung was tightly adherent. There were also firm, bandlike adhesions to the chest wall. It was possible to free the tumor of the latter, but on gently pushing off the lung the wall broke, evidently at the place where he had a perforation into the bronchial system, with expectoration of thick, yellowish material seven to eight years ago. It contained inspissated, thick, viscid, yellow matter such as one is apt to find in an old cold abscess—oftener in a sebaceous cyst with soft content. It was possible to shell out the entire mass, which had an extremely thin-walled shell.
>
> The patient stood the operation nicely and was drained in the air tight way, as I am used to doing it, the main wound being hermetically closed. After twenty-four hours he developed fulminant pneumonia on the right side (the temperature going up to 106) to which he succumbed thirty hours after the operation—to my regret.



Large tumor mass in left base of chest, with shifting of heart to the right. Some glandular infiltration at each hilum.

> The anesthetist had quite some trouble in introducing the tube for intratracheal insufflation. The patient needed a large amount of anesthetic and presented particular difficulties to the introduction on account of a lordosis of the cervical spine. It had been my intention, originally, to operate under pharyngeal anesthesia; but on discussion it was thought best, in a case like this, to be ready for all emergencies.
>
> Pathologic examination proved the tumor to be of tuberculous origin, the wall containing mucous glands which probably were derived from the bronchial epithelium. It certainly did not give evidence of any tissue usually found in a dermoid, or even in a sebaceous cyst.

COMMENT

It certainly needs further research in order to learn how best to avoid the unfortunate occurrence of pneumonia after intrathoracic operations. If we could succeed in establishing the principle on the basis of which this complication could be avoided in the greater percentage of cases, the outlook for improvement or a cure of these patients would certainly be bright and the evolution of thoracic surgery would no doubt make more rapid strides, for the principles underlying these operations as such, and the after-treatment, are perfectly understood, even now.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, FEBRUARY 26, 1921

METABOLISM AND DIET IN TUBERCULOSIS

In the management of tuberculosis dietotherapy has long occupied a place of primary importance, perhaps justly, since none of the more specific therapeutic measures, including tuberculins of diverse sorts, vaccines, serums or drugs, have gained paramount significance. A recent writer has reechoed a widespread belief by stating that beyond possible doubt "food, good food, properly chosen, properly prepared and eaten in cheerful surroundings is our sheet anchor in this disease." [1] Yet a survey of current proposals reveals widely divergent views as to how the tuberculous may best be nourished.

As if overwhelmed by the thought of "consumption," some clinicians have advised an ultraliberal intake of food for the patients almost regardless of the digestive disturbances which ill considered dietary measures may readily provoke. It is related that Debove, having discovered by accident not only that gastric lavage arrested the vomiting of phthisical patients but also that food introduced through a tube could be retained and digested, proceeded to disregard the anorexia of tuberculous patients, and fed them with extreme liberality. A system of "superalimentation" involving the use of literally enormous, concentrated diets found considerable vogue for some time until a reaction set in against it. Other vagaries of treatment concerned the proportion of protein to be included in the diet. Again, fats, particularly cod liver oil and egg yolk, claimed prominence in the directions to the afflicted. Summarizing the practice in nearly a hundred leading sanatoriums of the world in 1908, Irving Fisher [2] stated that the total calories fed ranged from a maximum of 5,500 to a minimum of 2,140, the intake of protein varying from 60 to 90 gm. a day.

The study of metabolism has meanwhile advanced to a stage which makes it possible to ascertain with scientific accuracy whether undue demands for energy are made on the body during the progress of tuberculosis. Calorimetric investigations of the metabolism in fever have left no doubt as to the large toll which this abnormal condition levies on the body's store of nutriment. As a consequence the dietetic treatment, notably in the case of typhoid fever and other conditions recently discussed in The Journal, has been beneficently modified in the direction of liberality. It is high time that an equally rigorous analysis be applied to metabolism in tuberculosis, so that the physician may be intelligently guided in the prescription of suitable diets for his patients. Thanks to the contributions by McCann and Barr [3] from the Russell Sage Institute of Pathology at Bellevue Hospital, New York City, some dependable facts are at length available. From these it appears that the basal metabolism of tuberculous patients may be normal or slightly above that of normal men of the same size. Thus, in ten cases, the variation from the average normal was from minus 3 to plus 15 per cent. Further increases in metabolism occur with a rise of body temperature. These increases are not large. Thus, one case is reported in which the temperature rose 1 degree centigrade during two hours, without a chill. The heat production of the second hour was only two calories greater than that of the first hour. With a rectal temperature of 104 F. (40 C.) the metabolism may be 30 per cent. above the average normal. The basal heat production in tuberculosis may be less than the normal for the same patient when in health; in other words, the loss in weight may be accompanied by a reduction in metabolism which more than compensates for the tendency to increase caused by the disease.

One would expect some toxic destruction of protein in any febrile disease. At most, however, it is not large in tuberculosis. McCann and Barr venture to believe that many febrile tuberculous patients may be kept in nitrogen balance on diets containing from 60 to 70 gm. of protein each day. This amount, they remind us, is much less than Voit's standard allowance (118 gm.) for normal men, though somewhat greater than the normal minima of Chittenden and of Sherman (from 35 to 45 gm.). It is much less than is fed to patients in many of the sanatoriums for tuberculosis. Consequently, forced feeding and high protein diets are unnecessary if not actually harmful in the active stages of pulmonary disease. In fact, the increased metabolism necessitated by overliberal food intakes leads to an increment of respiratory activity at a time when pulmonary rest is quite as much indicated as is muscular rest.

In furnishing specific data, the New York investigators conclude that during periods of activity of a pulmonary tuberculosis the diet need not contain more than 500 calories above the basal requirement (from 2,000 to 2,500 calories), nor more than 60 gm. of protein. The object of such a diet is to maintain the respiratory activity at the lowest level compatible with the maintenance of nitrogen equilibrium. There are losses of protein in the sputum, but according to Lanz[4] they are not likely to exceed 7 gm. a day. Muscular work, of course, calls for an added supply of energy. Accordingly, when the activity of the disease has subsided, the total calories in the diet should be raised to meet the requirements of the patient as his muscular activity increases. On the basis of these findings it should not be difficult to epitomize the dietotherapy of tuberculosis more successfully than ever before.

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[1] Carter, H. S.; Howe, P. E., and Mason, H. H.: Nutrition and Clinical Dietetics, Philadelphia, Lea & Febiger, 1917, p. 288.

[2] Fisher, Irving: Proc. Sixth Internat. Cong. on Tuberculosis **1**: 694, Part 2, 1908.

[3] McCann, W. S., and Barr, D. P.: Clinical Calorimetry, XXIX, The Metabolism in Tuberculosis, Arch. Int. Med. **26**: 663 (Dec.) 1920.

THE MANAGEMENT OF CARBON MONOXID ASPHYXIA

The menace of carbon monoxid to human welfare is all too frequently being emphasized in the instances of poisoning with illuminating gas, which is rich in this component, as well as with the products of incomplete combustion of hydrocarbons in the industries. The automobile, with its exhaust of partially oxidized gases, has served to add to the dangers, notably in closed or poorly ventilated spaces like garages. The physiologic aspects of the danger are beginning to be well understood. Carbon monoxid competes with oxygen when these gases are in the presence of the oxygen-carrying respiratory pigment hemoglobin. Carbon monoxid combines with hemoglobin with an affinity about three hundred times as great as that of oxygen for hemoglobin. Consequently, the oxygen-carrying power of the blood may be seriously interfered with, so that an anoxemia comparable with what is observed in asphyxia may ensue.

Reparation and release from the condition of anoxemia must speedily be secured if the danger of carbon monoxid poisoning is to be overcome. The objectionable gas can be dissociated from hemoglobin by the prolonged action of oxygen, particularly if the latter is at unusual concentration and pressure. To accomplish such displacement in a practical way, however, is not always easy. Henderson has pointed out, as the result of investigations by Haggard,[5] that during the development of carbon monoxid asphyxia there is vigorous hyperpnea, and that thereafter, probably owing to deficient oxygenation and other causes, there is a diminished production of carbon dioxid. As a result of deficiency of carbon dioxid in the blood, asphyxiated animals when restored to pure air exhibit for half an hour or more a very marked depression of breathing. The rate of elimination of carbon monoxid is correspondingly slow. The condition of tissue asphyxia is thus continued, although the body is surrounded by fresh air. It is suggested that this post-gassing period of continued asphyxia may be of critical importance in inducing subsequent structural degenerations and functional impairments.

Obviously, the administration of oxygen in any concentration can be of little value if the respiratory function, on which its transfer to the blood pigment depends, is tremendously retarded. Haggard[6] has recently demonstrated, in connection with his experiments at the Yale University School of Medicine, that inhalations of carbon dioxid, itself an essentially inert gas, greatly increase the pulmonary ventilation, as has long been known, and consequently hasten the removal of carbon monoxid. By the administration of carbon dioxid in moderate concentration along with air or oxygen, death from respiratory failure may be prevented. Inhalation of oxygen plus carbon dioxid is far more effective than either gas alone; for the augmented breathing allows the oxygen to effect a rapid displacement of carbon monoxid from the blood. Functional restoration is correspondingly accelerated. The question has been raised as to whether carbon monoxid owes its toxicity solely to the fact that by union with hemoglobin it interferes with the oxygen-carrying capacity of the blood. Mathews,[7] for example, assumes that the gas unites with other oxygen receptors as well as those of hemoglobin, and thus it may act directly on tissue cells. In either event, however, a device for securing maintained increased pulmonary ventilation would tend to bring the desired benefit.

NOSTRUM EXPLOITATION OF THE FOREIGN BORN

Under the title "Render Unto Caesar," The Journal for February 5 mildly criticized a portion of the excellent report of the Hospital and Health Survey of Cleveland for its failure to evaluate the part that the American Medical Association has played in giving the public the facts on the nostrum evil and quackery. The report, while it did casually state that the Association has "prepared and published a series of pamphlets on nostrums and quackery for the use of the public," dismissed the subject with the comment that "these have a limited circulation among those who least need their warning." Dr. Haven Emerson, who headed the Survey, has the following friendly comment to make on the editorial:

> "Yes, indeed, 'Render unto Caesar' but are not the quoted sentences just, when read from the point of view of the great outside, measured by the 110,000,000 people of these United States instead of from the inside, the 150,000 physicians of the country? A million pamphlets and books in fifteen years may have reached most of the physicians and a few of their patients, who, we may believe, needed them least, being probably already convinced. In the ten years prior to 1915 there arrived at the port of New York 7,638,555 immigrants, chiefly of foreign birth and tongue. The American Medical Association pamphlets were in English and failed to reach those especially needing protection. Is not a circulation of one million in fifteen years or 66,666 a year fairly called a limited circulation, and has not the distribution been among those

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[4] Lanz: Deutsch. Arch. f. klin. Med. **56**: 619, 1896.

[5] Henderson, Yandell, and Haggard, H. W.: Elimination of Carbon Monoxid from Blood After a Dangerous Degree of Asphyxiation; Therapy for Accelerating Elimination, J. Pharmacol. & Exper. Therap. **16**: 11 (Aug.) 1920; abstr. J. A. M. A. **75**: 1024 (Oct. 9) 1920.

[6] Haggard, H. W.: The Elimination of Carbon Monoxide and a Method of Acceleration, Proc. Soc. Exper. Biol. & Med. **17**: 205 (May 22) 1920.

[7] Mathews, A. P.: Physiological Chemistry, Ed. 3, New York, William Wood & Co., p. 495.

who least needed the warning? Come now 'Caesar', what about it?

"In a thorough and sympathetic study in Cleveland no instance was found of an editor of a foreign language newspaper, or member of advertising men's clubs[1] or member of foreign tongue social or industrial groups, who had seen or heard of the propaganda for reform of the American Medical Association. Yes, *limited* is the right word as almost all professional publicity is limited to those who want it, not spread among those who need it.

"I am proud to be one of a membership which has conceived, supported and endorsed the altruistic, intelligent and very hopeful and encouraging activities of the 'Propaganda for Reform.' I am humble in the face of the amazing inadequacy of the work of our profession in making our facts effective. As diagnosticians in the field of community health we of the Survey Staff found that the propaganda for reform had made no more impression on the traffic in nostrums among the poor foreigners of Cleveland, than did our comments on the murky soot-laden air of the city affect the complacency of its manufacturers and merchants.

"The Journal speaks for itself and proudly and justly so. The Survey happened upon a public whom The Journal had not reached."

In view of the thousands of inquiries on nostrums and quacks that The Journal receives from laymen who are sufficiently interested in the subject to write such letters, it is hard to believe that the information sent out by the Association goes wholly, or even in the main, to those "who least need" it. It is readily granted that the foreign-born who are unable to read English need the material which the American Medical Association has spent hundreds of thousands of dollars to procure and disseminate in the language of America. It is not admitted, however, that the Association is under moral obligation to go to the enormous added expense of translating this material into a dozen or a score of foreign languages for the purpose of putting it into the hands of those who cannot—and in some instances will not—read English.

The Journal has received many letters from American physicians of foreign birth who, recognizing the way in which the recent arrivals from their fatherland are exploited, have written for—and received—Propaganda material to pass on to the foreign-born. Such educational work among the aliens who do not read English has, in practically every instance, been carried on by physicians, Fellows of the American Medical Association, and, as stated, with the material furnished by the Association.

No discussion of the exploitation of the non-English speaking alien can ignore the problem of the foreign language press. Many thinking Americans hold that the failure of the "melting pot" to fuse the various elements in our national life is due in no small degree to the perpetuation of old world languages and nationalism by means of the foreign-language press. Whether this be true or not, it is a demonstrable fact that the non-English speaking alien is exploited chiefly by those of his own nationality and through the medium of his own tongue. With many honorable exceptions, the advertising ethics of the foreign-language press of the United States today is that of the low-grade English-language newspaper of fifteen or twenty years ago. Many of the foreign-language publications have accepted the scum of medical advertising discarded by the English-language press of the country. The proponents of the foreign-language press in the United States declare that these publications fill a need and are a valuable asset in the Americanization of the alien. Whether or not this is true, it is a fact that this same foreign-language press exploits the foreign born and, in sharing the profits of quackery with the fakers does about all that humanly can be done to break down the confidence of the alien in the printed word.

Dr. Emerson says that in the Cleveland Survey no instance was found of an editor of a foreign-language newspaper who had seen or heard of the Propaganda for Reform of the American Medical Association. If the advertising standards of the foreign-language press in Cleveland are no higher than those of the general run of that press throughout the country, it may easily be surmised that no great effort was made on the part of such editors to learn of the work of the Propaganda department. There are more than 700 physicians in Cleveland who read The Journal, and at least a substantial proportion of this number could and undoubtedly gladly would have told the editor of a foreign-language paper about the Association's campaign against quackery and fraud in medicine. The Division of Health of the Department of Public Welfare of Cleveland has been in constant touch with the work of the Propaganda department for several years. Obviously a Cleveland editor looking for reliable information on the "patent medicine" evil might easily have learned from local sources where to go for it. Moreover, a little more than three years ago a complete set of the Propaganda publications was donated to the western headquarters of the American Association of Foreign-Language Newspapers. In thanking the Association for the material, that organization expressed surprise at the scope of the work and declared that the books and pamphlets would be held in its western office "for the use of all our publishers at all times."

The exploitation by quacks and nostrum vendors of the non-English speaking alien will cease only when the foreign-language newspaper and the foreign-tongue social or industrial groups give to the alien the information which the medical profession, through its organization, has prepared and widely disseminated in the language of America. The financial burden voluntarily assumed by the American Medical Association to carry on its campaign of education on the nostrum evil and quackery is already a heavy one, even though confined to the English speaking and reading public. To enlarge its scope to cover the field of the non-English speaking peoples of this country, including, as it would, the translating and duplicate printing of all of its material into many languages—such a task would call for the purse of a Croesus.

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[1] In 1916, the Cleveland Advertising Club, through the secretary of its "Better Business Commission," was put in touch with the American Medical Association and received all of the material issued by the Association on the nostrum evil and quackery. Since that time not a week has passed that up-to-date material on the same subject has not been sent to this Commission.—Ed.

Current Comment

PHARMACOLOGY OF ARSENICALS

The Public Health Service some time ago[1] warned against the use in syphilis of new arsenicals which are not related to arsphenamin; it was stated that a number of such were being sold with unwarranted claims as to their value. At least three such arsenicals have in recent years been the subject of some exploitation for use in this disease: sodium cacodylate, the sodium salt of methyl arsenic acid ("Arrhenal") and the sodium salt of ethyl arsenic acid ("Mon-Arsone").[2] As regards the first two, Castelli showed several years ago that neither has any action on experimental trypanosomiasis and spirochete infections; careful clinical observations in this country have confirmed the inefficacy of sodium cacodylate in human syphilis.[3] Voegtlin and Smith[4] of the Hygienic Laboratory have now shown in animal experiments that ethyl arsenic acid ("Mon-Arsone") is devoid of any practical trypanocidal action. Thus the "therapeutic ratio" (the ratio of the minimal effective dose to the lethal dose) was about 1, that is, it was effective therapeutically only in approximately fatal doses; the therapeutic ratio for arsphenamin in similar conditions was 17, and that of neo-arsphenamin, 28. In fact, the conditions with ethyl arsenic acid were no more favorable than were those with arsenous acid (the active constituent of solution of potassium arsenite), although it was far less poisonous. The validity of such experiments in determining the probable value of drugs in human syphilis cannot be questioned:[5] it was by such experiments that Ehrlich and his co-workers found two or three of six hundred and six arsenic preparations studied to be of value, and of the next three hundred or more studied only one (neo-arsphenamin) worthy of trial in human medicine. The time has passed when a high arsenic content of a compound and a low toxicity, and a number of cases of apparent clinical improvement, can be assumed to indicate that a drug has any real value in the treatment of syphilis. Many organic compounds of arsenic as well as other drugs may cause temporary or apparent improvement in syphilis, but to date only those related to arsphenamin have proved of real value and comparatively safe. Others which had some real value proved to have dangerous side effects; readers will recall the history of arsanilic acid ("Atoxyl" or "Soamin") and its acetyl derivative ("Arsacetin").

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[1] Warning Against Untried Medicaments, J. A. M. A. **74**: 1654 (June 12) 1920.

[2] Wright, B. L.; Kennell, L. A., and Hussey, L. M.: M. Rec. **97**: 607 (April 10) 1920.

[3] Nichols, H. J.: Salvarsan and Sodium Cacodylate, J. A. M. A. **56**: 492 (Feb. 18) 1911.

[4] Voegtlin, Carl, and Smith, H. W.: J. Pharmacol. & Exper. Therap. **16**: 449, 1921.

[5] Compare Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Am. J. M. Sc. **150**: 25 (July) 1920.

A SPANISH MEDICAL PHILOSOPHER

"Chacharas de Café," a book of small talk of the "coffee house," has recently appeared in Madrid under the authorship of Ramón y Cajal, the dean of Spanish physicians, known in Spain as a statesman of no minor talent and internationally noted as a neurologist. It is reminiscent of "The Autocrat of the Breakfast Table" of our own Oliver Wendell Holmes. The satirical epigrams are impressive of the quick repartee of youth rather than of the irony of old age. Naturally some of the epigrams are medical. Here are a few:

> Of all men, physicians and playwrights alone possess the rare privilege of charging money for the pain they inflict on us.
>
> Thinkers, who devote themselves constantly to the creation of thoughts, become finally as those multiparas who, exhausted by so much childbearing, suffer from varicosities and deformities. They end by suffering from varices of the brain and becoming useless before their time, so far as their creating capacity is concerned.
>
> I consider the deafness of old age a blessing. It permits man to end his life in comparative peace, without hearing the voices of those human vultures, represented by heirs and enemies, which seem to say, "Old thing, when are you going to die?"
>
> What would be man if described by monkeys? Probably an interesting case of apish degeneration caused by his unfortunate habit of talking and thinking.

There are many physicians who have led diversified careers. Cajal is an example of greatness in many and varied activities.

MEDICAL COLLEGES AND PUBLIC HEALTH EDUCATION

In a recent article,[1] the late Dr. William T. Sedgwick suggested a method which he thought might induce more students to qualify for work as public health officers. His suggestion was that medical schools provide special courses in public health parallel to the clinical years of the medical course so that, after completing two years in the medical school, the student may either continue in medicine or change to the two-year public health course leading to the degree of Doctor of Public Health. The author evidently got the suggestion of an arrangement—to which he also referred—made at the Medical School of Harvard University for a degree of Doctor of Medical Science in which students who have completed the first two years of the medical school may, if they desire, devote the last two years exclusively to one of the medical sciences. Schools of public health have already been established in connection with eight of our leading medical schools, but none of them has attracted more than a comparatively few students. Some plan such as this suggested by Dr. Sedgwick may prove beneficial if it leads to a closer relationship between the courses in public health and the regular medical courses, by which larger numbers of students will have their attention called to the opportunity of specializing in public health work rather than going on into medicine. Under the plan proposed, all students would follow a definite course of study until the end of their sophomore year, when each would choose the particular line of work for which his ability or taste might qualify him. The plan will not add materially to the number of public health officers, however, unless efforts are made to inform prospective students regarding the large opportunities for service in public health work, and unless provision is made for increasing the financial rewards for such service.

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[1] Sedgwick, W. T.: Modern Medicine and the Public Health, Pub. Health Rep. **36**: 109 (Jan. 28) 1921.

ATTACKING MISSOURI PRACTICE LAW

In practically all states, including Missouri, the licensing boards have authority under the medical practice act to determine what medical schools are "reputable" or in "good standing." In the legislature of Missouri, however, a bill has been introduced seeking to amend the medical practice law by striking out the word "reputable," and inserting the words "legally chartered." This bill, it is claimed, was introduced in the interests of a low-grade medical school in Missouri from which the board withdrew recognition a few years ago, and which is reported as not recognized by the licensing boards of forty other states. The change sought by this bill would not only be a retrogressive step but also would make Missouri a dumping-ground for the graduates of inferior institutions who cannot secure licenses in other states. Furthermore, it would force the board to admit to its examinations the graduates not only of this low-type institution of Missouri but also of many others existing in this and other states, all of which, under our notoriously inadequate educational safeguards, have been "legally chartered." Any group of men may obtain a "legal charter" for a medical school; it requires much more—money, buildings, laboratories, expert teachers and clinical material—to establish one that is reputable.

THE TISSUES IN DIABETES INSIPIDUS

The problem of the therapy of the form of chronic polyuria more commonly designated as diabetes insipidus—a term sufficiently misleading to deserve omission from the nomenclature of medicine—has come into prominence anew through the discovery of the effects of pituitary extracts on the symptoms of the disorder. There are doubtless cases in which a largely increased volume of output of urine is dependent on an augmented intake of fluid, that is, on a primary polydipsia. The polyuria is a secondary phenomenon in these instances. Such patients show a pronounced change in the make-up of the urine as soon as the water intake is considerably restricted. The more typical patients, however, fail to eliminate a more concentrated urine even when such restrictions are enforced. The volume may be somewhat lessened, but its strikingly low concentration will be scarcely altered. A low specific gravity of the fluid is an ever present feature. For this reason a number of the more prominent students of such chronic polyurias have ascribed the essential disturbance to an inability on the part of the kidneys to secrete a concentrated urine. The pathologist has furnished little if any definite morphologic evidence on the basis of which the primary cause of diabetes insipidus can be assigned to the renal structures. No characteristic lesions have been described, and the type of polyuria under discussion has not been observed in association with recognized renal defects or diseases. It is interesting, therefore, to learn that emphasis has latterly been placed on other tissue factors in the genesis of the urinary symptoms. Thus Veil,[1] of the German medical clinic which existed at Strasbourg before the close of the war, has furnished indications of the inability of the organism of certain patients to retain its normal quota of water. The tissues tend to become exhausted of their store of water with unusual ease. Doubtless the functions of the inorganic components and notably the chlorids, in the osmotic and other performances of tissues and fluids, are peculiarly disturbed. The precise nature of the anomaly just mentioned, if indeed it occurs, remains to be elucidated. But with the transfer of the center of interest from the kidneys to the tissues it is conceivable that internal secretions, hormones, from the pituitary or other structures may affect the water exchange and stability of the tissues rather than the excretory epithelium. The new views will at least serve for a time to focus attention elsewhere than on the kidneys alone in the study of the etiology of diabetes insipidus.

THE HUMOR OF TRANSLATION

An important factor in the making of a good translation is that the translator be equally facile in the use of the two languages concerned. When this facility is lacking there may be startling results, as in the case of the translator of a Spanish novel who wrote "It is a sad room," when "somber room" fitted the original. An even more infelicitous result is the recent appearance in the London *Lancet* of a comment describing some new efforts at housing to be conducted in Paris. We quote:

> There will be three streets with houses six storeys high, but the houses will be so placed and the space around so spacious that all the walls will be exposed daily to direct rays of sunlight. They will contain 628 tenements and there will be a large central square of playground. Of these 300 will consist of a kitchen and three or four rooms and 200 of a kitchen and two rooms. Each room will measure from 11 to 13 square metres. Then there will be 100 *cabinets* where the tenants can take *douches* [Italics ours].

This translation from the French is proof of the fact that a bathroom and a bath by any other name may not sound quite discreet.

The Hospital Pathologist.—To be of the greatest value to the hospital the pathologist should be competent. This implies, not necessarily, an omniscience in regard to matters of technic, but rather the ability to organize, to utilize, and to correlate the work of the laboratory with that of the hospital. He should, of course, be well trained in laboratory work in general and competent to supervise and direct its performance, which, necessarily, implies a broad knowledge of technic in general. Above all, he should be competent to interpret the reports in their relation to the particular patient. To do this he must be a trained clinical observer as well as a pathologist; in other words, his education must be well grounded and complete.—R. A. Kilduffe, *Hospital Progress* **2**:45, 1921.

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[1] Veil, W. H.: Ueber intermediäre Vorgänge beim Diabetes insipidus und ihre Bedeutung für die Kenntnis vom Wesen dieses Leidens, Biochem. Ztschr. **91**: 317 (Nov.) 1918.

Association News

THE BOSTON SESSION

Appointment of Subcommittee to Arrange for Reunions of Medical Veterans

The Local Committee on Arrangements announces that a subcommittee, of which Dr. Beth Vincent is chairman, has been appointed to cooperate with medical veterans in arranging for reunions to be held during the coming annual session of the Association. Already those physicians who during the World War were assigned to the base hospital at Camp Wheeler are arranging for a reunion, under the direction of Dr. A. F. Wheat, 944 Elm Street, Manchester, N. H., who would like to hear from physicians who were posted at Camp Wheeler in order that a detailed announcement may be forwarded.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

New Health Officer.—Dr. George C. Marlette, Bay Minette, has been appointed full-time health officer of Baldwin County.

Hospital Additions.—The new annex to St. Margaret's Hospital, Montgomery, under construction for some months, has been completed and opened for the reception of patients. The addition is four stories in height and contains accommodations for forty-one patients, together with six operating rooms.——The Andalusia City Hospital is undergoing extensive alterations.——Extensive improvements have been completed at the Covington County Hospital.

Court Rules Against Health Officer.—Dr. Judson D. Dowling, city health officer of Birmingham, was recently fined $50 and costs in the Jefferson County Court of Misdemeanors, following conviction on charges of false imprisonment preferred by Dora Glass and Gladys Harden. The complainants had been confined to the city jail as venereal disease suspects on order of the health officer under authority of the city vice ordinance. Judge Abernethy ruled that the city ordinance gave no authority for the confinement of the women in jail without their consent where no criminal charge had been preferred against them, and that the proper place for their confinement should have been a hospital or other specially equipped detention home. An appeal was taken from this decision.

ARIZONA

Tuberculosis Sanatorium.—A project for the erection of a large tuberculosis sanatorium for charity patients, at an estimated cost of $2,000,000, has been started by citizens of Casa Grande. Subscriptions totaling $200,000 and a donation of 320 acres of land have been received in the preliminary drive for funds. The institution will be known as the Universal Tuberculosis Sanatorium.

Phoenix Physicians' Exchange.—A physicians' exchange has been established at Phoenix. The exchange keeps a record of the movements of each of its medical members so that any physician may be reached on short notice. Accident calls are referred to the exchange so that physicians and ambulances may be supplied promptly whenever needed. The exchange also maintains a classified register of nurses.

CALIFORNIA

Personal.—Dr. Charles Christal, San Luis Obispo, suffered severe injuries, including a broken scapula, when the automobile in which he was riding ran over a steep embankment.——Dr. Winfield Scott Hall, Chicago, has been delivering a series of lectures in southern California on social and home problems.

Popular Health Lecture.—The third of the current series of popular medical lectures under the auspices of the Council of Social and Health Agencies of San Francisco was delivered at Lane Hall, February 11, by Dr. Olga Bridgman, on "The Educational Problems of the Defective and Atypical Child."

Hospital News.—Work has begun on the construction of a new tuberculosis hospital on the grounds of the Soldiers' Home, near Los Angeles. The new institution will cost approximately $520,000 and will have accommodations for 250 World War veterans suffering from tuberculosis.——Glendale Research Hospital, a cooperative institution erected at a cost of $100,000 by residents of Glendale, will be opened for the reception of patients about March 1.——A new private ward of fourteen beds for children has recently been opened at Lane Hospital, San Francisco, and the clinic wards for infants and children have been completely remodeled. The new wards are arranged on the cubicle plan with glass partitions between the beds.——A new hospital, planned primarily for the use of the members of the Fresno labor unions, is to be erected in Fresno at an approximate cost of $150,000.——The California Hospital, Los Angeles, was reopened for the reception of patients, February 6, under the management of the Lutheran Hospital Society. The institution will hereafter be known as the California Lutheran Hospital.

COLORADO

Meeting of Sanatorium Associations.—The El Paso Sanatorium Association and the Denver Sanatorium Association held a joint meeting in Denver, February 26. The scientific program was presented in the lecture room of the Denver City and County Medical Society at 2:30 p. m., and embraced an exhaustive discussion on tuberculosis.

CONNECTICUT

New President of Yale University.—James Rowland Angell has been elected president of Yale University, to succeed Arthur Twining Hadley at the close of the present university year. The announcement of the election of Dr. Angell was made by the Yale Corporation to the University Council, February 19. Dr. Angell is a son of the late President Angell of the University of Michigan and a graduate of that university in the class of 1890. He served at the University of Chicago as assistant professor, associate professor, professor, head and senior dean of the department of psychology, as dean of the university faculties, and as acting president until his election as chairman of the trustees of the Carnegie Corporation in 1920. In 1914 he was exchange professor of psychology to the Sorbonne in Paris.

FLORIDA

Sixty Under Pasteur Treatment.—It is reported that sixty residents of Tampa have recently been bitten by dogs suspected of having rabies, and have taken the Pasteur treatment. Orders have been issued by the city commissioners for the immediate impounding of all dogs and cats running at large and for the closing of schools until all danger is removed.

Free Radium Treatment.—Through arrangements between the state board of health and Dr. Gerry R. Holden, Jacksonville, certain classes of cancer patients will receive free radium treatment. Such cases will be limited to inoperable cancer in women where the diagnosis has been made by a reputable physician. Applicants must be residents of Florida, and must be certified as indigent by the commissioners of the county in which they reside.

GEORGIA

New County Society.—The Talbot County Medical Association was recently organized with the following officers: president, Dr. J. B. Douglas, Talboton; vice president, Dr. J. E. Peeler, Woodland, and secretary-treasurer, Dr. C. C. Carso, Talboton.

Battey Memorial.—Committees of Rome physicians and members of the women's auxiliary of Floyd County Medical Society are conducting an active campaign for funds for the erection of a memorial to Dr. Robert Battey. It is anticipated that the memorial will be in place in time for an unveiling by May 4, in connection with the annual meeting of the Georgia State Medical Association.

Public Health Course.—An institute for public health workers will be held by the public health school of the University of Georgia Medical College, in cooperation with the state health department, at Augusta, from February 21 to

March 4. The faculty includes Dr. C. C. Bass, New Orleans, Dr. W. S. Rankin, Raleigh, N. C., Dr. E. C. Levy, Richmond, Va., and Dr. L. L. Lumsden, U. S. P. H. S.

ILLINOIS

Fined for Practicing Without a License.—It is reported that Mrs. Francis Kleine of Granite City was arrested by the Department of Registration and Education for practicing midwifery without a license. On February 10 she was found guilty and fined $25 and costs.

County Society's Action on Hospital Standardization.—At the regular meeting of the Peoria County Medical Society, February 15, the following recommendation was adopted: "We recommend that if it be deemed wise and necessary to standardize the hospitals that it be done by a representative authorized committee from the state medical society working with a similar committee from the American Medical Association, in collaboration with the hospital authorities."

Chicago

Society Organized.—The Physician Anaesthetists of Chicago have organized and have elected the following officers: president, Dr. Isabella C. Herb; vice president, Dr. T. Edward Costain, and secretary-treasurer, Dr. Frances E. Haines.

Officers of Tuberculosis Institute.—At a meeting of the Chicago Tuberculosis Institute, February 18, Dr. Ethan Allen Gray was elected president, Dr. Thomas E. Roberts, vice president, and Drs. Robert H. Babcock, Max Biesenthal, Paul C. Fox, William A. Evans, William Allen Pusey, Stephen R. Pietrowicz, David J. Davis and James A. Britton, and Prof. Edwin O. Jordan, members of the medical advisory board. Dr. William A. Evans was appointed a member of the executive committee.

INDIANA

Antivivisection Bill Killed.—The bill introduced by Representative G. Cal Shultz, prohibiting animal experimentation, has been killed in committee.

"Miracle Man" in Indiana.—According to newspaper reports, Harry Mays, so-called miracle man, who was recently reported as having been arrested and requested to leave Chicago, has opened offices in West Hammond.

Committee Report on Nurses' Bills.—The house committee on state medicine and public health voted to report unfavorably on the Kamman bill, but agreed to report for passage, with some amendments, the compromise bill later introduced by Representative Harrison. The Harrison bill provides for the licensing as "trained attendants" student nurses with a year's training in a hospital training school or those who have had approved training in the care of the sick; the latter qualification may be passed on by three reputable physicians.

Annual Registration of Physicians.—A bill has been introduced in the house by Representative Kingsbury providing that all licensed physicians of the state shall pay an annual fee of $2 for a certificate, the fund so raised to be placed to the credit of the state board of medical registration and examination for use in suppression of the practice of medicine by those not legally authorized. Dr. David Ross, Indianapolis, and Dr. William N. Wishard, Indianapolis, president and chairman of the legislative committee, respectively, of the State Medical Association, spoke before the committee on state medicine, February 10, in support of the measure.

IOWA

Society Honors Member.—The Monroe County Medical Association held a banquet at the Commercial Club, Albia, February 3, in honor of Dr. Charles B. Powell. Dr. Powell recently completed the fiftieth year of active medical practice in Monroe County.

MAINE

Bowdoin Offered Fund.—Mr. Hugh Chisholm, Portland, has offered to donate to the Bowdoin Medical School $50,000 for the erection of a building on condition that the school obtain an income sufficient to maintain it among Class A schools. A committee of the governing board of the college has recommended acceptance on a further condition that the college convey to the school all land, buildings and equipment which have been used exclusively for the medical school. President Kenneth C. M. Sills has announced that a bill to place the medical school under state control will soon be submitted to the legislature.

MARYLAND

Selection of Physicians for Municipal Appointment.—Drs. Winford H. Smith, James M. H. Rowland, and Wade Hampton, have been appointed members of a medical advisory commission of the Baltimore civil service commission to supervise the selection of physicians for municipal appointment in public health offices.

Endowment Fund for Nursing School.—A campaign to raise an endowment fund of $1,000,000 for the Johns Hopkins Hospital School of Nursing has been started by alumnae of the institution. Miss Adelaide Nutting, member of the first class graduated and at present head of the department of nursing and health of Teachers' College, Columbia University, is chairman of the executive committee. Regional committees will be organized throughout the United States under the direction of Miss Elizabeth Fox, director of public health nursing for the American Red Cross in Washington.

MASSACHUSETTS

Cancer Hospital Addition.—The Harvard Cancer Commission is erecting a new building adjoining the Collis P. Huntington Hospital, Boston, for the installation of a special roentgen ray and radium plant. Life insurance companies of Boston have contributed more than $30,000 toward the cost of the new building.

Public Health Service Hospital.—The tuberculosis sanatorium now nearing completion at Rutland has been leased for a term of years by the U. S. Public Health Service. Within a short time the institution will be enlarged to accommodate 100 patients, and it is planned ultimately to have accommodations for 300.

Lethargic Encephalitis.—Lethargic encephalitis has been declared a reportable disease by the Massachusetts Department of Public Health. A special pamphlet on the disease will be distributed to physicians throughout the state and further investigation of the incidence, etiology, and mode of its transmission will be encouraged. Reports heretofore have been voluntary and about seventy-five cases—all adults except five—have been investigated by the department. Among twenty-eight cases cared for in Boston hospitals, there has not been a single instance of secondary infection, of multiple cases in any household, or of localized grouping.

MICHIGAN

Dermatology Society Organized.—The Detroit Dermatological Society was organized, January 10, with Dr. Andrew P. Biddle as temporary president and Dr. Chester A. Doty, temporary secretary.

Inspection of Canned Food.—As a result of the recent deaths from botulism at the Blodgett Memorial Hospital, Grand Rapids, the state food and drug department has assigned fifteen inspectors to the larger cities in the state to inspect canned food.

Centralization of Public Health Nursing.—All public health nurses in Michigan will be under the general supervision of the director of child hygiene and public health nursing, by an agreement between the American Red Cross, the state anti-tuberculosis association and the state department of health. A standing committee composed of representatives of these organizations will formulate the policies to be adopted.

NEW HAMPSHIRE

Banquet of Societies.—The Manchester Medical and Dental associations gave a joint banquet at the Odd Fellows' Hall, February 1, at which Dr. Robert B. Greenough, Boston, spoke on "Radium in the Treatment of Malignant Disease."

NEW YORK

Typhus Fever in Cortland.—The state department of health reports that three cases of typhus fever have been discovered in Cortland, in three children, who with their mother arrived from Naples, January 5.

Rulings of Narcotic Commission Protested.—A resolution of protest against the recent rulings of the state narcotic commission requiring that prescriptions for narcotic drugs must be made out in triplicate on the department's official blanks was passed at a mass meeting of the members of the medical, dental and pharmaceutical professions of Kings, Queens and New York counties, held in Brooklyn, February 9.

Registration of Drug Addicts Waived.—The commissioner of the state department of narcotic drug control has repealed the regulation requiring the registration of all drug addicts as the necessity for such registration has been eliminated by the new regulation prohibiting the use of unofficial blanks by physicians issuing prescriptons for, or administering or dispensing cocain, opium or their derivatives, and requiring that data concerning prescriptions for habitual users be inserted on the official blanks.

New York City

Heart Relief Association Meeting.—The Association for the Prevention and Relief of Heart Disease held its annual meeting at the New York Academy of Medicine, February 7, when Dr. Haven Emerson discussed the activities and plans of the association.

Medical Library Association.—At a joint meeting of the Medical Library Association of Brooklyn and the Medical Society of the County of Kings, February 15, Col. Fielding H. Garrison, librarian of the Surgeon-General's Office, read a paper on "Community Interests from the Standpoint of the Medical Library."

Senate Appropriates for Quarantine Station.—The United States Senate has appropriated $200,000 to be expended by the Public Health Service in equipping the quarantine station at Rosebank, Staten Island, for dealing with the immigration problem at the Port of New York. Four medical officers of the Public Health Service have been ordered to New York immediately.

List of Reportable Diseases.—The Department of Health of the City of New York, at its meeting, January 27, adopted resolutions amending the sanitary code dealing with the reporting of communicable diseases. The new list of diseases that must be reported to the department within twenty-four hours from the time the diagnosis is made includes acute anterior poliomyelitis (infantile paralysis), anthrax, Asiatic cholera, botulism, diphtheria (croup), dysentery (epidemic), lethargic encephalitis, epidemic cerebrospinal meningitis, glanders, suppurative conjunctivitis, hookworm disease, leprosy, malarial fever, measles, mumps, paratyphoid fever, plague, pulmonary tuberculosis, acute lobar pneumonia, bronchial or lobular pneumonia, influenza, rabies, rubella (German measles, rötheln), scarlet fever, epidemic septic sore throat, smallpox, tetanus, trachoma, trichinosis, tuberculous meningitis, typhoid fever, typhus fever, varicella (chickenpox), whooping cough and yellow fever.

NORTH CAROLINA

Scientific Society Meeting.—At a meeting of the Elisha Mitchell Scientific Society, held at the University of North Carolina, Chapel Hill, February 9, Dr. Edward J. Wood of Wilmington delivered an address on "Our Debt in Medicine to the British.".

OHIO

Personal.—Dr. Reuben J. Erickson, Cincinnati, has resigned his position as resident medical director at the City Tuberculosis Sanatorium.

Fined for Manufacturing Medicine.—It is reported that Wee Hing, Toledo, was fined $50 and costs on a charge of manufacturing medicine without a permit. Hing was manufacturing a preparation known as "lizard whisky."

First Aid Lectures.—A series of ten lectures on first aid, to which various industrial institutions of Hamilton have been invited to send representatives, was initiated, January 31, by a lecture delivered by Dr. Frank M. Fitton in the assembly hall of the Chamber of Commerce. Similar meetings will be held weekly until the full course has been delivered.

PENNSYLVANIA

State Antitoxin Station.—The Harrisburg Hospital has been designated as a state antitoxin distributing station by Dr. Edward Martin, state health commissioner, as a preiminary step to make all hospitals in the larger communities distributing centers.

Markleton Sanatorium to Be Closed.—The Secretary of the Treasury has ordered that the Markleton Sanatorium, which s being used for treating World War veterans suffering from uberculosis, be closed at once, as the result of an unfavorable report made by a committee of tuberculosis specialists appointed by the U. S. Public Health Service.

Public Health Service Hospitals in Pennsylvania.—The Public Health Service has announced plans to increase the hospital facilities for ex-service men in Pennsylvania, particularly at Pittsburgh and Philadelphia. At Pittsburgh, the capacity of the Marine Hospital will be trebled by the addition of portable buildings, and later, by buildings of brick and tile construction. At Philadelphia, the Service has recently acquired from the Navy a large hospital with a capacity of from 400 to 500 for the care of ex-service men suffering from nervous and mental diseases.

Philadelphia

Personal.—Dr. Edward A. Leonard has resigned his position as assistant chief resident physician at the Philadelphia General Hospital.

Health Poster Contest.—The Philadelphia Health Council and Tuberculosis Committee has instituted a health poster contest in high schools for the purpose of securing attractive posters for spreading the message of good health throughout the city. The contest will close May 2, when cash prizes will be distributed to successful contestants.

SOUTH CAROLINA

Mental Hygiene Survey.—A mental hygiene survey of the state, sponsored by the child welfare commission, is being conducted by Dr. Victory B. Anderson of the National Committee on Mental Hygiene.

Personal.—Drs. William W. Fennell, Rock Hill, Harry H. Wyman, Aiken, Olin D. Busbee, Springfield, and William A. Tripp, Anderson, have been elected trustees of the South Carolina Medical College.

Special Tax to Aid Tuberculosis Fight.—The South Carolina Tuberculosis Association has framed a bill to be introduced during the present session of the general assembly authorizing a special tax levy by any county to raise funds for its antituberculosis work.

Hospital Dedicated.—The Emma Moss Booth Memorial Hospital, Greenville, was dedicated with formal exercises, January 15. The hospital, built by the Salvation Army at a cost of $250,000, from funds contributed largely by the owners and employees of the mills and factories of Greenville, has a capacity of seventy beds. The hospital will be temporarily restricted to the treatment of women and children.

WISCONSIN

Chlorin Plant Ordered.—The city of Sheboygan must install a chlorin plant by March 15, according to an order of the state board of health, which traced a number of cases of typhoid fever to the water supply derived from Lake Michigan.

Community Survey by Pupils.—As part of the health crusade in Iron River the civic class of the high school made a community survey, devoting special attention to the sanitary condition of the streets and alleys. Detailed reports, including maps and photographs, were made of the insanitary districts.

Nursing Education Bill.—A bill recently introduced in the state legislature proposes to place administration and control over the training of nurses in the hands of the state board of education, instead of the board of medical examiners as heretofore. Under provisions of the bill a committee on nursing education is provided, to be composed of representatives of the state nurses' association, the League of Nursing Education, the hospital association, the state medical association, and the public health nursing bureau. These associations are authorized to designate representatives of the committee who shall meet with the secretary of the state board of education.

CANADA

Appointments of Health Commission.—The Massachusetts-Halifax Health Commission has announced the following appointments for the extension of the clinical work at the commission's health center: Dr. Arabella MacKenzie to be director of the dental clinic for children of preschool age, Admiralty House Health Center; Dr. F. W. Tidmarsh to organize nutrition clinics at the Halifax and Dartmouth centers, and Dr. W. Alan Curry to organize posture clinics at the various centers.

Care of Indigents in Public Hospitals.—The province of Quebec has obtained legislation which empowers municipalities to pay $1.50 a day for indigent persons cared for in the public hospitals. The law does not enforce the payment, but provides for a voluntary annual contract, automatically renewable. Ninety municipalities have already signed such a contract, including Montreal. The hospitals receive the sick and notify the municipality. The latter is given eight days to accept or reject the obligation to pay for the specified individual. The *Union Médicale du Canada* urges that some similar provision should be made for orphans and the aged.

GENERAL

Drive for Student Nurses.—A drive for student nurses, for which there is an urgent need in the government hospitals, is being conducted by four national organizations, including the American Nursing Association, the National League of Nursing Education, the National Public Health Association and the American Red Cross. Arrangements have been made for speaking tours covering high schools and colleges as a means of interesting young women in this branch of service.

Congressional Tribute to General Gorgas.—As a tribute to the services and character of the late Gen. William C. Gorgas, the Senate has ordered that the remarks made at the memorial services in his honor, held at Washington, D. C., January 16, be printed. In requesting the Senate to preserve the tributes, Senator Thomas Heflin of Alabama remarked:

> Mr. President, on the night of January 16, 1921, at the Pan American Building in this city, memorial services in honor of the late Gen. Gorgas were held under the auspices of the Southern Society of Washington, D. C. The eloquent and splendid tributes paid to Gen. Gorgas by Cabinet officers, other officials of the Government, and others, as well as by officials and diplomats of foreign countries, are worthy to be published and preserved in the archives of the Nation that he served so faithfully and well. It was his splendid skill and genius that freed the American Continent from the scourge and curse of yellow fever. He led in driving this yellow plague from the lakes and lagoons of Louisiana, and he destroyed it in the swamps and marshes of the Panama Canal Zone. He has rendered signal service not only to the people of America but to mankind the world over. This great man, born at Mobile, Ala., became not only a national but an international character.
>
> Mr. President, to the end that the speeches and messages to which I have referred may be printed and preserved, I ask unanimous consent that they be ordered printed in the form of a public document.

Conservation of Vision.—The Eye-Sight Conservation Council of America with headquarters in New York City, was recently organized, and Mr. L. W. Wallace, New York, was elected president, and Dr. Cassius D. Wescott, Chicago, vice president. Drs. Frederick R. Green, Chicago, W. S. Rankin, Raleigh, N. C., Arthur L. Day, Washington, D. C., and Allan J. McLaughlin, U. S. P. H. S., Washington, D. C., are members of the board of councilors. The council has for its object the conservation and improvement of vision by arousing public interest in eye hygiene, especially as it pertains to defective vision and the protection of the eyes in hazardous occupations. Means to this end will include disseminating knowledge regarding optics; circulating information on the proper lighting of homes, schools, factories, offices, and private and public buildings; striving to promote periodic eye examinations, especially of schoolchildren and industrial workers, etc. The organization will conduct a nation-wide "save your sight" campaign to acquaint the public with the importance of eye conservation, and to urge eye examinations of schoolchildren, industrial workers, and clerks in stores and offices.

Bequests and Donations.—The following bequests and donations have recently been announced:

Beaverhead County, Mont., $100,000, for the erection and equipment of a modern hospital, by the will of Martin Barrett, Dillon, Mont.

New York Skin and Cancer Hospital, Woman's Hospital, St. Mary's Free Hospital and Society for the Relief of the Destitute Blind, each $1,000, by the will of Mrs. Eloise L. Breese Norris, New York.

Lenox Hill Hospital, New York, $12,000, by the will of John B. Hasslocher, New York, and $6,000, by the will of Annie Diehl, New York.

New York Foundling Hospital, $2,000, by the will of Margaret Josephine Ramsay, New York.

St. Luke's Hospital, New York, $5,000, by the will of Mary J. Odell, New York.

Presbyterian Hospital, Philadelphia, $20,000, by the will of Ella McCord.

Methodist Hospital, Philadelphia, $5,000, to establish a memorial bed to be known as the Mahlon R. Swartley and Family Memorial Bed, by the will of Mahlon R. Swartley.

Union Memorial Hospital, Baltimore, $1,000, for endowment of a bed in memory of the men who served at Edgewood Arsenal during the World War, a donation from the National Society of United Daughters of 1812.

Mount Lawn Summer Retreat for Children; Port Richmond, Stapleton, New Brighton, and West New Brighton day nurseries; Staten Island, St. Vincent's, and Mt. Sinai hospitals; West New Brighton Home for the Ruptured and Crippled; Hospital for Deformities and Joint Diseases of the City of New York; Orthopedic Hospital and Dispensary; St. Rose's Free Home for the Relief of Incurable Cancer, New York Infirmary for Women and Children, and New York Eye and Ear Infirmary, bequests ranging from $500 to $15,000, by the will of Mrs. Mary Helen Finch, New Brighton, L. I.

LATIN AMERICA

Fellowship Exchange Between Chile and Uruguay.—The Chilean government has sent a delegate to Uruguay in order to establish an interchange of one year medical fellowships for students.

Ear and Throat Clinic in Public Hospital.—The *Brazil-Medico* mentions the recent organization of a clinic for diseases of the ear, nose and throat as part of the public health system of Rio de Janeiro. It is in charge of Dr. Gastão Guimarães.

Personal.—The Sociedad de Médicos of Bolívar City, Venezuela, has elected Dr. F. A. Rísquez of Caracas to the honorary membership left vacant by the death of Dr. A. Machado.——Dr. J. Barreiro, ex-director of the Spanish Sanatorium at San Juan, Porto Rico, has returned to Spain.

Quarantine in Peru.—The Peruvian government has decided not to enforce quarantine against ships arriving from countries which have national public health services. This rule will not apply to ships having on board yellow fever patients. Miss Goyeche, a well known philanthropist of Arequipa, has presented that city with a maritime quarantine station.

Practice of Medicine in Chile.—The Dirección General de Sanidad of Chile has issued supplementary regulations on the practice of medicine in that country. It is specified that medicine can be practiced only by persons graduated from the University of Chile, or entitled to practice by reciprocity agreements. So far Chile has established reciprocal relations only with Brazil, Ecuador and Uruguay.

FOREIGN

Cremation of Human Bodies.—According to a report of the Cremation Society of England 1,800 human bodies were cremated in Great Britain during 1920. Among the scientists of note whose bodies were cremated were those of Sir William Osler and Dr. Cecil Lyster.

Physician Placed in Charge of City Health Bureau.—A Munich exchange states that, for the first time, a physician has been placed at the head of the municipal public health system of Frankfort-on-the-Main. Dr. K. Schlosser, the new incumbent, has long been president of the local medical society.

Physician Members of Belgian Senate.—Prof. Jules Bordet to whom the Nobel prize in medicine was recently awarded, has been elected a member of the senate of Belgium from the Hainaut district. Prof. A. Depage is already a member of the senate. The *Scalpel* relates that the ambassador from the United States conferred on Professor Depage, January 25, the Distinguished Service Medal with a complimentary address which our exchange reproduces in full with a few words of appreciation of the honor paid to Belgium.

Insane Asylum Changed to Maternity Hospital.—The psychiatrists of France have been protesting vigorously against the recent decree to transform the Charenton Insane Asylum into a lying-in hospital. The *Encéphale* supplement says that this establishment has always been more or less the financial victim of the state, and quotes Esquirol's reply to a statesman to whom he was pleading for better support for the asylum. The statesman had said that the funds available should be applied to the prisons, but Esquirol rejoined that the prisons are filled with persons who have more or less deserved their fate, but "even you and I," he continued, "are not sure of not being sent to the insane asylum some day."

Congress for Comparative Pathology.—The second International Congress for Comparative Pathology is to convene at Rome, and the Italian committee in charge has informed its representatives in France that it intends to invite German pathologists to attend the meeting. The French committee has notified the Italian committee that it will refrain from attending if the representatives of the central powers are invited unless the German savants by some public statement repudiate "all solidarity with the govenment and the military chiefs in the antisocial acts committed by them during the World War (the manifesto of the ninety-three intellectuals, the deportation of young women and girls from Lille in 1916, the deportation of the wives of professors, holding them as hostages at the Holzminden camp in 1917, 1918, etc.)" The French committee states further that by refusing to take part in the meeting if the subjects of the central powers are invited, it conforms to the decision taken by the Royal Society of London in October, 1918, and ratified by the delegates from the scientific academies of the allied nations (Belgium, Brazil, United States, Great Britain, Australia, Canada, New Zealand, South Africa, Greece, Japan, Poland, Portugal, Roumania, Serbia, and Italy) at Brussels, July, 1919.

Deaths in Other Countries

Dr. **W. von Waldeyer,** the Nestor of the professor in Germany, professor of anatomy at the University of Berlin until his retirement, author of numerous works on anatomy and physiology, aged 85.——Dr. **N. Rodríguez Abaytúa,** a prominent Madrid specialist in gastro-intestinal diseases and writer on general medicine, at one time president of the Academia Médico Quirúrgica Española, aged 66.—Dr. **Pierret,** formerly professor of psychiatry at the University of Lyons. ——Dr. **O. Daels** of Ghent.——Dr. **Ponson,** mayor of Jupille, Belgium.——Dr. **A. Fernández Chacón,** professor of gynecology and obstetrics at Madrid until his retirement, president of the Spanish Gynecologic Society and member of the national council on public instruction.——Dr. **F. Toledo de la Cueva** of Madrid, on the editorial staff of the *Siglo Médico.* ——Dr. **A. Seelig,** Königsberg, noted for works on diabetes, urology and nervous diseases.——Dr. **R. Behla,** Berlin, statistician and anthropologist, aged 71.

Government Services

Civilian Physicians to Address General Staff College

Surgeon-General Ireland has completed plans to have prominent physicians of the country deliver addresses before the General Staff College at Washington. Dr. Joel E. Goldthwait, Boston, and Dr. Thomas W. Salmon, New York, recently came to Washington to speak at the college.

Award of Distinguished Service Medal

Dr. Pierce Bailey, New York, who was chief of the division of neuro-psychiatry in the Surgeon-General's Office during the World War, has been awarded the distinguished service medal. The citation is now in the hands of Surgeon-General Ireland and will shortly be presented to Dr. Bailey at his home.

Solicit Applicants for Army Nurse Corps

The Army Medical Department is soliciting applicants to fill vacancies in the nursing corps of the Army, under arrangements which will give all applicants a three-year course of training at the Army School of Nursing. Appointments from states east of the Mississippi River will be to the Walter Reed Hospital, Washington, D. C., while applicants from the West will be sent to the Letterman General Hospital, San Francisco.

Membership of Medical Reserve Corps

The Reserve Corps of the Medical Department of the Army, according to the announcement of the Surgeon-General's Office, now includes 5,618 officers. Of this number two are brigadier-generals, 98 colonels, 401 lieutenant-colonels, 1,843 majors, 2,329 captains, and 945 first lieutenants. The total number of medical reserve officers on active duty in the Army at the present time is 51, consisting of 8 majors, 34 captains and 9 first lieutenants.

New Legislation for Medical Department

Because of the fact that the calendars of both houses have been filled with routine legislation the Surgeon-General of the Army has made few recommendations to Congress for revision of the regulations of the department. Only matters of urgent importance to the Medical Department have been presented, including a bill providing for the retirement and allowances for specialists. This measure provides that enlisted men of the sixth and seventh grades who are rated as specialists shall be retired with the rating and emoluments of a specialist. Another bill proposes an amendment to the law now limiting the expenditure for construction of a single permanent hospital to $30,000, and fixing the amount at $65,000, so that construction on Army hospitals can be continued without specific authority from the legislative branch of the government.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Jan. 28, 1921.

Election of Dr. Bazy to the Academy of Sciences

The Academy of Sciences recently elected Dr. Pierre Bazy, surgeon to the hospitals and member of the Academy of Medicine, as a corporate member in the section of medicine and surgery, to fill the vacancy caused by the death of Professor Guyon.

Action of Propaganda Committee on Social Hygiene

In a previous letter (THE JOURNAL, Aug. 7, 1920, p. 424) I announced the appointment of a propaganda committee on social hygiene and prophylactic education. At present this committee is making an urgent appeal to the public. It has put out posters in regard to syphilis and tuberculosis. In connection with the propaganda of hygiene in France, it is interesting to note a statement made by Dr. E. Roux, director of the Pasteur Institute, in his address before the general assembly of the Propaganda Committee. He said that several English and American physicians who came to France for the World War and lived in our cities and our rural districts had asked him how he would explain the fact that France, the country in which the fundamental discoveries of hygiene were made, applies them so little. Roux thinks that one of the principal causes for the backwardness of the hygienic movement in France is to be found in the national character. The individualism of the French people does not lend itself readily to general social movements or to sustained concerted efforts. Hygiene requires that an individual submit to discipline for the sake of the common welfare. We must learn to view disease not as a private affair, considering only the patient and his immediate surroundings, but as something affecting society as a whole.

The Coming Congress of the International Society of Urology

The Congress of the International Society of Urology will be held in Paris, July 5-6, 1921. The three questions on the order of the day are: 1. Nephritis with uremigenic syndrome; papers by Drs. Hogge, Liége; Horder, London; Foster, New York, and Teissier, Lyons. 2. Late results of treatment of traumatisms of the ureter; papers by Drs. Kidd, London; Gardini, Bologna, and Pasteau, Paris. 3. Pyelography; papers by Drs. Lazio, Milan; Papin, Paris, and Waters and Young, Baltimore.

The Abuse of Narcotics

Dr. Paul Capelle has just been tried before the Court of Correction on complaint of the dean of the Faculty of Medicine. He was charged with having given to his clients (for the most part *artistes lyriques)* "accommodation" prescriptions for morphin. Dr. Capelle was fined 2,000 francs and given a prison sentence of fifteen months. At the same session of the court, a student of pharmacy was given a six months' prison sentence and several others received penalties varying from twelve to eighteen months in prison for trafficking in morphin or having it in their possession.

Death of Professor Bourquelot

The death of Professor Bourquelot, at the age of 70, is announced. He was professor of the pharmaceutical faculty of the University of Paris, a member of the Academy of Sciences, and vice president of the Academy of Medicine. Bourquelot was the author of numerous works, mainly on soluble ferments, diastases and methods of research for glucosids and sugars by the aid of these ferments; also on the biochemical synthesis of glucosids and sugars. He recently contributed to the Academy of Medicine an interesting communication on the active principles of certain plants employed in popular medicine, together with researches on these, by the biochemical method. In this work he points out that the biochemical method makes it possible to prove that most plants formerly employed in medicine, which were not supposed to contain any active principle, in reality contain glucosids hydrolyzable by emulsin, and that, furthermore, such glucosids are extremely common in nature. He says in conclusion that, in the short space of a few years, by the aid of this method, sufficient work has been outlined to keep several generations of chemists and physiologists busy.

LONDON

(From Our Regular Correspondent)

Jan. 31, 1921.

Encouraging Vital Statistics

Provisional figures of the registrar-general for 1920 which have just been issued by the ministry of health are most encouraging. The birth rate for 1920 is the highest of the decade, the death rate is the lowest ever recorded, and the infant mortality is also the lowest recorded. Moreover, the number of births is the highest ever recorded and the number of deaths the lowest since 1862, when the population was only 20 millions. The figures for 1920 are:

	Birth Rate per Thousand of Population	Death Rate per Thousand of Population (Crude Rate)	Deaths Under One Year per Thousand Births
England and Wales	25.4	12.4	80
Ninety-six great towns, including London, with a population exceeding 50,000	26.2	12.5	85
148 smaller towns of populations from 20,000 to 50,000	24.9	11.3	80
London	26.3	12.4	75

The subjoined figures prove that our death rate has been falling steadily for years:

Period	Death Rate	Period	Death Rate
1871-1880	21.4	1916	14.4
1881-1890	19.1	1917	14.4
1891-1900	18.2	1918	17.6
1901-1910	15.4	1919	13.8
1911-1915	14.3	1920	12.4

The figures during the war years are based on civilian deaths and estimated civilian population. As our youth was largely absent, the figures given refer mostly to older persons and children, and so are better than they look. The figure for 1918 bears in addition the great influenza pandemic, which accounts for the rise to 17.6. The figure for 1920 shows the real trend of our mortality, which was lost sight of during the war. The same holds for infant mortality, as this table, of mortality at ages under 1 year per thousand births, shows:

Period	Mortality	Period	Mortality
1871-1880	149	1916	91
1881-1890	142	1917	96
1891-1900	153	1918	97
1901-1910	128	1919	89
1911-1915	110	1920	80

Medical Records of Insured Persons

The proposal of the ministry of health to have records of insured persons' ailments is, as stated before, arousing considerable protest from physicians and the lay press. The strongest protest yet made has come from the committee of the Cheshire panel physicians. It points out that the filling of the record cards will result in considerable reduction in the time available for the diagnosis and treatment of the insured. It refers to the large amount of clerical work required and the difficulty of keeping the envelop (this is intended to follow the patient through life) which will be liable to split as the records become extensive. It is stated that at least one hour a day must be given to the work. "It is literally impossible for a conscientious physician to spare the time for work of that character. The records will thus be faulty to a greater or less degree. Faulty records are worse than none, as the degree of error which may be drawn from them cannot be estimated." Turning to the ethical side of the question: "It is not the custom of the profession to divulge a patient's secrets or to commit them to publicity. The card will be exposed to officials. As it is government property, a judge could order it to be produced in court." A case is referred to in which a patient suffering from venereal disease called on his panel physician, who began to write the record. The patient asked what he was writing. The physician replied that the regulations required a record of his illness. "In that case," said the patient, "I shall consult a private doctor," which he did. The cost of the system is also declared to be enormous. The panel physicians do not see that there is much value in the system, and are certain that it cannot yield the valuable results hoped for. They add: "Medical facts gathered by such a system as Sir James Mackenzie is experimenting with may yield results of value. Nine physicians proceeding on special systems carefully thought out, and investigating in certain lines and with the leisure to devote two hours daily to research, cooperate in this endeavor. How different is the record envelop with its 2½ inch space for clinical notes of all sorts of cases from a cut finger to eclampsia." The fate of the earlier records which were required before the war and then abolished, because of the greatly increased work thrown on the physicians left in the country after the withdrawal of the younger men for military service, is recalled. After a few were examined they were sold as waste paper.

Professional Discipline

The General Medical Council, which has been given the power by Parliament of disciplinary jurisdiction over physicians, has issued a statement of the principal forms of professional misconduct that are punishable by erasure from the Register. They are: (1) The signing of certificates or documents, for use in courts or for administrative purposes, which are untrue, misleading or improper. These documents include certificates or reports as to births, deaths, lunacy, vaccination, factories, education, public health, workmen's compensation, notification of infectious diseases, national insurance, old age pensions, merchant shipping, sick benefit insurance, passports, and the excusing of attendance at courts, in the public service, in ordinary employment, or in naval and military service. (2) The employment in connection with professional practice of an assistant not duly qualified and registered, or the enabling of any person known to be unqualified and unregistered to treat a patient in respect to a matter requiring professional discretion or skill. This does not apply to the proper training of bona fide students or to the legitimate employment of dressers, midwives, dispensers and skilled mechanics under immediate personal supervision. (3) The employment by a physician who keeps a shop or other place in which scheduled poisons are sold by assistants who are left in charge but are not legally qualified to sell such poisons. (4) Assistance given, either by administration of anesthetics or otherwise, to an unqualified person attending or treating patients in matters requiring professional attendance, discretion or skill. (5) Advertising, particularly if deprecatory, of other physicians, employment of agents or canvassers and accepting employment under any association which practices canvassing or advertising for the purpose of procuring patients. (6) Association with unqualified women practicing as midwives (the practice of such women is prohibited by law).

MADRID

(From Our Regular Correspondent)

Jan. 15, 1921.

Duval's Conference on Emergency Surgery

At the request of the physicians of emergency hospitals, Professor Duval gave a lecture on emergency surgery. According to Duval, we must first distinguish aseptic from infected wounds. The former may be treated provisionally with sterile bandages, while an effort is made to determine the presence of germs. If no germs are found, the wound is sutured twelve or fourteen hours afterward according to what Duval calls delayed first intention. Infected wounds may present two phases, a primary one of superficial contamination and a secondary one of contamination that involves the lymphatics. The first should be treated by the removal of all involved tissue, following the same procedure as in the aseptic wounds. We should follow the same procedure, but even more vigorously, in severe traumas which cause much tissue destruction from the beginning.

One of the complications, which, unless it is properly treated, may cause death, is the so-called sheet hemorrhage, for, according to the French theory of shock, it is through these numerous open capillary stomas that particles of necrosed tissue enter the circulatory stream and, acting as foreign proteins, are responsible for the intoxication which leads to shock.

First Session of the National Academy of Medicine

The first session of the National Academy of Medicine during the present year was held, January 9. Dr. Angel Pulido Fernández acted as secretary. Dr. J. Rodríguez Carracido, dean of the School of Pharmacy of Madrid and professor of chemical biology, presented a paper, commenting on the aversion to chemical studies shown of old by Spanish medicine. This distaste is also shown in art. In German and Dutch paintings, the alchemist is a subject again and again, but is not found in any painting of the Spanish school. He recalled the fact that toxicology is the science which first studied the body as a reagent. As an instance of the way in which chemistry throws light on life processes, he referred to diabetic coma. It has been attributed to the removal of alkalis from the body tissues, but it would be more accurate to say that it is caused through their neutralization by acids. Farther on, he explained chloroform anesthesia as due to the removal of water from the cells, where it is usually stored. He recalled that the anesthetic enters the blood gradually as it dissolves, and that it accumulates in growing quantities in the organs in which it dissolves. The solvent substances are lipoids which prevail most in the nervous system, if we leave aside the adipose tissue which is physiologically inert so far as anesthetic action is concerned, although it binds chloroform on a large scale. Rodríguez Carracido ended his interesting address, asking Spanish physicians, for their own good, to cooperate in furthering chemical studies in Spain.

Sanitary Policy

As the new administration is not expected to last long, nobody is taking much interest in the program of the new government, and no attention has been devoted to the fact that the government has not even mentioned in its program public health matters, which are such a pressing subject in Spain. However, as a result of the effort of some public-spirited and influential citizens, the government has issued a royal decree devoting to public health work in towns one tenth of the total of industrial, commercial and urban taxes. In this public health work, first attention must be given to water supply; next sewerage, and finally street cleaning and other public health matters.

The superior council of public health has approved a bill to protect the water supply of large towns. The government has also under consideration the introduction of a bill for the prevention of infectious diseases. This bill has been introduced before in previous congresses. As a proof of the importance which the government attaches to sanitary questions may be mentioned the fact that Dr. Martin Salazar, inspector general of public health, has been made a senator to be its spokesman in such matters. It seems rather strange that the government should not have some one in parliament who could defend its public health activities, although we must confess that there is no possible defense for the official acts of some ministers in sanitary matters. The conception some of these gentlemen have of politics was well expressed by a recent minister when, on being found by some reporters at a department at the time he was supposed to be on bad terms with the government, he said, "Gentlemen, I assure you that as soon as I make enough to live, I shall quit politics."

Meeting of Officers of Spanish Medical Societies

There has just been held at Valencia a meeting of the officers of the Colegios Médicos, the Spanish medical societies. The meeting was important because it constituted one more step toward medical union, since the Colegios Médicos are the provincial medical associations to which physicians must necessarily belong as required by law. Everything tending to medical consolidation will meet general approval. Where the discrepancies will begin is when they try, as suggested at the meeting, to influence institutions such as the superior board of health which, because of its advisory technical character, should be above the result of any election, even if this takes place within the medical profession.

BELGIUM

(From Our Regular Correspondent)

Jan. 22, 1921.

School for Instruction in Social Service

Just at this time when the very foundations of society are seemingly being gradually transformed; when, under the influence of new ideas, new organizations are being created having for their purpose the bringing about of better physical, intellectual, social and hygienic conditions, it is only natural that Belgium has felt a desire to follow the example of the United States and England, in which countries special courses of instruction in social service have proved of inestimable service. The purpose of such instruction is to train competent workers for the various types of social service—for the bureaus that at present are still termed falsely "bureaus of charity," for the loan banks and for hospital administration. Special training is also given to visiting nurses, to directors of day nurseries, to men and women who expect to become heads of social welfare societies, or superintendents of factories, for these also have yielded to the demand for social service. During the war, the National Committee spread throughout the country the benefits of the various social and hygienic services. At the present time, it is our task to maintain and reorganize these services; but in order to do this we must train a capable personnel that competence may take the place of mere zeal and a more perfect coordination of effort be secured which shall bring about the desired end. Our Ecole de service social, established in 1919, has enrolled this year 200 pupils, 140 of whom have pursued a regular course of study. Its success has attracted the attention of the public authorities, who have accordingly taken on themselves the task of putting the results, so recently secured, on a permanent basis. They propose to encourage the establishment in Belgium of a number of similar schools, which will be assured government aid if certain (not too strenuous) conditions are complied with.

Visiting Nurses

The establishment of the National Child Welfare Society and the success that has followed the enterprise have modified and extended considerably the rôle of the nurses in Belgian social life. Superior Council of the child welfare societies has also had a hand in transforming the requirements for nursing. Henceforth, a nurse must fulfil these conditions: (1) the successful completion of a moderately advanced preliminary course of study; (2) attendance for one year at a school for nursing and the passing of an examination in proof of qualifications; (3) six months in a hospital of at least fifty beds, as an intern nurse; (4) six months' course in theory and practice in a school giving courses for visiting nurses, and (5) the passing of an examination before the commission. The functions of visiting nurses are incompatible with the exercise of the profession of midwife. In rural communities, however, the Bureau of the Superior Council may, by way of exception, grant the privilege of performing the duties of both offices. The maximal salary of nurses is fixed at 6,800 francs a year.

School of Criminology

The study of medical jurisprudence in medical schools is obligatory for all students, but, owing to the crowded condition of the students' program during the years preceding the examination for the doctorate, this branch of study, being of secondary importance for the general practitioner, is commonly much neglected. It was a worthy undertaking to centralize in an effective manner the various branches of instruction in which our future experts in medical jurisprudence, on whom rests such a heavy responsibility, should be well grounded. The Société belge de médecine légale has, in the past, made laudable efforts to establish an organized body capable of training competent experts in matters pertaining to criminology. Yielding to the general demand, the minister of justice has appointed an administrative board to manage the affairs of a school of criminology. This board, which is composed of civil magistrates and of ministerial officials, has recently appointed the instructional corps for the new institution. The principal medical experts are Drs. de Rechter, Heger-Gilbert, Bruynoghe and Stockis. A number of jurists and criminologists have also been selected.

The Physiologic Expenditure of Energy as Measured by the Soldier on the March

From the data collected by Miss De Decker and Mr. Waller (communication to the Academy) we find that, for a march of 16 kilometers, the average expenditure of energy may be expressed by a fraction the numerator of which is the work performed (in the example cited, 133 kilograms per second) and the denominator, the expenditure of carbon dioxid as expressed in cubic centimeters (from 16 to 17 c.c.), less the normal expenditure of maintenance; that is to say, less the quantity of carbon dioxid produced in a state of repose (from 3 to 3.5 c.c.), which leaves for the denominator about 13 c.c. We get then, in the final result, as the fraction indicating the expenditure of energy and the degree of efficiency of the subject, the fraction $^{133}/_{13}$; that is to say, 0.1 c.c. of carbon dioxid. This method furnishes a very useful means of controlling the state of health. The figure 0.1 c.c. may be taken as the standard of the healthy man. The soldier who expends 0.2 or 0.5 c.c. should be considered as being in a pathologic condition, whereas the soldier who expends less than 0.1 c.c. should be considered as capable of performing a large amount of work.

BERLIN

(From Our Regular Correspondent)

Jan. 25, 1921.

Sex Determination and the Numerical Relation of the Sexes

Professor Correns, a biologist, director of the Kaiser Wilhelm Institute for Biology in Dahlem (near Berlin), delivered an interesting lecture recently on the still unsolved and yet, for both scientist and layman, interesting problem of sex determination and the numerical relation of the sexes. Mythology, mysticism, religion and science have so far tried in vain to solve the problem. To be sure, the recent investigations in botany, zoology and embryology, making use of the methods of Mendel's theory of heredity, denote significant progress in this field. Although the riddle of sex determination in the sense of a predetermination has found no practical solution as yet, we at least know now exactly the individual factors that determine sex. The new living organism, the embryo, originates in both plant and animal through the fecundation of the female ovum by the male spermatozoon. The ova are always all of one type; the spermatozoa, however, as has been revealed by careful microscopic and physiologic investigations, are divided into two classes, corresponding to the two different sexes, male and female. To these two classes of spermatozoa Correns applies the terms "Männchen- und Weibchenbestimmer," or male-generative and female-generative spermatozoa. The establishment of this fact constitutes an important discovery of modern biology. According to this new finding, sex then is determined solely by the male. The Munich Zoologist Richard Hertwig made his first experimental studies on sex determination by the use of frogs. Correns used a dioecious variety of lychnis, in which he found that, on an average, there were 70 per cent. female and only 30 per cent. male plants. That must be due to the fact that the female-generators among the spermatozoids were either in the ascendency or were more rapid in their movements than the male-generators. By changing the quantity of pollen used for pollination he was able to change materially the numerical relation of male and female plants. When he used a large quantity of pollen, there were more female plants than when he used less pollen. When he used very old pollen, male plants resulted almost exclusively. In conclusion, the lecturer discussed the numerical relation of the sexes in man, which is quite different from what he found in plants. In man, the birth rate shows a relation of 106 males to 100 females. From the standpoint of conception, however, we find a relation of 125 male to 100 female embryos. In the later years of life this condition is much changed. Owing to the fact that boys are more susceptible than girls to external injuries, the numerical relation of the sexes becomes later exactly reversed. Even without the losses entailed by war and similar causes, there are always more women than men. Since the losses of the World War have entered into the case, this fact has become especially noticeable, as will be seen from these figures: In 1913, there were, in Germany, 1,024 women, of all ages, to 1,000 men; in 1919, the relation was 1,090 women to 1,000 men. If we consider only the ages from 18 to 45, the number of women to men in 1919 was as 1,180 to 1,000. In spite of the clearer insight into the workings of nature, the sex of our children is still determined mainly by chance.

Nutrition in Relation to Tuberculosis

The marked effect of nutrition on the morbidity and mortality rates in tuberculosis has been proved not only by the results of war conditions—more particularly, the food shortage—but also in a more pleasing manner, in the opposite sense, by the improvement of conditions in Germany since 1919. According to the statistics of 382 towns with 15,000 or more inhabitants (with an average population of around 26 millions), the number of deaths from tuberculosis in 1913 was 40,374; in 1916 it rose to 48,779; in 1917 to 67,860, and in 1918 to 75,160. In 1919 it had fallen to 66,604. In Prussia, 56,861 died from tuberculosis in 1913, or 13.65 to 10,000 of population; in 1916, 66,544, or 15.76 per 10,000; in 1918, 96,844, or 22.83 per 10,000. The mortality rate of tuberculosis in Prussia in the period from 1913 to 1918 increased approximately 67 per cent. This increment is greater among the urban than among the rural population, which agrees with previous experience. The mortality rate for tuberculosis in cities over 15,000 in population increased 72.6 per cent. In cities of this class, the number of deaths in 1919, as compared with 1918, was 10,556 less. The mortality rate for tuberculosis for the first six months of 1920 was only 20.2 per cent. higher than during the same period for 1914, whereas the corresponding rate for the second six months of 1919 was 38.5 per cent. higher and for the first six months of 1919, 97.7 per cent. higher. Accordingly, there is reason to hope that the augmentation of tuberculosis mortality in Germany reached its height in 1918 and since that time has been slowly approaching figures of the prewar period. The statistical reports from individual districts convey the same impression; e. g., the number of deaths from pulmonary tuberculosis in Berlin was 5,048 in 1917, but in 1919 had sunk to 4,568. From Königsberg, Professor Selter, director of the Hygienic Institute, reports that the number of deaths from tuberculosis rose from 490 in 1913 to 798 in 1919, an increase compared with 1910 of about 50 per cent. The augmentation of tuberculosis cases appears to have reached the summit in 1918 in many cities. According to the reports of the General Sick Benefits Fund of Greater Berlin, the number of cases of pulmonary tuberculosis per thousand male members was 5.2 in 1917 and 4.5 in 1918; per thousand female members, 3.3 and 2.4, respectively. According to an investigation by Dr. Davidsohn, there were among the Berlin children of the 2-15 age group, in 1919, from 5.4 to 6.1 per cent. of cases of tuberculosis. This figure is, however, doubtless much lower than it should be. The tuberculous infection in 1919 was found to affect children of an earlier age than in 1918.

Death of Albert Albu

The death of Prof. Albert Albu from embolism of the coronary artery, at the age of 54, is announced. Albu was one of the new members of the medical faculty of the University of Berlin who became privatdozent without having been an assistant in an "academic institute." His graduation thesis on trephining was accorded a special prize. While assistant in the Moabit Hospital, he wrote, aside from several smaller essays, a monograph on the autointoxications of the intestinal canal. Soon after, in collaboration with Neuberg, he published the fundamental textbook on the physiology and pathology of the metabolism of mineral substances, in which, for the first time, the whole material was treated critically in its bearing on metabolism, on the basis of new analyses. Later he published his "Analysis of the Feces," in Neuberg's compendium on "The Urine and Other Secretions." Albu also became known to wider circles for his investigations on metabolism in athletes and his works on vegetarian diet.

Marriages

Leonard Edward Fraser, Bradford, Iowa, to Miss Rebecca Maud Atkinson of Winnipeg, Manit., February 15.

Clarence Kelley Gilder, Corona, Ala., to Miss Clyda Brotherton of Birmingham, Ala., December 22.

Samuel Sidney Fern to Miss Zelda Hoffman, both of Newark, N. J., January 1.

James H. Mason to Miss Violet Shrieve, both of Atlantic City, N. J., December.

Deaths

William M. Welch ⊕ Philadelphia; University of Pennsylvania, Philadelphia, 1859; aged 83; a veteran of the Civil War; at one time president of the Medical Society of the State of Pennsylvania and the Philadelphia County Medical Society; clinical professor of contagious diseases at the University of Pennsylvania; died, February 8.

Walter Benedict Hillman, Greece, N. Y.; Bellevue Hospital Medical College, 1893; aged 53; a member of the Medical Society of the State of New York; captain, M. C., U. S. Army, and discharged, Jan. 14, 1919; a member of the Association of Military Surgeons of the United States; died, February 5, from injuries received in an automobile accident a few weeks before.

William Samuel Duboff, Denver; Columbia University, College of Physicians and Surgeons, New York, 1912; aged 31; a member of the Colorado State Medical Society; physician to the Jewish Consumptive Relief Society Sanatorium, Edgewater, Colo.; died, February 7, from pulmonary tuberculosis.

St. Elmo Morgan Sala ⊕ Rock Island, Ill.; Keokuk (Iowa) Medical College, 1892; aged 50; captain, M. C., U. S. Army, and discharged, Jan. 7, 1919; vice president of St. Anthony's Hospital, Rock Island; a member of the Western Surgical Association; died suddenly, February 17, from heart disease.

Loren A. Hyde, Indianapolis; Medical College of Indiana, Indianapolis, 1897; aged 50; a member of the Indiana State Medical Association; at one time superintendent of the Marion County Asylum for Incurable Insane, Julietta; died, February 3.

Frederick C. Watson, Cazenovia, N. Y.; Cleveland (Ohio) University of Medicine and Surgery, 1896; aged 49; health officer of Cazenovia and Fenner; died in Clifton Springs Sanatorium, N. Y., February 1, from nephritis.

Robert Alexander Black ⊕ Hot Springs, Va.; College of Physicians and Surgeons in the City of New York, 1883; aged 60; at one time president of the Brooklyn Board of Health; died, February 14, from heart disease.

John J. Burnell, Greenwich, Conn.; College of Physicians and Surgeons, Baltimore, 1888; aged 60; died, January 12, from the effects of injuries received when he was struck by an automobile.

Louis Fernandez Criado, New York; College of Physicians and Surgeons in the City of New York, 1879; a member of the Medical Society of the State of New York; died, February 7.

Walter Green Sullivan ⊕ Providence, R. I.; Harvard University Medical School, Boston, 1896; aged 47; consulting surgeon at St. Joseph's Hospital, Providence; died, February 3.

Owen Walter Owens, Muncie, Ind.; Chicago Homeopathic Medical College, 1897; aged 52; a member of the Indiana State Medical Association; died, February 5, from nephritis.

Thomas Audley Wakely ⊕ Jacksonville, Ill.; Rush Medical College, 1868; aged 78; a practitioner of Jacksonville for more than half a century; died in Philadelphia, February 4.

Chester Charles Beckley ⊕ Lancaster, Mass.; University of Vermont, Burlington, 1898; aged 44; major, M. C., U. S. Army, and discharged, March 1, 1919; died, February 4.

Byron N. Stevens, Chillicothe, Mo.; Rush Medical College, Chicago, 1869; aged 77; a practitioner of Chillicothe for half a century; died, January 26, from cerebral hemorrhage.

Abram G. Sellards, Portsmouth, Ohio; Miami Medical College, Cincinnati, 1871; aged 82; a veteran of the Civil War; died, Nov. 16, 1920, from empyema of the gallbladder.

Edward Josiah Ruddock, Santa Rosa, Calif.; Harvard University Medical School, Boston, 1879; aged 75; physician at the Hoopa Indian Reservation; died, February 7.

Frank Proal Hatfield ⊕ Rockaway Beach, N. Y.; Long Island College Hospital, Brooklyn, 1899; aged 49; died, February 5, following an operation for appendicitis.

Philip Berge ⊕ New Orleans; Tulane University, New Orleans, 1883; aged 60; assistant clinical surgeon at Loyola University, New Orleans; died, February 7.

⊕ Indicates "Fellow" of the American Medical Association.

Joseph Henderson Richie, Sutersville, Pa.; Western Reserve University, Cleveland, 1867; aged 84; a veteran of the Civil War; died, February 7, from senile debility.

Frances Marx Greene ⊕ Berkeley, Calif.; University of California, San Francisco, 1889; aged 57; died in San Francisco, February 9, from fractured skull.

Adam Price ⊕ Almont, Mich.; Detroit Medical College, 1879; aged 68; physician to Burley Hospital, Almont; died, January 16, from cerebral hemorrhage.

Leslie Sherman Skelton, Okmulgee, Okla.; Eclectic College of Medicine and Surgery, Cincinnati, 1889; aged 55; died in Kansas City, Mo., January 28.

Morris H. Tindall ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; aged 42; captain, M. C., U. S. Army; died, February 7.

James Fulton Wilson, Waycross, Ga.; Western Reserve University, Cleveland, 1872; aged 73; died, January 17, from cerebral hemorrhage.

William Schneider Shirk, McPherson, Kan.; Barnes Medical College, St. Louis, 1901; aged 42; died, January 29, from cerebral hemorrhage.

William McFarland Brown, Springfield, Mo.; Missouri Medical College, St. Louis, 1885; aged 59; died, February 12, from heart disease.

William B. Gilliatt, Young Creek, Ind.; Cincinnati College of Medicine and Surgery, 1871; aged 72; died in Lafayette, Ind., February 1.

Wilbur Truman Liggett, Winnemucca, Nev.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 68; died, February 8.

David Libby, Hastings, Pa.; Cincinnati College of Medicine and Surgery, 1885; aged 79; died in Spangler, Pa., February 3.

Tobias H. Foltz, Lima, Ohio; Western Reserve University, Cleveland, 1870; aged 77; a veteran of the Civil War; died, January 26.

Joseph Hausman, Cincinnati; Cincinnati College of Medicine and Surgery, 1896; aged 60; died, February 8, from erysipelas.

James Albert Jackson, Sr., Madison, Wis.; Bellevue Hospital Medical College, New York, 1866; aged 80; died, February 11.

Morris B. Oberholtzer ⊕ Boyertown, Pa.; Medico-Chirurgical College of Philadelphia, 1898; aged 45; died, February 12.

Clara Ferguson Foulk, Wilmington, Del.; Southern Homeopathic Medical College, Baltimore, 1899; aged 42; died, January 28.

Theodore Garrison Davis, Redondo Beach, Calif.; Jefferson Medical College, Philadelphia, 1885; aged 65; died, February 8.

Samuel P. Ousley, Macon, Ga.; Louisville (Ky.) Medical College, 1892; died, January 26, from cerebral hemorrhage.

Winfield Scott Ritenour ⊕ Dayton, Ohio; Starling Medical College, Columbus, Ohio, 1911; aged 40; died, February 1.

George Taylor Walton, Boston; Jefferson Medical College, 1872; aged 72; died, Nov. 22, 1920, from lobar pneumonia.

Henry Drummond Livingstone, Corcoran, Calif.; University of Michigan, Ann Arbor, 1875; died in December, 1920.

Fred R. Mosse ⊕ Rochester, Minn.; Chicago Homeopathic Medical College, 1877; aged 65; died, Dec. 26, 1920.

S. A. Washington, Hilltop, W. Va. (license, West Virginia, 1900); aged 60; died, January 14, from pneumonia.

John D. McClain, Anniston, Mo.; Eclectic Medical Institute, Cincinnati, 1875; aged 73; died, January 24.

James M. Swetnam, Phoenix, Ariz.; University of Michigan, Ann Arbor, 1870; aged 71; died, February 6.

Samuel B. Ambler, Sidney, Iowa; St. Joseph (Mo.) Medical College, 1885; aged 63; died, February 10.

William Henry Goodwin ⊕ Danville, Ill.; Rush Medical College, 1899; aged 45; died, February 4.

Hugh Hill, Dalton, N. Y. (license, Eclectic Board, New York, 1880); aged 84; died, January 26.

Louis C. Purman, Washington, D. C.; Howard University, Washington, 1884; died, January 26.

Charles R. House, Richfield, Ill. (license, Illinois, 1878); aged 73; died, January 28.

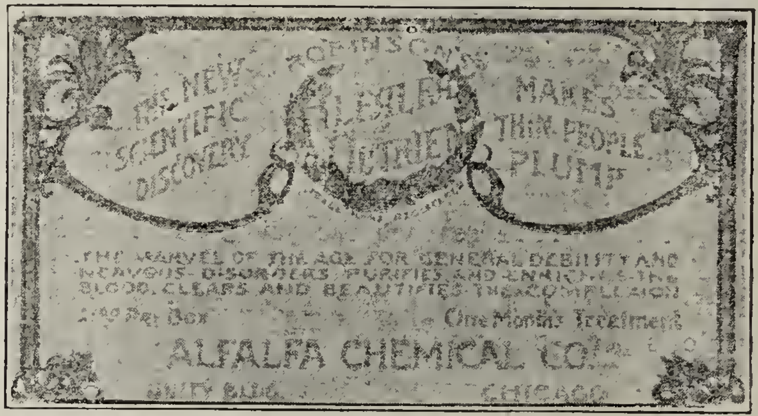
The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Robinson's Alfalfa-Nutrient and Alfalfa Blossom.—Peter R. Lunkes, who did business as the Alfalfa Chemical Co. of Chicago, shipped in March and April, 1918, a quantity of "Robinson's Alfalfa Nutrient. The New Scientific Discovery Makes Thin People Plump" and "Robinson's Alfalfa Blossom. The New Scientific Treatment for All Women's Ailments." These products were declared misbranded by the federal authorities. The Bureau of Chemistry reported that "Alfalfa Nutrient" was a pink pill containing licorice, plant extractives, including a laxative plant drug, calcium glycerophosphate and a cinchona alkaloid. The same authorities reported that "Alfalfa Blossom" consisted of suppositories made of cacao butter containing boric acid, zinc sulphocarbolate, eucalyptol and a cinchona alkaloid. The "Alfalfa Nutrient" was fraudulently represented as a cure for general debility and one that "never fails to restore health, strength and vital energy." The "Alfalfa Blossom" was fraudulently represented as a "positive guaranteed Specific for all female diseases." In March, 1920, Lunkes pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 7931; issued Dec. 30, 1920.*]


THE NEW SCIENTIFIC DISCOVERY
ALFALFA NUTRIENT
MAKES THIN PEOPLE PLUMP
THE MARVEL OF THE AGE FOR GENERAL DEBILITY AND NERVOUS DISORDERS PURIFIES AND ENRICHES THE BLOOD. CLEARS AND BEAUTIFIES THE COMPLEXION
Per Box
One Month's Treatment
ALFALFA CHEMICAL CO.
CHICAGO

Creole Female Tonic, Pa-Nol, and Royaline Oil.—These three nostrums were shipped by the Parker-Blake Co., New Orleans, in January, 1918, and the government officials charged that they were misbranded. The "Creole Female Tonic" when analyzed was found to contain alcohol, iron (probably as citro-chlorid), resins, gums, saponin, tannin, and alkaloids, indicating viburnum, cypripedium, cinnamon and possibly caulophyllum. The product was falsely and fraudulently represented as a cure for weaknesses and disorders of the female reproductive organs, for St. Vitus' dance, headaches, insanity, etc.

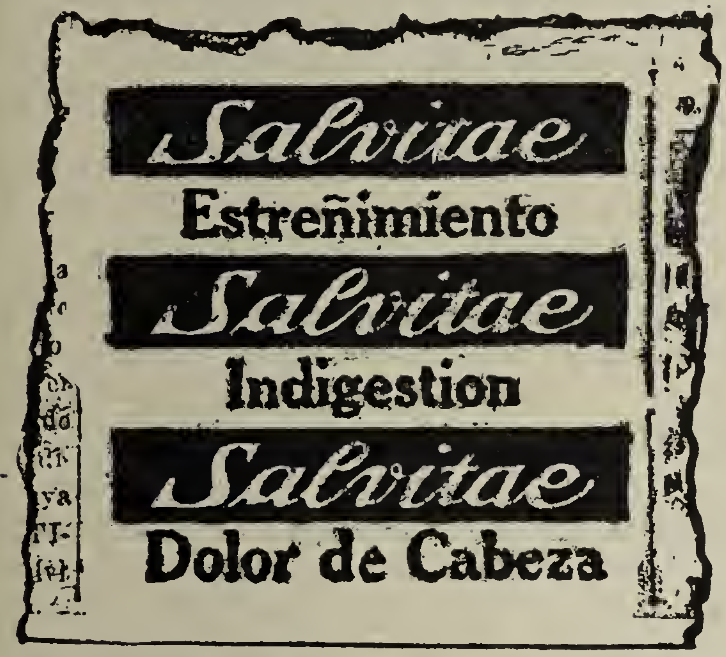
"Pa-Nol" was found by the federal chemists to consist essentially of sulphuric acid and water with a small amount of a volatile sulphur compound. It was fraudulently represented as a "cure for indigestion, dyspepsia, kidney and bladder trouble, female complaints, rheumatism, blood diseases, malarial poisoning" and a great many other things.

"Royaline Oil" when analyzed by the Bureau of Chemistry was found to consist essentially of morphin, chloroform, alcohol, camphor, sassafras, menthol, capsicum, cloves and boric acid. It was fraudulently represented as a cure for burns, colic, sore throat, sore eyes, sore mouth, piles, diphtheria and rheumatism. In November, 1919, the company pleaded guilty and was fined $100.—[*Notice of Judgment No. 7921; issued Dec. 30, 1920.*]

Hill's Specific or Aromatic Elixir.—The Hill Chemical Co., Cave Rock, Ill., shipped in June, 1918, a quantity of this product which the government declared misbranded. The article was labeled in part: "G. W. Hill, M.D. . . . Contains 1/6 grain opium to each fluid oz., 10 per cent. alcohol." When analyzed by the federal chemists it was found to contain ½ a grain of opium to the fluid ounce and, in addition, alcohol, sugar, sulphites, sulphates, a small quantity of camphor and capsicum. It was declared misbranded, first, because the amount of opium present was incorrectly stated and because it was represented as "a safe remedy" when, as a matter of fact it "was a preparation which contained a harmful and deleterious drug, to wit, opium, which could not be administered with safety to health." Further it was fraudulently recommended as a specific and cure for diarrhea of children, summer complaint, peevishness in children, etc. In September, 1919, the company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 7980; issued December 30, 1920.*]

Morley's Wonderful Eight.—The Morley Medicine Co., St. Louis, Mo., shipped in February, 1917, a quantity of "Morley's Wonderful Eight" which was misbranded. The preparation contained alcohol, 60 per cent., soap, camphor, oil of turpentine, oil of sassafras and ammonia. It was fraudulently represented as a cure for colic, sore throat, lung diseases, toothache, earache, backache, hog cholera, dog cholera, fowl cholera, spavin and many other things. In April, 1920, the Morley Medicine Co. pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 7932; issued Dec. 30, 1920.*]

Salvitae.—The American Apothecaries Co., Astoria, N. Y., shipped in May, 1918, a quantity of this product which was declared misbranded. When analyzed by the federal chemists, it was found to consist essentially of citric and tartaric acids with sulphates, carbonates or bicarbonates and phosphates of magnesium, sodium, potassium and lithium with a race of hexamethylenamin. It was falsely and fraudulently epresented as a cure for gout, rheumatism, Bright's disease, nflammation of the bladder, kidney stone, etc. In November, 1919, a plea of guilty was entered and the company was fined $200.—[*Notice of Judgment No. 7923; issued Dec. 30, 1920.*]


Salvitae
Estreñimiento
Salvitae
Indigestion
Salvitae
Dolor de Cabeza

King's O. K. Capsules.—In April and June, 1919, Hance Bros. & White, Philadelphia, shipped a quantity of this roduct which the government claimed was misbranded. nalysis showed it to consist of capsules containing a mixure of santal oil and salol and tablets containing pepsin. These capsules which were apparently sold under the name f the King Medicine Co., Philadelphia, were recommended or "Gonorrhea, Weakness; Diseases of the Bladder or Kideys, Scalding or Burning or Thin Discharges," etc. The laims made were declared false and fraudulent and a decree f condemnation and forfeiture was entered, the court ordering that the product be destroyed.—[*Notice of Judgment No. 7918; issued Dec. 30, 1920.*]

Ring's Rose Injection.—A number of packages of this preparation consigned in January, 1919, by Charles L. Huisking, New York, were seized by the federal authorities on the charge that the product was misbranded. Analysis showed the preparation to consist essentially of lead and zinc, acetates and sulphates, alcohol and water perfumed with oil of rose. It was fraudulently represented as a cure for gonorrhea, gleet, whites, etc. In May, 1920, a default decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7896; issued December 15, 1920.*]

Prescription 500 Capsules.—In July, 1919, the Grape Capsule Co., Allentown, Pa., shipped a quantity of this product which the federal officials held was misbranded. Analysis showed it to consist of capsules containing essentially a mixture of santal oil, cottonseed oil, copaiba, cubebs and salol. The product was fraudulently represented as a cure for gonorrhea, gleet, acute cystitis, etc. In October, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 7903; issued Dec. 30, 1920.*]

Correspondence

THE DOCTOR'S DEFENSE

To the Editor:—The antigeneral practice article (Leonard, V. N.: Significance of Group Practice in Its Relation to the Profession and to the Community, The Journal, Feb. 12, 1921, p. 421), supposedly representing our profession, was to me more amusing than edifying. I wonder whether all are now firmly convinced that they are "complacents": a kind of "lone bandits" that have for years been relieving an unsuspecting public of its money. The general physician must know by this time that he is totally ignorant of the difference between iritis and conjunctivitis, that it is impossible for him to know that a urine contains glucose or albumin, and that after years of study he does not know an L. O. A. from a breech presentation.

Some years of government service gave me an opportunity to study economics over a large part of the United States. I have seen "groups" to which I would hesitate to entrust either the lives of my patients or my own life. These were so-called "operative groups." This, by the way, is a very descriptive name: the accent is on the "operative."

A group composed of men who were real scientists, and not carried away by the common overenthusiasm of their respective specialties, would undoubtedly be a community asset. However, are groups composed of supermen? Will Dr. A. when he becomes one of the parts of Group A B C receive by divine right or by inspiration some wonderful improvement in his judgment, diagnostic ability or surgical technic?

The public has an unpleasant habit of keeping locally its own mortality statistics. After a short time it may not show a full appreciation of *"young men recently trained in special fields."*

The questionable methods of some groups of harping on the utter ignorance of all other medical brethren is simply a straw that shows what the multiplication of groups will mean to the profession.

I still like to believe that there are thousands of doctors who say to their patients at times, "I have not made a diagnosis" or "I have not the training to do this operation, but I will see that Dr. (not Group) So and So will take care of you."

The statement that "present methods of individual private medical practice are inefficient" is unethical and untrue. The argument that these same inefficient doctors formed into groups would be the desired solution of all public ills is laughable.

If "the choice lies between this reorganization and some form of social medicine," the latter will prove the less of two evils.

Through the centuries of sacrifice and study, in modern medicine we have builded a wonder temple that towers above the civilization of the present day, resplendent in its purity, the pride of the living, a monument to the workers of the past. Is this yet unfinished edifice to be destroyed by those of our own ranks, "working from the inside?"

It might be desirable to groups to have the individual doctor legislated out of existence; but I would not advise any one to start it just yet. The time is not ripe. There will probably be enough postoperative comebacks, yes, and even wrong diagnoses, to keep the individual doctors busy for some years to come.

Francis St. Clair Reilly, M.D., Claghorn, Pa.

SOME STATISTICS ON DRUG ADDICTS UNDER THE CARE OF PHYSICIANS IN PENNSYLVANIA

To the Editor:—A report rendered by this bureau for 1920 was tabulated as follows:

Cases of pure addiction	1,069
Diseased persons addicted to drugs	571
Persons with cancer and other neoplasms taking morphin	484
Persons with other incurable disease taking morphin	348
Aged persons addicted, not otherwise diseased	189
Aged addicts with demonstrable disease	162
Addiction due to postoperative conditions	49
Addicts not classified	83
Deaths among addicts, not listed above	149
Total in all classes	3,104

None of the persons listed are taking less than sixteen average doses of narcotics daily; all have become accustomed to ascending dosage and are using narcotic drugs all of the time, either as a habit or legitimately for the relief of pain or other distressing conditions and in whom addiction is incidental. The deaths were chiefly among those classed as pure addicts in 1919 and coming under the care of physicians after a life of dissipation. These persons secured their drugs from pedlers and prostitutes. Some committed suicide; others accidentally took overdoses, and the rest died from disease that found weakened systemic resistance. They went under the care of physicians after becoming public charges or when their friends became alarmed. There were many deaths from cancer, but few of the other cases of disease ended in death. Institutional cases are not listed in this report, since the Pennsylvania laws exempt such cases from report as drug addicts under treatment.

The incidence of malignant disease in this state is so heavy as to be a cause of great concern. In our follow-up work we have ascertained that the medical profession is guilty of very little misuse of narcotics in its treatment of cancer cases.

The heaviest incidence of incurable disease is advanced tuberculosis; next comes tertiary syphilis, in which morphin is given for the relief of lightning pains and gastric crises; there is a large incidence of arthritis of the chronic or deforming type. The incurable cases are reported principally from small municipalities and rural sections, and this leads us to the view that insufficient hospital care is responsible for many curable cases becoming incurable.

Addiction due to postoperative continuous pain leads to the view that there are quite a number of incompetent surgeons in this state, as we have kept in this classification a minimum of surgical patients reported as habitually using narcotics.

The fairly heavy incidence of aged and infirm addicts we attribute to conditions existing before there were any laws controlling the sale of narcotic drugs, for even the aged addicts with demonstrable disease were addicts before they developed disease other than addiction, with a very few exceptions.

Our classification of addiction with disease is always provisional, for in most of the cases so classified we have ascertained that the addiction is the primary factor and the disease a secondary one; but in order to be just to physicians and their patients we enter many such cases for investigation. A large number of cases are reported as "chronic diarrhea" that are, in fact, purely instances of opium diarrhea; and many cases of "asthma" are merely dyspnea due to advancing years. Many neglected but entirely curable cases of genito-urinary disease are discovered when investigating reported addicts claimed to be diseased.

The 1,069 cases of pure addiction reported constitute only a small proportion of such cases in the state, for the greater proportion of pure addiction is among the classes that the physicians refuse to treat. This report deals with persons that are reported by physicians in private practice as pure addicts under their care. A large proportion of these persons were given the ambulatory reductive treatment and were finally reported either as leaving the physicians reporting them or as "cured." As a matter of fact, not fifty of them were cured, for they simply went to the "easy doctor," or two or three such men, and continued their addiction. The final result was that about 150 commercialized and incompetent medical men, unfortunately licensed to practice, gathered up, purely for the money that was in it, nearly all of these addicts and catered deliberately to their cravings for drugs. So it became necessary to issue orders that the reductive ambulatory treatment of pure addiction would not be accepted as in fulfilment of the narcotic laws of the state.

The result of this order was to suppress illicit professional work in the treatment of drug addiction, or largely to suppress it; and the pure addicts are now coming under control, either in institutions or under the care of competent and honest physicians.

This communication emphasizes the fact that the work of collecting dependable statistics on drug addiction is slow. To investigate and classify more than 3,000 cases of addiction scattered throughout the state is a large task, and the glittering generalities passing as statistics, and always exaggerated vastly, are a positive detriment to progress in this work.

Thomas S. Blair, M.D., Harrisburg, Pa.
Bureau of Drug Control.

METHOD OF DETERMINING APPROXIMATE TIME OF DEATH

To the Editor: — Medicolegal volumes fail to reveal any method whereby one can determine even approximately how long a body has been dead. When a dead body is discovered the police naturally turn to the physician for information as to the probable time of death. We are therefore confronted by the problem of discovering some method that can be relied on to give fairly accurate information on this subject.

I have found that, taking advantage of the fact that those portions of the body farthest from the heart—namely, the extremities—are the first to cool, it is possible, by dividing the lower extremities into ten parts, to determine the approximate time of death with a fair degree of accuracy. The method is as follows:

Divide the leg from ankle to knee into three imaginary parts, take the region of the knee pan as the fourth part and divide the thigh into six parts, making ten parts in all, and make allowance of one hour for each division; then by sense of touch note the difference in temperature in each section.

Allowing one hour for each section and starting with Section 1 (Section 1 being the lowest third of the leg above the ankle), if Section 1 is found to be frankly cold as compared with Section 2 (middle third of the leg above the ankle), one may state that the body has been dead about one hour. If in Section 2 one finds frank coldness as compared to Section 3, the body has been dead about two hours, and so on up the leg and thigh until one is able to state approximately how long a body has been dead, if death has occurred within ten hours.

This method has been proved to be fairly accurate in more than a hundred examinations conducted by Assistant Medical Examiners Martin and Boettiger of Kings County, and by Drs. Hala and Atchley of Kings County Hospital, together with myself. The tests have been conducted only where the prevailing atmospheric temperature ranged from 40 to 80 F.

This method is so simple that every person connected with a hospital or with the police force can determine the approximate time of death to his own satisfaction, and in my opinion it should be of material aid to the ambulance surgeon, who is likely to be the first whose opinion is asked at the scene of the discovery of a body.

This article is submitted to the medical profession at large in order that it may be disproved or verified.

E. M. Vaughan, M.D., Brooklyn.
Medical Assistant District Attorney, Kings County.

[Comment.—The method suggested must be considered as only an approximate one. It is well known that death is much more gradual in some diseases than in others, and the feet and legs may be cold hours before breath or the heart action stops. In persons killed while in health, conditions as regard body cooling are different than with death from tuberculous meningitis. When the body is dehydrated, as for example in cholera or in other diseases with profuse diarrhea, conditions as to body cooling vary from those in which the body is not so deprived of fluids. High temperature preceding death, as in heat stroke, obesity, infections with *Bacillus aerogenes-capsulatus*, etc., may modify body cooling. This list of factors which may influence the decision is not complete but suggestive.—Ed.]

AID TO RUSSIAN PHYSICIANS

To the Editor:—Reduced to almost half their numbers by the war, the physicians of Russia have to fight disease without drugs, medical supplies, instruments and other necessities. A number of Chicago physicians have formed an organization for the medical relief of Russia, with the purpose of collecting and transmitting to the medical profession of that unhappy country the things most needed: (*a*) surgical instruments; (*b*) vaccines and antiseptics; (*c*) drugs and bandages, and (*d*) literature on the progress of medicine and surgery for the last seven years. An appeal is, therefore, made to physicians, scientific societies and medical research laboratories to donate from their equipment whatever they can spare.

I shall be glad to receive and acknowledge such contributions.

George B. Hassin, M.D.
Chairman, Council for Medical Relief of Russia.
3155 Jackson Boulevard, Chicago.

Plague Disappears from Galveston.—From the discovery of plague in Galveston, June 8, 1920, until the end of the year, eighteen cases of the disease occurred in the city. Twelve of the patients died of the disease. The last case was reported, November 13, and proved fatal the same day. Approximately 64,000 rats were caught during the sanitary campaign, sixty-seven of which were plague infected, the last infected rat being trapped, December 1. All restrictions on outgoing railroad freight have been removed and conditions are considered normal.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

GLUCOSE IN BLOOD

To the Editor:—Please give in Queries and Minor Notes what is at this time considered the most reliable but simple test for blood sugar. The courtesy will be appreciated.

E. Gard Edwards, M.D., La Junta, Colo.

Answer.—A very exact method for the estimation of sugar in blood is that of Folin and Wu (*J. Biol. Chem.* **38**:81 [May] 1919; **41**:367 [March] 1920). The reagents now employed by the authors are:

Phosphomolybdate-Phosphotungstate Solution: Into a liter beaker place 35 gm. of molybdic acid and 5 gm. of sodium tungstate. Add 200 c.c. of sodium hydroxid solution, 10 per cent., and 200 c.c. of water. Boil vigorously for from twenty to forty minutes so as to remove nearly the whole of the ammonia present in the molybdic acid. Cool, dilute to about 350 c.c., and add 125 c.c. of phosphoric acid, 85 per cent. Dilute to 500 c.c.

Alkaline Copper Solution: Dissolve 40 gm. of pure anhydrous sodium carbonate in about 400 c.c. of water and transfer to a volumetric liter flask. Add 7.5 gm. of tartaric acid, and when the latter has dissolved add 4.5 gm. of crystallized cupric sulphate. Mix and make up to a volume of 1 liter. If the chemicals used are not pure, a sediment of cuprous oxid may form in the course of one or two weeks. If this should happen, remove the clear supernatant reagent with a siphon, or filter through a good quality filter paper. The reagent seems to keep indefinitely. To test for the absence of cuprous copper in the solution, transfer 2 c.c. to a test tube and add 2 c.c. of the phosphomolybdate-phosphotungstate solution; the deep blue color of the copper should almost completely vanish.

Standard Sugar Solutions: Three standard sugar solutions should be on hand: (1) a stock solution, 1 per cent. dextrose or invert sugar, preserved with xylene or toluene; (2) a solution containing 1 mg. of sugar per 10 c.c. (5 c.c. of the stock solution diluted to 500 c.c.); (3) a solution containing 2 mg. of sugar per 10 c.c. (5 c.c. of the stock solution diluted to 250 c.c.).

The procedure consists essentially of two steps:

1. The removal of the proteins from blood: Transfer a measured amount of blood to a flask having a capacity fifteen or twenty times that of the volume taken and mix with 7 volumes of water. From a pipet add 1 volume of 10 per cent. solution of sodium tungstate and mix. From another pipet add to the flask, while shaking, 1 volume of 0.67 normal sulphuric acid; close the flask with a rubber stopper and give a few vigorous shakes; a dark brown coagulum should form; if it does not, add normal sulphuric acid drop by drop, shaking after each addition and allowing the mixture to stand a few minutes before adding more, until coagulation is complete. Prepare a filter large enough to hold all the liquid, pour it on, and cover the funnel with a watch glass. Refilter if the filtrate is not clear.

2. The blood sugar determination is now made: Transfer 2 c.c. of the tungstic acid blood filtrate to a blood sugar test tube (a special blood sugar tube must be used), and to two other similar test tubes (graduated at 25 c.c.) add 2 c.c. of standard sugar solution containing, respectively, 0.2 and 0.4 mg. of dextrose. To each tube add 2 c.c. of the alkaline copper solution. The surface of the mixtures must now have reached the constricted part of the tube. If the bulb of the tube is too large for the volume (4 c.c.), a little, but not more than 0.5 c.c. of a diluted (1:1) alkaline copper solution may be added. If this does not suffice to bring the contents to the narrow part, the tube should be discarded. Test tubes having so small a capacity that 4 c.c. fills them above the neck should also be discarded. Transfer the tubes to a boiling water bath and heat for six minutes. Then transfer them to a cold water bath and let cool, without shaking, for from two to three minutes. Add to each test tube 2 c.c. of the phosphomolybdate-phosphotungstate solution. The cuprous oxid dissolves rather slowly if the amount is large; but the whole, up to the amount given by 0.8 mg. of dextrose, dissolves usually within two minutes. When the cuprous oxid

is dissolved, dilute the resulting blue solutions to the 25 c.c. mark, insert a rubber stopper, and mix. It is essential that adequate attention be given to this mixing because the greater part of the blue color is formed in the bulb of the tube.

The two standards given representing 0.2 and 0.4 mg. of glucose are adequate for practically all cases. They cover the range from about 70 to nearly 400 mg. of glucose per hundred c.c. of blood.

The color comparisons are made in the usual manner. The depth of the standard in millimeters multiplied by 100 and divided by reading the unknown gives the sugar in milligrams per hundred c.c. of blood, when the lower standard is employed; while the depth of the standard must be multiplied by 200 when the solution containing 0.4 mg. is employed.

TALMA OPERATION

To the Editor:—In THE JOURNAL, Jan. 29, 1921, p. 288, is published an article on "Spontaneous and Operative Cure of Cirrhosis of the Liver," by Dr. David Riesman, in which he mentions the Talma operation. Will you please describe this operation?

DARWIN D. SCHOTT, M.D., Champaign, Ill.

ANSWER.—Talma's operation is intended to cure ascites by establishing more free communication between the portal system and the systemic circulation. The operation is an epiplopexy. The abdomen is opened and the omentum is sutured either into the abdominal wound or between the layers of the anterior abdominal wall. The results are said to be better when the second method is adopted. The gallbladder may also be sutured to the abdominal wall. The liver and spleen under the surface of the diaphragm and the parietal peritoneum about the liver and spleen are usually rubbed harshly with a piece of gauze. Drainage is not used by most operators as it does not appear to contribute any favorable chances, and it exposes the patient to the danger of infection. The operation ought to be performed early before the onset of chronic inflammation of the peritoneum. In a great majority of cases the operation has proved futile, and in some instances death has followed soon after from complications or because the disease is far advanced. In exceptional cases the operation has been of great benefit. The mortality is lowest when the liver is large; the smaller the liver, the greater the mortality.

The Quarterly Cumulative Index lists the following recent papers dealing with this subject:

King, E. L.: Entire Relief of Symptoms in Cirrhosis of the Liver from the Talma Operation, *New Orleans M. & S. J.* **72**: 529 (March) 1920.

Eliot, E., Jr., and Colp, R.: Operation of Omentopexy in Cirrhosis of the Liver, *Surg., Gynec. & Obst.* **28**: 309 (March) 1919.

Mayo, W. J.: Surgical Treatment of Cirrhoses of the Liver and Their Complications, *Ann. Surg.* **68**: 183 (Aug.) 1918; The Liver and Its Cirrhoses, THE JOURNAL, May 11, 1918, p. 1361.

Hardin, L. S.: Operative Technic in Cirrhosis of the Liver, *J. M. A. Georgia* **7**: 247 (March) 1918.

CHEMICAL CONSTITUENTS OF TUBERCLE BACILLI

To the Editor:—In THE JOURNAL, Jan. 20, 1921, p. 315, it is stated that "a high percentage of the weight of the tubercle bacillus is in the form of an alcohol chemically and physically somewhat similar to cholesterol." Would you mind giving me the reference to the original authority for this statement?

AUSTIN MILLER, M.D., Porterville, Calif.

ANSWER.—According to Kresling (*Centralbl. f. Bakteriol.*, I, **30**: 897, 1901), 40 per cent. of the dry weight of the tubercle bacillus is lipoid. About 40 per cent. of this in turn is in the form of alcohols other than glycerol, which are present as esters in the unsaponified lipoid mixture. About a quarter of the lipoid of the bacillus consists of wax, which is in the greater part mykol laurate (the mykol of Sakae-Tamura), an alcohol of high molecular weight (Goris: *Ann. de l'Inst. Pasteur* **34**: 497, 1920; Tamura: *Ztschr. f. physiol. Chem.* **87**: 85, 1913).

Sakae-Tamura, who gave the name mykol to this alcohol, gives a provisional formula $C_{29}H_{56}O$. A number of sterols have from twenty-five to twenty-nine carbon atoms. Most, but not all, of these have a higher melting point than mykol. The empiric formula for cholesterol is usually given as $C_{27}H_{46}O$. Cholesterol itself has never been certainly identified in the tubercle bacillus, although several investigators have claimed positive tests for it. Mykol gives feeble color reactions like those of cholesterol in twenty-four hours (Goris). Goris thinks that some cholesterol may be present in the mykol fraction, but he has never been able to isolate it.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.

DISTRICT OF COLUMBIA: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

IDAHO: Boise, April 5. Director, Mr. Paul Davis, Boise.

MAINE: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MASSACHUSETTS: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.

MINNESOTA: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

MONTANA: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

OKLAHOMA: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

RHODE ISLAND: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

UTAH: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

WEST VIRGINIA: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

New York June and July Examination

Mr. H. J. Hamilton, assistant, professional examinations, New York State Board of Medical Examiners, reports the written examination held at Albany, Buffalo, New York and Syracuse, June 29-July 2, 1920. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 513 candidates examined, 414, including 3 osteopaths, passed, and 98, including 5 osteopaths, failed. The following colleges were represented:

PASSED

College	Year Grad.	Number Licensed
University of Georgia	(1920)	1
Rush Medical College	(1912)	1
University of Illinois	(1916)	1
University of Louisville	(1915)	1
Johns Hopkins University	(1917) 1, (1919) 1, (1920) 5,	7
University of Maryland	(1920)	1
Harvard University	(1920)	1
Tufts College Medical School	(1913) 1, (1916) 1,	2
Detroit College of Medicine and Surgery	(1918)	1
University of Minnesota Medical School	(1917)	1
Albany Medical College	(1920)	20
Columbia University	(1919) 3, (1920) 46,	49
Cornell University Med. College	(1915) 1, (1916) 1, (1920) 34,	36
Fordham University	(1915) 2, (1916) 1, (1917) 2, (1920) 35,	40
Long Island College Hospital	(1917) 1, (1920) 53,	54
New York Homeopathic Medical College and Flower Hospital	(1917) 1, (1919) 2, (1920) 20,	23
Syracuse University College of Medicine	(1920)	32
University and Bellevue Hospital Medical College	(1917) 1, (1919) 2, (1920) 71,	74
University of Buffalo Department of Medicine	(1920)	50
Eclectic Medical College, Cincinnati	(1920)	4
Jefferson Medical College	(1915) 1, (1919) 1, (1920) 1,	3
University of Pennsylvania, Philadelphia	(1917)	1
University of Pittsburgh	(1917)	1
Vanderbilt University	(1914)	2
University of Vermont	(1915) 1, (1919) 1,	2
Queen's University, Kingston, Ont.	(1920)	1
University of Toronto	(1910) 1, (1913) 1,	2
University of Naples, Italy	(1905)*	1

FAILED

Georgetown University School of Medicine	(1913)	1
American Medical Missionary College	(1910)	1
College of Physicians and Surgeons, Chicago	(1902)	1
Rush Medical College	(1917)	1
State University of Iowa College of Medicine	(1911)	1
University of Louisville	(1914)	1
Johns Hopkins University	(1917) 1, (1920) 1,	2
University of Maryland	(1913) 1, (1920) 1,	2
Boston University School of Medicine	(1906) 1, (1920) 1,	2
Tufts College Medical School	(1917)	1
Detroit College of Medicine and Surgery	(1917) 1, (1919) 1,	2
Columbia University	(1917) 1, (1919) 3, (1920) 5,	9
Cornell University	(1919) 2, (1920) 4,	6
Fordham University	(1915) 1, (1917) 2, (1918) 1, (1920) 6,	10
Long Island College Hospital	(1920)	9
New York Homeopathic Medical College and Flower Hospital	(1916) 1, (1917) 1, (1918) 2, (1919) 1, (1920) 6,	11
New York Medical College and Hospital for Women	(1917)	1
Syracuse University College of Medicine	(1920)	4

University and Bellevue Hospital Medical College	(1920)	1
University of Buffalo Department of Medicine	(1920)	4
Eclectic Medical College, Cincinnati	(1920)	4
Hahnemann Med. Coll. and Hospital of Philadelphia	(1920)	1
Jefferson Medical College	(1915) 1, (1919) 1,	2
Medico-Chirurgical College of Philadelphia	(1916)	1
University of Pennsylvania School of Medicine	(1917)	1
Woman's Medical College of Pennsylvania	(1915)	1
Vanderbilt University	(1913)	1
Baylor University	(1920)	1
University of Vermont	(1911) 1, (1919) 3,	4
Medical College of Virginia	(1914)	1
McGill University	(1920)	2
Queen's University	(1904) 1, (1920) 1,	2
University of Munich, Germany	(1911)*	

Mr. Hamilton also reports that 30 candidates were licensed by endorsement of their credentials. Of these, 15 were granted license by reciprocity with other states; 10 by endorsement of their licenses on the basis of eminence and authority in the profession; 2 were granted a registration license, and 3 candidates were licensed on diploma.

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1912)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1904)	Illinois
Rush Medical College	(1903) (1916)	Illinois
University of Maryland	(1916)	New Jersey
Long Island College Hospital	(1920)	New Jersey
New York Homeopathic Medical College and Flower Hospital	(1913) New Jersey, (1917)	California
University of Cincinnati College of Medicine	(1914)	Ohio
Eclectic Medical College, Cincinnati	(1915)	Ohio
Ohio Medical University	(1904)	Ohio
Jefferson Medical College	(1910) Ohio, (1915)	New Jersey
University of Virginia	(1917)	Virginia
Marquette University School of Medicine	(1919)	Wisconsin

LICENSED BY ENDORSEMENT OF CREDENTIALS

George Washington University	(1900)	Penna.
Tulane University of Louisiana	(1912)	Louisiana
Johns Hopkins University	(1910)	Maryland
Harvard University	(1888) Massachusetts, (1915)	Maine
College of Physicians and Surgeons, Boston	(1899)	Mass.
Western Reserve University	(1885)	Ohio
University of Oklahoma	(1915)	Kansas
University of Vermont	(1904)	Vermont
McGill University	(1896)	Quebec

LICENSED ON DIPLOMA

University of the City of New York	(1889) 1, (1891) 1,	2
University of Michigan Medical School	(1877)	1

* Graduation not verified.

Hawaii September Examination

Dr. J. E. Strode, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Sept. 13-16, 1920. The examination covered 8 subjects and included 86 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined 7 passed and 8 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Leland Stanford Junior University	(1920)	80
University of California	(1907)	86
Rush Medical College	(1920)*	80
Tulane University	(1905)	77
Harvard University	(1914)	83
Washington University Medical School	(1920)	83
University of Cincinnati	(1912)	80

FAILED

Bennett College of Eclectic Medicine and Surgery	(1898)	55
Northwestern University	(1912)	71
Indiana University School of Medicine	(1908)	67
Johns Hopkins University	(1920)	70
Boston University	(1901) 71, (1916)	71
Jefferson Medical College	(1911)	73
University of Moscow	(1912)**	74

* Diploma withheld until 1921, pending completion of hospital internship.

** Graduation not verified.

Maine November Examination

Dr. Frank W. Searle, secretary, Maine Board of Registration of Medicine, reports the written examination held at Portland, Nov. 9-10, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Harvard University	(1920)	82, 84
Tufts College Medical School	(1920)	81
McGill University	(1919)	80

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Pennsylvania Department of Medicine	(1875)	Illinois
University of Vermont	(1906)	Vermont

Book Notices

Injuries of the Peripheral Nerves. By Henry S. Souttar, C.B.E., F.R.C.S., M.Ch., Assistant Surgeon and Director of the Surgical Unit, London Hospital, and Edward W. Twining, M.R.C.S., L.R.C.P., Medical Officer in Charge of Physical Treatment Department, Pensions Hospital, Netley. Cloth. Price, $4.50. Pp. 152, with 30 illustrations. New York: William Wood and Company, 1920.

The authors have sought to gather into permanent form the observations of several years of experience and to apply to the demands of civil life what they have learned from the study of peripheral nerve injuries in war. The volume is a fairly comprehensive manual of the diagnosis and treatment of peripheral nerve injuries. Recognition has been taken of some of the more recent observations of other workers in this field, and such conditions as supplementary motility and sensory overlap which contribute to fallacies of diagnosis are emphasized. Some rather difficult physiologic problems are met by explanations that are too simple, as when the authors declare: "As, however, we approach the cord, these fibers become regrouped in accordance with the varying regions of the brain to which their sensations will ultimately be conveyed; and hence it follows that the nerves, as they arise from the cord, supply with epicritic sensation areas in which the overlap may be considerable." In discussing difficult sutures, the authors describe and in a measure advocate two procedures that appear to be contrary to current views. The first of these is resection of a long bone to permit coaptation of far separated ends of severed nerves, and the second, an operation which they describe as a "bulb-flap operation." In this operation they attempt to use the neuroma in which the axons from the proximal part of the nerve had been turned back as a means of conducting these axons along the degenerated sheaths of the flap which is sutured into the distal segment. This method would in a measure be equivalent to using the bulb on the proximal end in making end-to-end sutures, and would seem to be a method that should be condemned. The book is easy to read, and the illustrations are good.

Clínica Quirúrgica y Técnica Operatoria. Por el Dr. J. A. Presno y Bastiony. Paper. Pp. 311, with 62 illustrations. Habana: Imprenta "El Siglo XX," 1920.

Dr. Presno y Bastiony, the well-known professor of Havana University and editor of the *Revista de Medicina y Cirugía*, has assembled the different articles published by him on clinical and operative surgery from 1915 to 1919. The work is divided into six parts, dealing, respectively, with the liver and biliary passages, pancreas, gastro-intestinal tract, urinary passages, gynecology, and head and extremities. Probably the most practical as well as the most interesting chapter of the book is that written at the request of medical students in which are discussed the various modes of approaching deep vessels and nervivascular bundles. Of special interest also are the chapters on the surgical treatment of amebic liver abscesses and a new mode of approach in operations on the biliary passages. It consists in a straight 8 cm. incision over the linea alba just below the ensiform process, somewhat along the lines of Perthes' incision and Kehr's modification of Czerny's incision, but turning obliquely toward the tenth rib. The book is beautifully printed, and the numerous and handsome illustrations add most distinctively to its value.

Initiative in Evolution. By Walter Kidd, M.D., F.R.S.E. Cloth. Price, 15 shillings net. Pp. 262, with illustrations. London: H. F. & G. Witherby, 1920.

The author attempts to prove the neo-Lamarckian theory of heredity, or that "acquired" characters are transmitted by heredity, by the study of the direction of the hair on the body of several species of mammals (man, monkey, horse, dog). The author's thesis is that the peculiar direction of the hair on certain parts of the body has been determined by mechanical stimuli resulting from prevailing posture or locomotion, that is, by mechanical pressure, until these peculiar patterns of hair direction become inherited. The first four chapters are essentially a review of the present status of the theories of evolution and heredity, as exemplified by

Weismann and by Bateson. The author is to be commended for his genial spirit and his ability to state the highly technical concepts of heredity in nontechnical terms, and without invoking the aid of mathematical formulas. The spirit of the amateur (in the good sense of that word) permeates the pages, and now and then a story or a parable is introduced to illustrate a point. In the preface the author thus describes the results of years of work in this special field: The furrow ploughed may have been lonely, but the pursuit has not been without the pleasure of seeing fresh scattered portions of the field coming into their natural order. The resultant state of mind resembles that of a certain Mr. Burke recorded in the annals of a golf club, the ancient, and now Royal Blackheath, among whose minutes appear the following:

20th September, 1834:
Present Mr. Burke, Solus.
The dinner was good, wine abundant, the utmost harmony prevailed. The want of grouse was severely felt this day.

Heart Affections, Their Recognition and Treatment. B. S. Calvin Smith, M.S., M.D., Instructor in Medicine, University of Pennsylvania Graduate School of Medicine. Cloth. Price, $5.50 net. Pp. 440, with 83 illustrations. Philadelphia: F. A. Davis Company, 1920.

The specialist or the student wishing to get an intimate knowledge of heart disease will not consult these pages for, as the author himself says, in his desire to be brief he has passed rather hurriedly over chapters, the importance of which demands more elaborate treatment. The busy physician or the undergraduate desiring a rapid survey of the subject may find it here, treated in quite an elementary though, on the whole, satisfactory manner. Favorable comment is deserved for the clear and sensible discussion of the treatment of heart disease, though one may feel that undue importance is attached to the Schott or Nauheim treatment. We trust that the same almost youthful enthusiasm that is found in this volume may characterize a second edition which should contain, if we may be pardoned the Irsh bull, certain omissions and additions that will naturally be suggested to the author as he gains by richer experience and further study.

Practical Preventive Medicine. By Mark F. Boyd, M.D., M.S., C.P.H., Professor of Bacteriology and Preventive Medicine in the Medical Department of the University of Texas. Cloth. Price, $4 net. Pp. 352, with 135 illustrations. Philadelphia: W. B. Saunders Company, 1920.

In this volume of about 350 pages the author has attempted to "briefly present the salient features of modern preventive medicine." The task is indeed a difficult one, because condensation necessarily means the omission of a vast amount of material and it becomes a matter of personal opinion concerning what is most important to include. The book should be of value to physicians, for whom it is primarily intended, but does not appeal to the reviewer as available for teaching elementary students in public hygiene. A textbook for the latter group is much needed. As to contents, "Practical Preventive Medicine" covers in abstract form the material presented in such comprehensive books as Rosenau's "Preventive Medicine and Hygiene" and Park's recently published "Public Health." The author has performed a difficult task with reasonable success.

A Manual of Pathology. By Guthrie McConnell, M.D. Fourth edition. Cloth. Price, $4.50 net. Pp. 611, with 187 illustrations. Philadelphia: W. B. Saunders Company, 1920.

The fact that this book has been six times reprinted is evidence that there is still a large demand for works that epitomize such a subject as pathology. Epitomes unfortunately permit the substitution of memory for understanding. As long as theoretical examinations are given, epitomes will continue to function as straws for the mentally submerged. In any regular scheme of education they have little place. Of its class, this book is one of the best, being usually accurate and with carefully selected illustrations. It is as complete as the limitations of its space permit, and as incomplete as these limitations necessitate. A student who memorized this book carefully would probably pass state board examinations —without further study he would not, however, understand pathology.

Medicolegal

Transportation of Insane Persons

(Hines v. Miniard (Ala.), 86 So. R. 23)

The Supreme Court of Alabama, in reversing a judgment for damages obtained by plaintiff Miniard, against defendant Hines, as director general of railroads operating the Illinois Central Railroad, says that the wrong complained of occurred in Illinois and consisted of an alleged failure of the conductor of a train to take preventive action, which was described as gross and wanton negligence, when the plaintiff complained to him of the language being used by an insane colored woman in the same car. The court thinks that it may be accepted as the law of this case that, while it was the duty of the defendant company to take every reasonable precaution to prevent annoyance or injury to other passengers by the crazy woman—and this would include the duty of providing another place for her, if any such place were reasonably available on the train, or even putting her off the train at some place where she could be cared for, if that appeared to be necessary—still, the defendant had no moral or legal right to shift the annoyance or prospective danger of such a presence from the plaintiff and other passengers in the coach with her to others equally entitled to protection. On the whole, the question of the defendant's management of the crazy woman was one of judgment and discretion, and, if the judgment and discretion of its agent in charge of the train was exercised in good faith, the defendant was not guilty as charged in the complaint. A carrier cannot absolutely refuse transportation to insane persons. These people must be carried to the asylums, if nowhere else. The carrier has the right to require that such a passenger be in charge of a competent attendant. On it rests the duty of exercising a high degree of care that he do no harm to other passengers, and, if it be found necessary to the reasonable safety and comfort of other passengers, such passengers may be removed from the train at the first station where they may be properly cared for.

Medical Association as State Board of Health

(Parke et al. v. Bradley et al. (Ala.), 86 So. R. 28)

The Supreme Court of Alabama holds that a demurrer was properly sustained to a bill filed by the complainants as taxpayers and citizens to enjoin any payment of state funds for the use of the state board of health, or its agents. The court says that it was contended that the legislature had exceeded its power when it enacted that the medical association of the state should be the state board of health, and the state board of censors of the association should be the state committee of public health, to act for the state board of health when the latter was not in session. But whether the association be regarded as a private, a public or a quasipublic corporation is, the court thinks, wholly immaterial; for the association, as such, is not invested with any power or authority whatever. On the contrary, recognizing its peculiar aptitude for the important and responsible service required, the state has availed itself of a ready-made organization of professional and practical medical scientists, and has by legislative fiat converted it bodily into a state board of health, and to this public board, not to the state medical association, the legislature has granted authority and jurisdiction in the premises. The court is advised of no constitutional inhibition against such legislative action. The implied limitation against any delegation by the legislature of its law-making power is in no way involved or concerned. But it is thoroughly well settled by the decisons of Alabama, as well as of other states, that the implied limitation against the delegation of the law-making power was never intended to prevent legislatures from authorizing their own appointed agencies to make such minor rules and regulations as are necessary or appropriate for the administration and enforcement of the general laws of the state.

However, the chief point of attack in the structure of the state board of health of Alabama was in the mode of selecting its members, the objection being that in effect they are selected by the vote of members of the medical association of the state who, with respect to such action, are acting in a private capacity, in accordance with the rules of their association, and without responsibility to the state or to the people. Conceding this to be true, and admitting the moral force of the objection, the court is still unable to see that any constitutional inhibition is thereby violated. It is to be observed that the power of private corporate selection here complained of is indirect and not immediate, for, after all, the legislature designates the board of health, though it selects therefor a corporate organization whose individual membership is predetermined by the rules of that corporation. But, even so, there is a legislative adoption of those rules as the appropriate made of selection, and it is clearly within the power of the legislature to direct and formulate those rules, and to change them at its pleasure. But, those considerations aside, the authorities strongly support the authority of the legislature to vest in private associations of this sort the power to select or appoint the members of state boards constituted for the administration of public affairs.

The court might, without affecting its conclusion, have conceded, for the purposes of the discussion, that the medical association was and is a private corporation. The court is nevertheless of the opinion, having regard to its organization, aims, activities, and its relation to the state board of health and to the public welfare in general, that it is a quasipublic corporation, charged with duties and responsibilities which it cannot evade, and is therefore, even under a much narrower construction of legislative power than the court has accorded, an appropriate agency for service in the administration of the health laws of the state. The tendency of the courts, as the guardians and expounders of constitutions, has been and is to accord to legislation of this character the utmost liberality that is possible, consistently with the preservation of the organic structure of their governments.

Wherefore, the court holds that the state board of health is a legal body, lawfully empowered, and that it is entitled, through its legally qualified state health officer, to receive and, within the law, to expend the money appropriated thereto by the legislature.

Liability of Physicians as Roentgenologists—Unexpected Results

(Hamilton v. Harris (Texas), 223 S. W. R. 533)

The Court of Civil Appeals of Texas, on the second appearance before it of this case, affirms a judgment for $3,500 damages in favor of plaintiff Harris, on accont of burns sustained from the alleged negligent application of roentgen rays by defendant Hamilton, in treating the plaintiff for a small spot of eczema, about the size of a silver dollar. The court says that the rule in Texas to determine the liability of physicians or surgeons for injuries sustained resulting from negligence or unskilfulness in the use of roentgen rays is the same applied in one class of cases as the others, whether such reasonable care and skill was used as is ordinarily exercised by reputable physicians in the locality. The physician is not expected to look for unexpected results from treatment of his patients, but is compelled to look for natural and probable results. He is not expected to anticipate results arising from peculiar characteristics and conditions of a patient, nor is he an insurer of unexpected results. So, while the treatment and character of the injury may be looked to as a circumstance, in the absence of testimony explaining, it may or may not be conclusive.

The defense was that the plaintiff had a hypersensitive skin, and it devolved on the defendant to prove that the plaintiff had such a skin. To accomplish that proof he brought in a number of physicians, who said either there was negligence or a hypersensitive skin. There was no proof of any hypersensitive skin, except the defendant's testimony, but, on the other hand, two applications were made to the skin with no burn or other bad result. If hypersensitive on the third application, the skin should have been hypersensitive on the first and second applications, for with the great array of medical experts not one of them testified that the skin was more sensitive on the third application than on the first or second; and, if it were, the testimony showed that no greater precaution was taken by the defendant on the third than on the first and second applications. It was evident that when the defendant testified that the plaintiff had a hypersensitive skin it was predicated on the theory that the treatment was in all respects properly administered, and concluded therefrom that it would not otherwise have burned. The jury, however, did not agree with him, and found against his testimony, which it had the power to do. The fact that the skin did not burn on the first or second application, and did on the third, was a very strong circumstance to support the finding of the jury that the plaintiff did not have a hypersensitive skin. There was an interval of five days between treatments.

Nor was there error in submitting to the jury a special issue in regard to the use of a blanket or composition of rubber and lead as a protection, the blanket containing a circlar hole of 6½ inches diameter, for it was itself introduced in evidence by the defendant for what it was worth, and identified by the defendant himself, and referred to by the medical witnesses as the proper kind of protection and proper size hole to have for the patch of eczema of the size proved. The testimony of the plaintiff describing the character of the burn as being outside the small spot of eczema might partially account for the burn, as the hole in the rubber covering was about 6 inches in diameter, through which the rays were administered to that small spot. The jury had the right to infer that, had the rays been confined to the diseased spot, by a smaller hole in the covering, even permitting the rays to touch a small surface around and outside it, they would not have burned the large surface, so the jury found that the hole used was too large and that that caused the burn. The court does not consider that the amount of damages allowed was excessive.

Duty of Parents to Support Defective Children

(Schultz v. Western Farm Tractor Co. (Wash.), 190 Pac. R. 1007)

The Supreme Court of Washington, in affirming an order which divided $2,250 paid by the defendant for the death of an employee, giving $1,600 to the widow, and $650 to a son by a former wife, says that the son was a cripple. In his early boyhood, because of some misfortune which had overtaken him, his left arm was amputated at the shoulder. He had but a moderate education, and there were in consequence but few pursuits open to him by which he could earn a livelihood. From his birth until his early youth he was supported entirely by his father, and, from the time he began to do something for his own support up to the time of his father's second marriage, if not up to the time of his father's death, he had been the recipient of a part of his father's somewhat meager wage. The widow, however, called attention to the fact that had the monthly sums which the son claimed to have received from his father been continued up to the time that the son would become of age they would not have amounted to the sum awarded him, from which it was argued that the sum which he would have so received should be considered the measure of his loss. But the court does not think that the argument was conclusive. Doubtless the legal duty of a parent to support his normal children ceases at the age of majority; but the rule is not the same with respect to his defective children, whether the defect be mental or physical. To these he owes a continuing obligation of support, which ceases only when the necessity for support ceases.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Philadelphia, March 24-26.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Arizona Medical Association, Tucson, April 15-16.
Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, Congress Hotel, Chicago, March 7-10.
Tennessee State Medical Association, Nashville, April 12-14.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

January, 1921, 28, No. 2

Developmental Rate and Structural Expression: An Experimental Study of Twins, "Double Monsters" and Single Deformities, and Interaction Among Embryonic Organs During Their Origin and Development. C. R. Stockard, New York.—p. 115.
Development of Mammalian Spleen, with Special Reference to Its Hematopoietic Activity. G. A. Thiel and H. Downey, Minneapolis. —p. 279.
Early Establishment of Intestinal Nutrition in Opossum; Digestive System Just Before and Soon After Birth. C. H. Heuser, Baltimore. —p. 341.
Recurrent Branches of Abducens Nerve in Human Embryos. J. L. Bremer, Boston.—p. 371.
Studies on Effects of Thirst. I. Effects of Thirst on Weights of Various Organs and Systems of Adult Albino Rats. T. Kudo, Minneapolis.—p. 399.

American Journal of Obstetrics and Gynecology, St. Louis

January, 1921, **1**, No. 4

*New Conceptions of Relation of Liver to Problems of Abdominal Surgery. G. W. Crile, Cleveland.—p. 321.
*Surgical Conditions of Liver and Biliary Tract. J. H. Branham, Baltimore.—p. 331.
Where the Rubber Glove is Behind the Times. R. T. Morris, New York.—p. 334.
Gehrung Pessary for Relief of Cystocele, E. J. Ill, Newark, N. J.—p. 338.
Endocrine Influence, Mental and Physical, in Women. J. E. King, Buffalo.—p. 341.
Double Flap Low Cesarean Section Results. T. C. Welton, Brooklyn. —p. 350.
Vaginal Cysts. L. W. Strong, New York.—p. 357.
*Analysis of Fifty Cases of Ectopic Gestation. H. Grad, New York.—p. 360.
Hernia of Ileum Through Rent in Mesentery, W. E. Darnall, Atlantic City, N. J.—p. 366.
An Unusual Abdominal Cyst Caused by Tuberculosis of Omentum. O. G. Pfaff, Indianapolis.—p. 367.
Encephalitis Complicating Pregnancy Near Term; Carcinoma of Cervix in Primipara Aged Twenty-Four. W. M. Brown, Rochester, N. Y. —p. 368.
Rupture of Bladder During Labor. J. W. Poucher, Poughkeepsie, N. Y.—p. 371.
Accidental Hemorrhage; Cesarean Section; Hematuria in Pregnancy. J. K. Quigley, Rochester, N. Y.—p. 372.

Physiology of Liver and Mortality of Abdominal Operations.—A summary is given by Crile of recent investigations of the physiology of the liver and of methods based on them whereby the mortality of abdominal operations may be diminished. He had prepared charts which show the percental variations in the electric conductivity of the liver and cerebellum in exhaustion from various causes. The conductivity of the liver is increased, whereas the conductivity of the brain is decreased. After excision of the liver, the temperature of the brain falls progressively until death. The brain cells show changes in the cytologic structure which are progressive from the moment the liver is excised. In every type of exhaustion, from whatever cause, the cells of the liver show cytologic changes, such as diminished power of differential staining, edema, and increased electric conductivity. Granting adequate circulation and respiration in a decapitated animal, the excision of the liver causes death earlier than decapitation of suprarenalectomy. From these premises Crile concludes that the liver is inseparably associated with the brain in the production of shock and exhaustion; but as the liver has no means of immediate contact with the external excitants of shock and exhaustion, it apparently in some way is influenced indirectly through the mediation of the brain. When the margin of safety has been reduced by diseases of the liver, such as cirrhosis, an abscess, a tumor, infection or jaundice, by starvation or emaciation, by want of water equilibrium, by loss of sleep, or worry, or fatigue from exertion, etc., then the liver must be protected against an increased burden of work such as worry, dread, muscular exertion, the trauma of operation, or pain during or after operation. These factors are excitants of metabolism; excitants of metabolism increase the work of the liver; increased work of the liver must be avoided. A general scheme for the management of abdominal operations from this premise is given. Briefly, its aim is to avoid shock of every kind.

Subperitoneal Operation on the Gallbladder. — Branham describes a method of operating on the gallbladder which he claims is practically subperitoneal. Having opened the abdomen, an oval incision is made over the lover anterior surface of the organ; the peritoneal coat is dissected from the deeper tissues. A considerable margin of the peritoneal coat is left at the liver attachment; the duct is severed, and after being explored and emptied of stones, etc., a large catheter is fastened to it with a twenty-day catgut suture. The peritoneal coat from each side is stitched together and then to the ventral peritoneum. This leaves the catheter outside the peritoneal cavity and gives a smooth serous surface to cover the entire wound, thus preventing adhesions. Branham claims that operations performed in this way are rarely followed by adhesions and the patients are usually left in good condition.

Hemorrhage in Ectopic Gestation.—In the fifty cases analyzed by Grad thirty-seven women had negligible hemorrhage; four had moderate hemorrhage; seven severe hemorrhage and two cases were fatal from hemorrhage. The analysis of the cases shows that in 74 per cent. of cases of ectopic gestation a negligible amount of bleeding occurs; in 8 per cent. there is a moderate amount of bleeding; in 14 per cent. there is severe hemorrhage, and in 4 per cent. fatal hemorrhage occurs. In the first group of thirty-seven cases, the most prominent symptom was pain in twenty-six cases uterine bleeding in eleven cases.

American Journal of Physiology, Baltimore

January, 1921, **54**, No. 3

Experimental Studies in Diabetes. Series II. Internal Pancreatic Function in Relation to Body Mass and Metabolism. F. M. Allen, New York.
    *Influence of Cold.—p. 425.
    *Influence of Extremes of Age on Production of Diabetes.—p. 439.
    *Influence of Pregnancy on Experimental Diabetes.—p. 451.
Rhythmicity of Pyloric Sphincter. H. Wheelon and J. E. Thomas, St. Louis.—p. 460.
*Difference Between Mechanism of Hyperglycemia Produciton by Ether and Chloroform. E. L. Ross and L. H. Davis, Chicago.—p. 474.
Digestibility of Some Hydrogenated Oils. A. D. Holmes and H. J. Deuel, Washington, D. C.—p. 479.

Influence of Cold on Function of Pancreas.—In this experimental study Allen found that cold environment, such as did not lower the rectal temperature to any important extent, in some instances failed to affect the plasma sugar of dogs or slightly lowered it, but in the majority of experiments it produced hyperglycemia and sometimes glycosuria. These were produced more easily and in higher degree in proportion as the power of sugar utilization was impaired, i. e., as the diabetes was more severe. The power to produce glycosuria is to be distinguished from the power to produce diabetes. There is no demonstrable difference in the proportion of pancreatic tissue that must be removed to produce diabetes in dogs in warm or cold environment, and it was proved by successive operations on the same animals that the influence of cold is not equivalent to the removal of the smallest fraction of a gram of pancreatic tissue. In animals already diabetic, the course of the diabetes in a few instances seemed to be influenced slightly for the worse, so as, perhaps, to warrant the conclusion that cold imposes an increased burden on the pancreatic function by increasing metabolism. The slightness of this influence is emphasized by control experiments. The impression that diabetic patients do worse in cold weather, Allen says, is probably explainable by the discomfort of chilliness when they are undernourished, the tendency to take more food, and sometimes by the limitation of exercise. These may be important sometimes from a practical standpoint, but any direct influence of climate on diabetes must be very slight if it exists.

Influence of Age on Function of Pancreas.—Allen suggests that childhood infections injuring the pancreas may be responsible for some cases of diabetes which appear at a much later period.

Influence of Pregnancy on Experimental Diabetes.—No positive influence of the sex glands on diabetes was demonstrable by extirpation experiments; also no anatomic changes in the pancreas were perceptible with pregnancy or lactation. Observations on a partially depancreatized dog during pregnancy are opposed to the view that any appreciable quantity of internal pancreatic secretion passes from the fetus to the mother. A distinct lowering of carbohydrate assimilation was shown during pregnancy.

Mechanism of Hyperglycemia Production by Ether and Chloroform.—The experiments made by Ross and Davis show that ether anesthesia does not procure any injury to the mechanism of dextrose mobilization that can be detected the following day. The injury to the liver cells produced by chloroform anesthesia reduces the glycemia of the following day and injures the mechanism of dextrose mobilization according to the degree or injury. The hyperglycemia due to chloroform anesthesia is not due primarily to the direct action of chloroform on the liver. Probably chloroform, like ether, produces hyperglycemia chiefly through its depressing action on the internal secretion of the pancreas.

American Journal of Roentgenology, New York

January, 1921, **8**, No. 1

Peristalsis in Health and Disease. W. C. Alvarez, San Francisco.—p. 1.
*Pneumoperitoneum of Pelvis. J. B. Von Zwaluwenburg and R. Peterson, Ann Arbor.—p. 12.
Case of Dislocation of Right Carpal Scaphoid. T. S. Bonney, Aberdeen, S. D.—p. 24.
Roentgen-Ray Treatment of Tonsils and Adenoids. W. D. Witherbee, New York City.—p. 25.
An Inexpensive Radium Capsule Holder. G. E. Pfahler, Philadelphia.—p. 30.
*Two Unusual Chest Cases. J. G. Williams, Brooklyn.—p. 31.

Pneumoperitoneum of Pelvis.—The authors inject from one-half to 2 liters of carbon dioxid taken from one of the usual commercial tanks from which a nitrous oxid bag is filled, and this bag is then connected with a needle which usually is inserted about 1 inch below the umbilicus in the median line. The observations made have been very satisfactory. They are discussed.

Hysterical Aphasia.—Williams reports one case of hysterical aphasia and one of hernia of the stomach through the diaphragm into the posterior mediastinum.

Archives of Ophthalmology, New York

January, 1921, **1**, No. 1

Trephine in Chronic Glaucoma. T. H. Butler, Birmingham, England.—p. 1.
Histology of Region of Corneoscleral Margin. K. Hiwatari, Kagoshima, Japan.—p. 10.
Astigmatism; Especially with Regard to Influence of Age on Axis. A. W. Stirling, Atlanta, Ga.—p. 19.
Diseases of Eye Due to Syphilis and Trypanosomiasis Among Negroes of Africa. J. N. Roy, Montreal.—p. 28.
Sympathetic Ophthalmia. Report of Case Successfully Treated. A. Wiener and E. Bonime, New York.—p. 43.
Cylopia, Its Bearing on Certain Problems of Teratogenesis and of Normal Embryology; Description of Cyclocephalic Monster. E. Hill, Richmond, Va.—p. 52.
Perimetric Methods. P. G. Doyne, Philadelphia.—p. 81.
Report of the Proceedings of the Section on Ophthalmology of the New York Academy of Medicine. C. Berens.—p. 90.

Boston Medical and Surgical Journal

Feb. 3, 1921, **184**, No. 5

*Foreign Bodies as a Cause of Appendicitis. S. A. Mahoney, Holyoke, Mass.—p. 113.
Four Cases of Diverticulitis of Sigmoid Opening into Bladder. A. L. Chute, Boston.—p. 118.
*Cancer of Rectum. E. A. Wells, Hartford, Conn.—p. 121.

Pin in Appendix Cause of Appendicitis.—Mahoney's patient, a boy aged 4 years, had abdominal pains, paroxysmal in character and occasional vomiting. Examination disclosed a very tender tumor, low down on the right side. A diagnosis of acute appendicitis was made, and operation advised. The opening of the abdomen disclosed a clean peritoneal cavity. Hanging over the pectineal line, dipping into the true pelvis and very adherent to the neighboring pelvic bone and small intestines, was an egg-shaped tumor, brawny red in color, looking in shape and size like an infant's heart, with the base attached to the cecum. This base was so broad that it encroached on the ileocecal junction, so that considerable care had to be exercised in dissecting it free from the ileum. Much difficulty was encountered in freeing it from the pelvic bones and coils of adherent small intestines. The presence of a pin in the lumen of the appendix was not discovered until the specimen was opened. The pin lay parallel to the long axis of the appendix with its point toward the cecum and its head lying at the tip. The shaft of the pin was surrounded by a hard fecal concretion about the size of a peanut, with the point of the pin uncovered.

Cancer of Rectum.—Wells analyzes the records of fifty-three cases, twelve of them having been under his observation. There were fourteen attempts at radical surgery; three by the sacral route only, made operative recoveries. One patient was operated on by the abdominal route only and made a recovery. Five patients were operated by the combined abdominal and sacral route in two stages; all made operative recoveries. In five cases in which these two routes were combined in a single stage operation, the patients died as a result of operation. In eighteen cases, no operation of any sort was undertaken. In one or two instances, a colostomy which might have been done for relief, was refused by the patient. In four cases, an operation through the anus was done, usually for examination, relief of septic conditions, etc. Wells urges that early diagnosis and more daring surgery will lower the mortality because cancer of the rectum is not a hopeless condition. It can be cured.

California State Journal of Medicine, San Francisco

January, 1921, **19**, No. 1

Problems of Enforcement of Medical Act. C. B. Pinkham, San Francisco.—p. 6.
Present Nursing Situation. W. W. Roblee, Riverside.—p. 8.
Plea for Better Fracture Results. G. J. McChesney, San Francisco.—p. 11.
Practical Points in Using Thomas Splints. S. Bunnell, San Francisco.—p. 13.
Clinical and Laboratory Findings in Pyelitis and Pyelonephritis. L. J. Roth, Los Angeles.—p. 16.
Improved Incision for Fredet-Rammstedt Operation. E. Butler, San Francisco.—p. 17.
*Involvement of Genito-Urinary Tract Associated with Active Pulmonary Tuberculosis. A. Peterson, Los Angeles.—p. 18.
Vesico-Intestinal Fistula. L. C. Jacobs, San Francisco.—p. 19.
*Ureteral Transplants for Obstruction of Lower Ureter. R. V. Day, Los Angeles.—p. 21.
Significance of Spinal Defects and Pain Occurring in Relation to Ocular Disease. L. Mills, Los Angeles.—p. 23.
*Group Study of Three Hundred Cases of Arthritis. M. C. Harding, San Diego.—p. 26.
*Etiology of Bronchial Asthma. S. Piness, Los Angeles.—p. 29.
Nasal Conditions Occurring in Bronchial Asthma. S. Jesberg, Los Angeles.—p. 33.

Involvement of Genito-Urinary Tract in Active Pulmonary Tuberculosis.—During eleven months of Peterson's service at Fort Bayard, the patient population varied between 800 and 2,000, practically all in the original draft age (from 20 to 30 years). Approximately 80 per cent. of the patients had active pulmonary tuberculosis; the remainder were sent there under observation for tuberculosis. Peterson demonstrated only five cases of surgical tuberculosis of the kidney, in only three of which was there active lung involvement. One man had bilateral renal tuberculosis and one had a unilateral renal tuberculosis and tuberculous epididymitis, with no active pulmonary lesions. Involvement of the epididymis was observed in three cases. On one man an epididymectomy had been performed elsewhere and a fistula persisted. One man had bilateral involvement, and in one an acute abscess developed, destroying both the epididymis and testicle. A castration was done and the wound healed in three weeks. Two months later the patient died from an acute tuberculous pneumonia. At necropsy the kidneys were free from tuberculous invasion. The prostate showed a caseated abscess and there was a cold abscess at the stump of the cord following the castration, which had not pointed to the surface. At necropsies massive lung lesions were always found—old multiple cavities filled with pus, cheesy material and necrotic tissue; large massively walled-off cavities with very extensive destruction of tissue. These old types of lesions were now and then associated with a fresh general miliary distribution, both into the remaining functioning lung tissue and into the peritoneum and abdominal viscera. Except in cases where acute miliary tuberculosis was the immediate cause of death, the genito-urinary tract was rarely involved in the infection, and here the lungs showed old massive lesions, while the lesions in the kidneys were of the young or miliary type.

Ureter Transplantation.—Day reports two cases of carcinoma of the bladder, one of carcinoma of the cervix and one of carcinomatous infiltration of the pelvis in which ureteral transplantation into the skin of the abdomen was done. In each instance life was prolonged and made more comfortable. In one case of carcinoma of the bladder a ureterosigmoid transplantation was done. The patient died of uremia nine days after the operation.

Etiology of Arthritis.—The work reported on by Harding was done at the U. S. Base Hospital, Camp Lewis, Washington, extending over a period of sixteen months. In 89 per cent. of the cases studied some infectious process other than that in the joints themselves was found and treated. The blood cultures were all negative. As to types of infection, the usual group of streptococci, *S. hemolyticus, S. nonhemolyticus* and *S. viridans,* were found. But—a routine examination of hundreds of throats in the hospital undertaken at the same time showed about the same proportion of streptococci present! Harding is not at all convinced that the particular germ present in a tooth or tonsil is necessarily the sole causative factor in the joint condition. The urine followed typical febrile curves in acute cases, while a trace of albumen was not rare. No case of kidney trouble arose, though polyuria was often pronounced during the administration of large doses of salicylates. The absence of gastro-intestinal diseases proved a surprise. Not a chronic gallbladder case nor appendiceal infection was found in the entire series. About 25 per cent. of the cases came in diagnosed as gonorrheal rheumatism. The 12 per cent. of inflamed prostates, and 9 per cent. actual gonorrhea found, represent with a few exceptions the same men. The typical monarticular gonorrheal arthritis or peri-arthritis was very rare. It made up not more than 2 or 3 per cent. The bulk of the cases having a demonstrable gonorrheal focus presented the same varied types of arthritis as the nongonorrheal. Harding is inclined to believe that medical men are too prone to diagnose gonorrheal arthritis.

Etiology of Bronchial Asthma.—A study of 150 cases leads Piness to state that asthma is a clinical manifestation produced by protein sensitization. Heredity is an improvement predisposing but not exciting factor in from 25 to 50 per cent. of the cases. Climate has very little bearing on the etiology excepting in the pollen and asthmatic bronchitis types. Eczema, urticaria, and angioneurotic edema have definite relationship to the protein sensitive asthmatics. It is possible with cutaneous tests to determine the etiology of bronchial asthma in from 47 to 50 per cent. of cases. Multiple sensitization is common particularly in the food and pollen groups. Sensitization to one protein in early life is apt to be followed by sensitization to other proteins, early in life and vice versa. Renal and cardiac diseases may complicate asthma, but the latter is a distinct, and separate condition, not dependent on the former.. Patients with a history of onset past 35 years of age rarely give positive skin reactions, but serum of agglutination tests to *Staphylococcus pyogenes-aureus* occasionally give positive reaction and determine the cause.. There is no fixed relationship between cutaneous reaction, serum agglutination tests and isolation of *Staphylococcus aureus* from sputum or nasal secretions. Endocrine dysfunction bears a prominent part in the etiology of asthma, particularly in the case of younger individuals, and should be borne in mind where the patient does not respond to specific protein treatment.

Johns Hopkins Hospital Bulletin, Baltimore

January, 1921, **32**, No. 359

*Hydrocephalus in Chondrodystrophy. W. E. Dandy.—p. 5.
*Mechanism of Carrier State, with Special Reference to Carriers of Friedlander's Bacillus. A. L. Bloomfield, Baltimore.—p. 10.
*Tuberculosis of Kidney in Women. L. Brady, Baltimore.—p. 13.
*Portal Thrombosis. L. T. Webster, Baltimore.—p. 16.
Relation of Histamin to Leukocytosis. J. R. Paul, Baltimore.—p. 20.
*Influence of Anterior Lobe of Hypophysis on Development of Albino Rat. W. R. Sisson, Boston, and E. N. Broyles, Baltimore.—p. 23.
*Syphilitic Rupture of Papillary Muscle of Heart. E. D. Spalding and W. C. Von Glahn, Baltimore.—p. 30.

Hydrocephalus in Chondrodystrophy.—Dandy discusses a case of chondrodystrophy in a boy, aged 19, who had a very low mentality with an unusually large head. It was out of all proportion to the rest of his dwarfed body and even when his body was concealed, the size of the head was scarcely less impressive. The large head was shown by ventriculography to be due to hydrocephalus. The size of the head and, therefore, the grade of hydrocephalus seems to be proportionate to the severity of the dwarf phenomena in chondrodystrophy. A second case is also reported.

Carriers of Friedländer's Bacillus.—Of eighty-five unselected individuals examined by Bloomfield, 5.8 per cent. were found to be carriers of Friedländer's bacillus. Differential cultures showed the breeding place of the bacilli to be in the tonsil. The carrier's own strain or a foreign strain of Friedländer's bacillus implanted on the free surfaces of the mucous membranes disappeared at the same rate of speed as in a noncarrier. It was impossible artificially to produce a carrier state by repeated inoculation with *B. Friedländer.* The general conclusion drawn by Bloomfield from his observations is that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria. They do not become adapted to growth on the free surfaces of the mucous membranes.

Tuberculosis of Kidney. — Seventy-seven cases of proved tuberculosis of the kidney are analyzed by Brady. There was a definite family history of tuberculosis in fourteen. In forty-six cases the right kidney was affected, in twenty-seven the left, and in four the disease was bilateral. The average duration of symptoms before admission to the hospital was thirty-three months. Twenty-five patients complained of hematuria and in eight of these it was the first symptom. Two patients first noticed general weakness, and in all the other cases dysuria and polyuria were the first evidences of the kidney disease. The general physical examination showed pulmonary tuberculosis in six cases. Four of these patients had active, two inactive, pulmonary tuberculosis. One patient developed tuberculous peritonitis two years after the removal of a tuberculous kidney. In four cases only was a marked enlargement of the kidney noted, and these cases were found at operation to be cases of tuberculous pyelonephrosis. Operations were performed in seventy out of the seventy-seven cases. In sixty-seven cases the kidney was removed, and in three cases simple nephrotomies were done. Of the seven patients not operated on, four are known to be dead and the other three left the hospital in a very bad condition. No definite information about them is available. The three women on whom simple nephrotomies were performed all did badly. The ultimate result is known in forty-two out of sixty-seven cases in which the kidney was removed. Seven of these forty-two patients may be classed as greatly improved and are alive six years after their operations; twenty-five are entirely well with an average period of eleven years since they were discharged from the hospital. Comparison of the results obtained when the ureter is removed with the kidney and when it is left in situ shows that, although the ultimate results are the same following the two methods, the postoperative sinus heals more rapidly when a nephro-ureterectomy is done, and this therefore, seems to be the operation of choice when the patient's condition warrants a prolongation of the anesthetic.

Portal Thrombosis.—Portal thrombosis occurred twenty-one times in the 6,050 necropsy records of the Johns Hopkins Hospital. It was associated with cirrhosis of the liver in seven cases; with carcinoma in six cases; with cholangitis in four cases and with amyloid disease, ulcer of the stomach, Banti's disease, and phlebitis, in one case each, respectively. The histories of these cases are given.

Influence of Pituitary on Growth.—The results obtained by Sisson and Broyles were entirely negative.

Rupture of Papillary Muscle of Heart.—In the case cited by Spalding and Glahn the pillar to which the chordae tendinae from the right half of the aortic leaflet of the mitral valve are attached was ruptured. The symptoms were those of loss of compensation. Dyspnea was marked. Syphilis was the cause of the condition.

Journal of Bacteriology, Baltimore

January, 1921, **6**, No. 1

- *Chemical Criteria of Anaerobiosis with Special Reference to Methylene Blue. I. C. Hall, Chicago.—p. 1.
- Powdered Litmus Milk. Product of Constant Quality and Color Which Can be Made in any Laboratory. H. W. Hamilton, Boston.—p. 43.
- Bacteria Concerned in Ripening of Corn Silage. P. G. Heineman and C. R. Hixon.—p. 45.
- Some Atypical Colon-Aerogenes Forms Isolated from Natural Waters. M. C. Perry and W. F. Monfort.—p. 53.
- *Botulism in Cattle. R. Graham and H. R. Schwarze, Urbana, Ill.—p. 69.
- Indol Test in Tryptophane Solution. C. Barthel, Stockholm, Sweden.—p. 85.
- *Nature of Hemolysins. J. T. Connell and L. E. Holly, Ann Arbor, Mich.—p. 89.
- *Nature of Toxin. Antigens of Corynebacterium Diphtheriae and Bacillus Megatherium and Their Relation to Toxin. C. C. Warden, J. T. Connell and L. E. Holly, Ann Arbor, Mich.—p. 103.
- Gas Production of Streptococcus Kefir. J. M. Sherman, Washington, D. C.—p. 127.
- *Importance of Preserving Original Types of Newly Described Species of Bacteria. C. E.-A. Winslow, New York.—p. 133.

Chemical Criteria of Anaerobiosis.—Hall reviews the literature on chemical criteria of anaerobiosis, and undertakes a critical experimental survey of the subject in so far as it relates to the use of methylene blue for this purpose. The mechanism of the decolorization of methylene blue is studied in detail and shown to depend on the interaction of alkali and certain organic substances, notably carbohydrates. A correspondence between Fehling's test and the decolorization of methylene blue in alkaline solutions of various carbohydrates is pointed out. It is shown that while there is a direct relation between the amount of dye decolorized by heating and the amounts of alkali and glucose, there is an inverse relation between the last two factors in the test, so that an increase in one permits a decrease in the other for the same result. Carbon dioxid, as well as oxygen, is shown to be an effective factor in the recoloration of decolorized methylene blue. A detailed study of the decolorization of methylene blue by plant and animal tissues is described, showing the important rôle of adsorption as a means of decolorization by these and other porous substances. The extraction from plant and animal tissues of reducing substances for methylene blue, active in alkaline solution, is described. The efficacy of deep culture methods for anaerobes is shown while the inefficacy of insoluble liquid (i. e., oil) seals is contrasted with the reliability of semisolid waxes and greases, and that of mechanical seals. The short-comings of certain methods of surface culture of obligative anaerobes are exposed and the value of a modification of Wright's method upheld by these studies. The desirability is indicated of determining exactly to what degree of oxygen tension reduction the decolorization of methylene blue corresponds, and whether decolorization occurs at a definite hydrogen ion concentration irrespective of the sugar content of the solution.

Botulism in Cattle.—The studies made by Graham and Schwarze established the protection value of botulinus antitoxin against corn silage infected with *B. botulinus*. The treatment did not injure the animals.

Nature of Hemolysins.—Two hemolysins, streptolysin and megatheriolysin, were studied by Connell and Holly and they conclude that they are the fat antigens existing in definite colloid states.

Nature of Toxin.—Evidence is presented by Warden and his associates which is believed to establish tentatively, at least, that *Corynebacterium diphtheriae* and *B. megatherium* possess characteristic fat complexes which are, under proper colloidal conditions, the true antigens of these micro-organisms. Artificial fat antigens have replaced the antigens of the germ bodies in the various immune reactions. The lysins and toxins of the *C. diphtheriae* and *B. megatherium* are the same substances, being, respectively, the specific fat antigens of the micro-organisms existing in definite and particular colloidal states. Aside from colloidal or emulsifying activity cellular protein appears to have no place in the immune reactions studied.

Preserving Original Types of New Species of Bacteria.—Winslow calls the attention of the bacteriologist of America to the facilities offered at the Lister Institute and the American Museum and to urge on all who may describe new bacterial species the great importance of promptly depositing with the institutions named the original type strain so that it may be available for the comparative study of systematists in future years.

Journal of Biological Chemistry, Baltimore

January, 1921, **45**, No. 2

- *Distribution of Carbon Dioxid Between Cells and Plasma. L. W. Smith, J. H. Means and M. N. Woodwell, Boston.—p. 245.
- Relationship Between Cholesterol and Cholesterol Esters in Blood During Their Absorption. A. Knudson, Albany, N. Y.—p. 255.
- Pentose Mononucleotides of Pancreas of Dogfish (Squalus Sucklii). C. Berkeley, Nanaimo, B. C.—p. 263.
- Critical Investigation of Experiments with Diets Free from Fat-Soluble Vitamin. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 277.
- Comparative Metabolism of Proteins of Unlike Composition. W. G. Karr, New Haven, Conn.—p. 289.
- Rigor Mortis in Smooth Muscle; Chemical Analysis of Fibromyoma Tissue. E. F. Hirsch, Chicago.—p. 297.
- Cultivation of Yeast in Solutions of Purified Nutrients. M. B. MacDonald and E. V. McCollum, Baltimore.—p. 307.
- Determination of Sodium in Blood. E. A. Doisy and R. D. Bell, Boston.—p. 313.
- *Distribution of Iodin Between Cells and Colloid in Thyroid. R. B. Van Dyke, Chicago.—p. 325.
- *Production of Rachitis and Similar Diseases in Rat by Deficient Diets. E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 333.
- *Effect of Cod Liver Oil Administered to Rats with Experimental Rickets. P. G. Shipley, E. V. McCollum, N. Simmonds and H. T. Parsons, Baltimore.—p. 343.
- Iodometric Determination of Copper and Its Use in Sugar Analysis. I. Equilibria in the Reaction Between Copper Sulphate and Potassium Iodid. P. A. Shaffer and A. F. Hartmann, St. Louis.—p. 349.
- Id. II. Methods for Determination of Reducing Sugars in Blood, Urine, Milk and Other Solutions. P. A. Shager and A. F. Hartmann, St. Louis.—p. 365.

Distribution of Carbon Dioxid Between Cells and Plasma.—As the blood passes from the arterial to the venous side of the circulation in normal man its cells gain from 4 to 11 volumes per cent. of carbon dioxid. At the same time, the corresponding gain in the plasma is only from 0.0 to 1.8 volumes per cent. The conclusion is drawn, therefore, by Smith and his associates, that the transport of carbon dioxid is accomplished mainly by the cells. The same holds true in anemia and in certain other diseases, even though because of alterations in the cell volume, plasma volume ratio the actual distribution of carbon dioxid between cells and plasma is altered.

Distribution of Iodin in Thyroid Gland.—Evidence is presented by van Dyke indicating that the concentration of intracellular iodin is independent of the suspending medium, whether that is pure Ringer's solution, Ringer's solution containing iodin-rich colloid material, or homologous blood serum. The ratio value was found to be relatively constant despite great variations in the morphology and iodin content of the glands examined.

Production of Rickets by Deficient Diet.—The work reported on by McCollum and his co-workers suggests that the cause of rickets might lie in a deficiency of fat-soluble A or calcium in the food, or a disturbance in the metabolism of these factors. It is only possible to say, however, that the etiologic factor is to be found in an improper dietetic regimen. The large variety of dietary formulas the administration of which results in rickets and kindred affection gives abundant evidence of the complex nature of the causes operating in the production of the disease.

Effect of Cod Liver Oil on Rickets.—The experiments made by Shipley and his associates afford evidence of the specific beneficial effect of cod liver oil on rats suffering with experimental rachitis, in that some substance or substances in the oil cause calcium to be deposited in the same fashion in which deposition occurs in spontaneous healing of rickets in man. Moreover, they prepare the way for the elaboration of a new test for the determination of the calcium-depositing potentiality of any substance in terms of cod liver oil units. It is especially interesting to note in the present experiments with rats that calcium was deposited in the cartilages following the initiation of the cod liver oil treatment, in spite of the fact that in some cases the calcium intake was far below normal.

New York Medical Journal

Feb. 5, 1921, **113**, No. 6

Endocrinasthenia. W. V. P. Garretson, New York.—p. 221.
Endocrine Exhaustion. G. H. Hoxie, Kansas City, Mo.—p. 225.
Internal Secretions; As Conceived from the Point of View of Practical Physician. D. M. Kaplan, New York.—p. 227.
Corpus Luteum of Menstruation and Pregnancy. W. H. Morley, Pontiac, Mich.—p. 230.
Two Remarkable Cases of Testicle Implantation. G. F. Lydston, Chicago.—p. 232.
Role of Endocrine System in Internal Medicine. A. S. Blumengarten, New York.—p. 233.
Disorders of Internal Secrctions in Children. M. B. Gordon, Brooklyn.—p. 239.
Effect of Thymus and Mammary on Menstruation. A. Jacoby, New York.—p. 243.
Thyroid Gland and Thyrotoxicosis. A. W. Hammer, Philadelphia.—p. 245.
Management of Toxic Goiter with Radiation. J. T. Stevens, Montclair, N. J.—p. 247.

Physiological Reviews, Baltimore

January, 1921, **1**, No. 1

Origin and Conduction of Heart Beat. J. A. E. Eyster and W. J. Meek, Madison, Wis.—p. 1.
Present Status of Problems of Anaphylaxis. H. G. Wells, Chicago.—p. 44.
Photo-Electric Currents in Eye. C. Sheard, Southbridge, Mass.—p. 84.
Evidence of Functional Activity on Part of Capillaries and Venules. D. R. Hooker, Baltimore.—p. 112.
Carbon Dioxid Carriers of Blood. D. D. Van Slyke, New York.—p. 141.

Public Health Journal, Toronto

January, 1921, **11**, No. 1

*Tuberculosis Problem in Canada. G. D. Porer, Toronto.—p. 1.
University in Relation to Nursing. E. Johns, Vancouver.—p. 6.
Health Production and Disease Prevention. J. J. Middleton, Ontario.—p. 15.

Tuberculosis in Canada.—The estimated annual number of deaths from tuberculosis in Canada now amount to 9.096. In the Dominion census for 1901 the deaths were estimated at 9.709, a decrease during the past two decades of over 30 per cent. This decrease, Porter says, is due to three factors: (1) the lessened infection in the homes from which tuberculous patients have been removed to hospitals and sanatoriums; (2) the earlier recognition and the earlier and better treatment of patients both in their homes and in sanatoriums, and (3) the better home and living conditions, especially in regard to ventilation, sanitation and personal hygiene. He believes, however, that, while there is this decline, there have been, and still are, more deaths from tuberculosis than are reported. The Canadian Association for the Prevention of Tuberculosis and the numerous local associations throughout the dominion have done a large amount of educational work during the past twenty years, and as a result dispensaries, preventoriums, sanatoriums, hospitals and laboratories have been provided in various centers. Much legislation, such as notification, antispitting by-laws and disinfection has been passed. The federal government supports this association which works in cooperation with both the federal department of health and the various provincial health authorities, all of whom are represented on its executive.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

January, 1921, **15**, No. 1

*Training in Tuberculosis. H. Gauvain.—p. 1.
*Infectivity of Tuberculosis. E. Ward.—p. 5.
Sun Treatment of Surgical Tuberculosis. A. Rollier.—p. 10.
Roentgen-Ray Treatment of Tuberculous Glands. M. Berry.—p. 13.
Organization and Administration of a Public Tuberculosis Service. F. J. C. Blackmore.—p. 20.
Impression of Liverpool Tuberculosis Conference. B. T. J. Glover.—p. 25.

Training in Tuberculosis.—It is Gauvain's belief that a thoroughly efficient tuberculosis service working with a well defined policy and in cooperation with the general practitioner would constitute the most efficient instrument in combating tuberculous disease. Till it is instituted, progress will be delayed, and discontent both within and without the service will continue. When it is accomplished, advance will be rapid. It is to the man rather than to the method that the attention of the authorities should be directed. The method should follow the trained man, not vice versa.

Infectivity in Conjugal Tuberculosis.—Out of 156 cases in which the mate of a tuberculous husband or wife was examined, Ward found that ninety-one were tuberculous, sixteen suspect and forty-nine negative. Considering solely wives whose husband was first notified, out of 120 cases sixty-six were tuberculous, twelve suspect and forty-two negative; while among husbands of tuberculous wives (thirty-six cases), twenty-five were tuberculous, four suspects and seven negative. In fifteen cases, the tuberculous mate first notified has died, and in seven cases both husband an wife have died of tuberculosis. Ward takes the view that the great majority of the mates of tuberculous husbands or wives do sooner or later show signs or develop symptoms of tuberculosis but, the great majority of those infected recover, and make a speedier recovery, than most tuberculous patients.

British Medical Journal, London

Jan. 22, 1921, **1**, No. 3134

Application of Professional Lessons of War to Civil Work. H. M. W. Gray.—p. 109.
*Splenic Anemia: Banti's Disease. B. Moynihan.—p. 114.
*End Results of Colectomies for Intestinal Stasis. A. W. Sheen.—p. 116.
Case of Dibothriocephalus Latus Infection. G. C. Low and E. J. O'Driscoll.—p. 118.
Economic Aspect in Eye Injuries: Plea for Early Treatment. T. L. Llewellyn.—p. 118.
*Drooping Shoulder Sign of Phthisis. W. C. Rivers.—p. 120.
*Ophthalmoscopic Appearances in Certain Rare Cases of Diabetes. R. T. Williamson.—p. 120.
*Severe Tetanus Successfully Treated by Large Doses of Antitetanic Serum. T. V. Carey.—p. 121.

Splenic Anemia.—Moynihan states that the differential diagnosis of splenic anemia, as a rule, is not difficult. The mistake he has most commonly seen is the making of a diagnosis of gastric or duodenal ulcer. Five patients suffering from splenic anemia have been referred to him as an example of these diseases. The absence of a clear history of dyspepsia, the presence of an easily palpable spleen and the blood changes soon revealed the true condition. The contrary mistake may be made. In any doubtful case a roentgen-ray examination would almost certainly clear away the uncertainty and demonstrate the presence of a chronic gastric ulcer. The clinical history of this condition is reviewed by Moynihan. The only treatment, he says, is splenectomy. The appropriate moment for the removal of the organ is chosen. It is inadvisable to operate soon after a grave hemorrhage, or when the spleen is extremely large. In the latter case, the effect of radium on the tumor should be tried; almost certainly it will cause a rapid and considerable shrinkage in the organ. If this should be the case, splenectomy is done when the spleen is at its smallest, and before it has begun to enlarge afresh, as it will certainly do after a few weeks. No other form of treatment needs consideration. In the later stages the mortality of operation is higher, amounting to 25 per cent., as compared with an average of about 10 per cent. In the terminal stages operation becomes so dangerous that only the inevitably fatal outcome of the untreated disease justifies its performance.

End Results of Colectomies for Intestinal Stasis.—Four cases are analyzed by Sheen. One terminated fatally soon after operation. In the remaining three there is great improvement, which in two might be termed complete success. The qualifying details are: In the first case a ventral hernia with dyspeptic symptoms; in the second, adhesions, fortunately not interfering with pregnancy; in the third, diarrhea occasionally. Sheen contends that there are more surgical ways than one of curing toxic stasis, and that every case should be treated in accordance with the special indications it presents. He does not advocate surgery as the only remedy. Diet, drugs, aperients, paraffin, massage, exercises, posture, abdominal supports, regulation of life, change of climate, spa treatment, removal of toxic foci—all have their place in the treatment of intestinal stasis. In treatment, operative and nonoperative, the psychic factor must not be overlooked. The prevention of stasis and toxic foci should begin in babyhood and continue. The earlier the treatment the better, and then the less severe and the more effective it is.

Drooping Shoulder Sign of Phthisis.—Rivers has noted that in about 50 per cent. of cases of pulmonary tuberculosis on the affected side, or (generally) the side of more extensive or older disease, the point of the shoulder and the nipple are lower than on the other side; the nipple is also smaller and seems to lie further back. Behind, the scapula is lower—its inferior angle may reach 3 inches below that of its fellow—and is at a different distance from the spine, mostly nearer to it. Muscular atrophy also is noticeable, a little of the pectorals, but far more of the upper part of the trapezius. The superior border of that muscle, instead of running straight from neck to shoulder, is flattened, wasted, hollowed out, so that, as compared with the opposite side, much less of it shows above the clavicle when viewed from the front, and above the spine of the scapula when viewed from behind. The sign occurs indifferently in men and women, although more marked in the former; and as regards association with the type of phthisis, in this order of descending frequency—juveile hilus cases, a rather large proportion; third stage cases (Turban-Gerhardt), very nearly half; first stage cases, nearly half; second stage cases, about a quarter. Rivers has seen it develop in the course of a few weeks.

Retinal Blood Vessels in Diabetes.—Williamson calls attention to the fact that in certain very rare instances, associated with a special blood condition, the retinal blood vessels, instead of having the normal deep red color, all appear milky white or pinkish white, while the rest of the fundus has the normal red color.

Severe Tetanus Treated Successfully by Antitetanic Serum.—In the case reported by Carey antitetanic serum was given intrathecally (after lumbar puncture), intramuscularly and subcutaneously. Altogether, 94,500 units were given in the course of twelve days. There was no evidence of ill effect. To prevent bringing on convulsions, an anesthetic was given for all injections, except the subcutaneous. There was a marked serum rash, which cleared up soon after serum treatment was discontinued. In addition, a mixture of potassium bromid, 8 grains, and chloral hydrate, 8 grains, was given thrice daily.

Lancet, London

Jan. 22, 1921, **1**, No. 4

*Surgery of Spleen. B. Moynihan.—p. 157.
*Inoperable Uterine Carcinoma Treated by Cold Cautery Method of Percy. Series of Forty-Three Cases. P. P. Cole.—p. 163.
Anxiety Psychoneurosis. A. Carver.—p. 167.
Dissection of Faucial Tonsils Under Local Anesthesia. W. Morris.—p. 169.
Indications for Removing Tonsils by Dissection or by Reverse Guillotine. M. Vlasto.—p. 169.
*Case of Persistent Hiccup; Complicated with Spasm of Larynx. M. Sarkies.—p. 171.
*Case of Hiccups: Isolation of an Organism. C. E. Jenkins.—p. 171.
*Treatment of Nervous Insomnia. T. Zangger.—p. 172.

Surgery of Spleen.—Instead of searching only for the existence of this or that splenic disease, Moynihan says, an inquiry should be directed to the determination of the functional capacity of all the various organs likely to be deranged. This derangement must be regarded not merely as a restriction of the morbid changes to the spleen, but as a disturbance of wide ramification throughout the whole body, affecting one or other, or, perhaps, even all of the four systems in which the spleen plays a part. It may be that splenectomy in any of these diseases will remove the obvious culmination of the morbid process, and thus bring about a "cure" of the disease or an arrest of its development; but it does not by any means follow what all the other related parts are thereby caused to return to their normal states. Absence of symptoms does not imply the restitution of normal functions.

Cold Cautery in Treatment of Inoperable Uterine Carcinoma.—Cole urges that this operation, particularly when reinforced by consequent radium treatment, should have a place in the armamentarium of a surgeon who would endeavor to undertake the treatment of inoperable cancer. With the cautery and radium together, used discreetly and discriminately, a great deal may be done, perhaps more than has been done, to alleviate the distressing disabilities of inoperable uterine cancer, and in many cases to restore to those suffering derelicts peace of mind, together with the chance of an increased term of economically useful life.

Persistent Hiccup.—In Sarkies' case a milk diet in an "acid" subject (rheumatic) produced much flatulence, some of which was belched up, the sudden forceful rush of wind upward producing a closure spasm in a tired and overstrained larynx. The milk diet was stopped. The patient was given an alkaline mixture with some ammonium bromid in it, a saline draught each morning, and the diet ordered was one of boiled fish, chicken broth, and a little thin bread and butter, with half an ounce of whisky in a winegless of water twice a day. In twenty-four hours the spasms were decidedly less severe and less frequent, and in another twenty-four hours both the hiccup and the spasm had entirely subsided. The hiccup had lasted six days and six nights for perhaps twenty hours out of the twenty-four and occurred not as a single hiccup but in a series of from five to eight rapid percussions with an interval of a few second between each series; and the laryngeal spasms had lasted forty-eight hours. The patient made a rapid and uninterrupted recovery.

Bacillus Found in Hiccup.—A peculiar epidemic of hiccups has appeared in various parts of Europe. It seems to have started in Austria and spread to England by way of Switzerland and Paris. It appears to be accompanied by mild catarrhal symptoms in many cases. A patient examined by Jenkins had a profuse yellow nasal secretion of thin consistensy. Besides staphylococcus, a very minute bacillus indistinguishable from *B. influenzae* was found in culture plates. The organism was gram-negative but did not take any of the ordinary stains well. A fairly strong solution of carbolfuchsin was necessary in order to obtain a well stained film. The colonies and films from subcultures did not differ from those of the original culture. No growth occurred on plain nutrient agar.

Treatment of Nervous Insomnia.—Zangger's treatment of nervous insomnia consists of a combination of medicinal and psychic treatment. For from four to eight days he prescribes 8 grains of veronal or sodium veronal to secure from the very first from three to six hours of sleep every night, thereby quieting the patient and giving him confidence. Afterward he gives two tablespoonfuls of a solution of sodium bromid (1 in 20) just before supper, and adds for a week half doses of veronal. As improvement continues, the latter are reduced to half doses every other day for a week, and are then discontinued completely. At the end of a month, the bromid can also generally be reduced gradually to three quarters or even half the amount. The whole bromid treatment lasts from one to three months according to the severity of the case. As a tonic after the bromid treatment lecithin injections are often of great value. The psychic treatment to reeducate the patient's mind and will.

Tropical Medicine and Hygiene, London

Jan. 15, 1921, **24**, No. 2

*Patient Harboring Schistosoma Japonicum Cured by Tartic Emetic. F. G. Cawston.—p. 13.
Suggestions for Further Research in Schistosomiasis. F. Milton.—p. 13.

Schistosoma Japonicum Infestation Cured by Tartar Emetic.—Cawston's patient had been through a prolonged course of injections with emetin for dysentery without apparently the slightest effect on the schistosomes. He had been ill thirteen years. Examination of the feces revealed the presence of only one nonspined egg containing a miracidium. As a definitely positive reaction had been obtained to the antigen test nine days previously, a series of antimony injections had already been commenced. The initial dose injected was one-half grain antimonium tartrate dissolved in 2 c.c. of boiling distilled water just before use. Three-fourths grain was given on the second and fourth days, and 1 grain on the sixth day. In all he received 20.5 grains antimonium tartrate and 1.5 grains sodium cacodylate. The patient did not seem to tolerate arsenic at all well, so that it was not continued. One and five-eights grain was the largest dose of tartar emetic in solution given. For this he developed the usual tolerance though the drug produced a good deal of depression during the first ten days. Two months after the beginning of the treatment, the reaction of the blood serum was negative.

Bulletin de l'Académie de Médecine, Paris

Jan. 4, 1921, **85**, No. 1

Helminths in Pathology of Digestive Tract. M. Labbé.—p. 16.

Bulletin Médical, Paris

Nov. 20, 1920, **34**, No. 55

Small Surprise Tumors. A. Guéniot.—p. 1039.
Hexamethylenamin. E. Desesquelle.—p. 1040.

Nov. 27, 1920, **34**, No. 56

*Exophthalmic Goiter. G. Roussy and L. Cornil.—p. 1057.
*Operative Treatment of Exophthalmic Goiter. A. Cauchoix.—p. 1060.
*Radiotherapy of Exophthalmic Goiter. J. Belot.—p. 1063.
*Medical Treatment of Exophthalmic Goiter. E. Coulaud.—p. 1066.

Exophthalmic Goiter.—Roussy and Cornil discuss the pathologic physiology and the various tests for toxic goiter, citing frequently from American literature. They say of the alimentary hyperglycemia test that a negative reaction alone is decisive. With injection of 5 to 15 cg. of an extract of the superior lobe of the pituitary, the pulse becomes accelerated in normal persons, while with exophthalmic goiter the pulse grows slower and the glycosuria is more pronounced. Another pituitary test is the reaction to subepidermic injection of pituitary extract: a bluish spot surrounded by a white halo, turning to red, in case of exophthalmic goiter.

Operations on the Thyroid.—Cauchoix' article is mainly a summary of works in The Journal and other American publications.

Radiotherapy in Exophthalmic Goiter.—Belot is *chef de laboratoire* at the Saint-Louis Hospital, and he reports partial improvement in 20 per cent. of forty-five cases of exophthalmic goiter given roentgen-ray treatment; 70 per cent. with definite and prolonged improvement, and no benefit in 5 per cent. of those that completed the course. He declares that this treatment started in time gives surprising results; it is more promptly effectual in the acute forms. Operative treatment should not be considered until after the failure of radiotherapy, with typical exophthalmic goiter. In the abortive cases, the cure is often very prompt but recurrence is sometimes observed. With simple toxic goiter, with neoplasms of the thyroid, and cystic goiter with symptoms of intoxication, radiotherapy is often powerless and sometimes contraindicated. The galvanic current may be a useful adjuvant. He reiterates in conclusion that radiotherapy is the best of all treatments to date for hyperthyroidism.

Medical Treatment of Exophthalmic Goiter.—Coulaud warns that syphilitic exophthalmic goiter is particularly amenable to treatment, and that the thyroid is rich in both arsenic and iodin. To give either of these drugs with hyperthyroidism is dangerous. He has been impressed with the action of ovarian treatment; this seems to relieve the thyroid of much of the extra work. Testicle extract in men has yielded some improvement but not to compare with ovarian treatment in women, as insufficiency of the ovaries, he thinks, is at the base of almost all of these syndromes of hyperthyroidism. In typical exophthalmic goiter, the benefit is not so pronounced.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 10, 1920, **44**, No. 38

Double Congenital Hydronephrosis. Variot and Walter.—p. 1496.
*Cancer of Lung. M. Renaud.—p. 1502.
*Oculocardiac Reflex after Neurotomy. Sicard and Paraf.—p. 1506.
Multiple Osteogenous Exostoses. Garnier and Bloch.—p. 1507.
*Pregnancy in Myeloid Leukemia. L. Rénon and Degrais.—p. 1511.
*Chronic Lethargic Encephalitis. De Massary and Boulin.—p. 1516.
*Contents of Fasting Stomach. G. Hayem.—p. 1523.
*Paroxysmal Dyspnea in the Elderly. J. Lhermitte, S. Cornil and E. Peyre.—p. 1529.

Cancer of Lung.—In Renaud's case the young man had been apparently healthy during five months after entering on barrack life. Then there were a few vague, transient functional symptoms from the lungs, and finally a little dyspnea on exertion. Then came suddenly symptoms as if the superior vena cava had been ligated, rapidly fatal. Death thus occurred in seven months after he had been certified as fit for military service. Necropsy revealed a large primary epithelioma of the lung. The tumor with a rapid symptomless course had not spread beyond the pleura, being restricted to the mediastinum.

The Oculocardiac Reflex.—Sicard and Paraf relate that in three patients who have had the trigeminal nerve severed to cure neuralgia, the oculocardiac reflex is abolished on the operated side while it persists normal on the intact side. They accept this as demonstrating that the trigeminal nerve is involved in starting this reflex.

Radium Therapy of Myeloid Leukemia.—The outcome is reported in a number of cases of myeloid leukemia given radium treatment from seven to eight years or more previously. One of the patients given several series of exposures passed through a normal pregnancy, and her child is now over 5 years old and healthy. Three series of exposures of the spleen had been made during the pregnancy. The woman died a year after the childbirth; the recurrences had become graver and the intervals shorter as the efficacy of the curietherapy seemed to become exhausted.

Chronic Epidemic Encephalitis.—De Massary and Boulin report the case of a young housemaid with chronic progressive encephalitis fatal the ninth month. In a second case in a woman of 57 the brief periods of somnolency escaped attention on account of the intense neurasthenia, and the typical symptoms of the lethargic encephalitis did not become manifest until ten months later. It is almost impossible, they say, to distinguish between an ordinary case of epidemic encephalitis, entailing sequelae, and these chronic progressive types; but the outlook with the latter is graver as they are more liable to progress to a fatal termination. In the discussion that followed, Netter related that a girl who had had epidemic encephalitis in March, 1918, with a grave and prolonged course has quite recently developed diplopia and other symptoms of paralysis of the third pair. Dufour reported the recent reappearance of epidemic febrile hiccup in two patients who had had epidemic febrile hiccup a year before.

The Content of the Fasting Stomach.—Hayem declares that the stomach should be empty after digestion is concluded, and that the discovery of fluid in the morning fasting stomach is always a sign of abnormal conditions which otherwise might escape detection. In this part of his report he discusses the significance of a fluid content with a concentration of less than 0.010 or more than 0.012.

Paroxysmal Dyspnea.—Lhermitte and his co-workers refer to dyspnea occurring without apparent cause in the elderly. Their suspicion that it was due to some physical, nonchemical, modification of body fluids, was confirmed by the sudden arrest of the paroxysm of dyspnea which followed at once an intravenous injection of a hypertonic solution of glucose.

Presse Médicale, Paris

Jan. 12, 1921, **29**, No. 4

*Antihemorrhagic Serum. H. Dufour and Y. Le Hello.—p. 33.
*The Blood Formula with Retention of Chlorids. A. Pruche.—p. 35.

Serum Treatment of Hemorrhage.—Dufour and Le Hello report further instances of the prompt arrest of hemorrhage under the action of the serum from sensitized rabbits. Anaphylactic reactions are induced in the animals, and these confer extra coagulating properties on their serum. For the technic for producing this *sérum sérique*, as they call it, they refer to their previous publications, one of which was summarized in The Journal, Nov. 8, 1919, p. 1477.

The Blood Formula with Retention of Chlorids.—Pruche declares that it is futile to test the blood serum for its sodium chlorid content, as this is invariably in a certain percentage. It never fluctuates, because water is always retained to maintain this proportion at a constant level. Hence, he adds, there is no diuretic so powerful as mere abstention from sodium chlorid. The water in the body is cast off to correspond to the lesser sodium chlorid content. With retention of sodium chlorid, there is also retention of water to correspond, but the dry residue of the blood, exclusive of the sodium chlorid, is not augmented. Consequently, the discovery of lesser concentration of the dry residue is a sign of abnormal retention of water and thus, indirectly, of retention of sodium chlorid. This edema of the blood may long precede actual edema of the tissues. Whenever the sodium chlorid content of the dry residue of the serum is found above normal, we should apply at once the proper measures to ward off edema, especially abstention from salt, without waiting for further signs of retention of sodium chlorid.

Revue Franç. de Gynécologie et d'Obstét., Paris

September, 1920, **15**, No. 9

*Treatment of Complicated Abortions. J. Vanverts.—p. 361.
Radiotherapy of Uterine Myomas. P. Darbois.—p. 369.

Treatment of Complicated Abortion.—Vanverts analyzes six cases of death after induced abortion, out of a total of ninety-nine cases of septic abortion treated by curetting. This mortality of 6 per cent., he exclaims, is very different from the 67 per cent. mortality of those who rely on expectant treatment. In his six fatal cases the conditions precluded recovery in some, and in the others the outcome would probably have been the same whatever treatment had been applied. He insists that the fear of perforation should not deter from evacuating the uterus in such cases, but it must be done with skill. In three cases he had to remove the uterus which had been perforated in curetting by other physicians.

Revue de Médecine, Paris

September, 1920, **37**, No. 9-10

Pituitary Polyuria. E. Schulmann and R. Desoutter.—p. 441. Conc'n in No. 11, p. 520.
*Mechanism of Respiration. M. Creyx.—p. 467.
Flaccid Paralysis of Hand. Pitres and Laffaille.—p. 478. Conc'n.

Mechanism of Respiration.—Creyx refers to the work of the skeleton of the thorax in both normal and in diffuse pulmonary emphysema. His data conflict with the theory on which Freund bases his chondrectomy to relieve emphysema with rigid shoulder girdle.

Schweizerische medizinische Wochenschrift, Basel

Jan. 6, 1921, **51**, No. 1

*Poisoning from Bread. W. Silberschmidt.—p. 1.
Parkinsonism as Sequel of Lethargic Encephalitis. R. Bing.—p. 4.
*Postencephalitic Insomnia. W. Rütimeyer.—p. 7.
*Prophylaxis of Endemic Goiter. R. Klinger.—p. 12.
Treatment of Spontaneous Pneumothorax. N. Betchov.—p. 15.

Poisoning from Bread.—Silberschmidt reports that of 190 persons buying bread from a certain bakery one day in May, 90 per cent. showed signs of poisoning, vomiting, abdominal pains and diarrhea and some fell unconscious; others had redness and swelling of the face next day. All recovered in from one to four days. Dogs fed with the bread vomited also. Absolutely nothing could be found to explain the poisoning. All chemical and other tests were negative. The flour contained 20 per cent. cornmeal.

Postencephalitic Insomnia.—Rütimeyer reports from Zurich eight cases in which children of 5 to 8, after an acute febrile disease, influenza or epidemic encephalitis, were unable to drop to sleep until 4 or 5 a. m. This inability to sleep kept up for three or six months or more. In two other cases this extreme insomnia was a feature of epidemic encephalitis. Pfaundler has reported a similar series of cases of postencephalitic insomnia in children at Munich. The Zurich group seemed mostly normal otherwise. Some of them took a tranquil nap in the afternoon. No benefit was derived from sedatives, but when the child was taken to the hospital and psychotherapy applied, the insomnia yielded in all except the cases with signs of persisting organic lesions in the brain.

Prophylaxis of Endemic Goiter.—Klinger introduced on a large scale treatment of schoolchildren with tablets of sodium iodid in regions where goiter is endemic. There were no signs of intolerance, among the over 1,000 children taking the tablets for long periods, some up to sixteen months. The results are said to have been conclusive, demonstrating that schoolchildren can be kept free from or cured of goiter by this simple means, taking 3, 4 or 5 mg. of iodin in the week for part of the year.

Annali d'Igiene, Rome

October, 1920, **30**, No. 10

*Serodiagnosis in Typhus. G. Sampietro.—p. 593.
Defense in Italy Against Plague. F. Piccininni.—p. 604.
*Entameba Found in the Tonsils. E. Tibaldi.—p. 613.
*Parasites of Field Rodents. A. Splendore.—p. 622.
*The Bacteriophagum. V. Puntoni.—p. 643.

Serodiagnosis of Typhus.—Agglutination of the proteus X occurred constantly in Sampietro's numerous tests with typhus patients, but not until the end of the first week or later. The test was positive also in 5.5 per cent. of normal serums at a titer of less than 1 : 100, and it was positive at a higher titer than this in 18 per cent. of the typhoid cases tested. It was never found positive in any eruptive disease. Fully 63 per cent. of the serums giving a positive proteus X reaction agglutinated likewise *Bacillus pyocyaneus.*

Entameba Found in the Tonsils.—Tibaldi has named the ameba he has found in two out of twenty cases of diseased tonsils, *Entameba macrohyalina,* as he thinks it is a new species. He gives twelve colored photomicrograms of it. In both of the two cases there was concomitant otitis, plus mastoiditis in one case.

Parasites of Field Rodents.—Four colored plates accompany this concluding instalment of Spendore's account of his extensive research. One reproduces sixty-eight photomicrograms of one of the various parasites discovered and the lesions they produce.

The Bacteriophagum.—Puntoni summarizes Twort's and d'Herelle's recent research on what they call bacteriophagia, that is, a bacteria-destroying property possessed by certain cultures. The fluid from these cultures, transferred to other cultures, kills the bacteria in them. Twort ascribed it to a disease of the micrococci he was investigating. D'Herelle, on the other hand, noted the phenomenon in filtrates of dysenteric stools, finding that cultures of the dysentery bacillus were killed by this filtrate, and the killed culture then became bactericidal for other cultures. This same phenomenon could be produced with typhoid and a number of other infectious diseases. He is inclined to ascribe the phenomenon to a single species of bacteriophages always existing in the bowel, and in normal conditions acting on the colon bacillus. He suggests for it the name *Bacteriophagum intestinalis.* He has cultivated a single strain through more than a thousand cultures without loss of its bactericidal property. It seems to be an obligatory parasite, proliferating only when in contact with the live bacteria for which it is pathogenic. Kabeshima has a strain still potent after four years. It does not seem to be affected by alcohol, acetone, ether, chloroform or temperatures below 70 C. Opinions differ as to whether this bacteriophagum is a soluble enzyme, a formed body, or an invisible virus. D'Herelle states that the presence of this bacteriophagum coincides with the turn for the better in the infectious disease in question, suggesting some connection with immunity. Metalnipow found that certain larvae receptive to the Shiga bacillus, which kills them in twenty-four hours, can be protected against its action by this bacteriophagum.

Policlinico, Rome

December, 1920, **27**, Surgical Section No. 12

*Tuberculous Ulcers of the Commissures. G. Bettazzi.—p. 381.
*Tumors of the Salivary Glands. L. Cevario.—p. 390.
*Acute Osteomyelitis of the Ribs. G. Fantozzi.—p. 408.

Tuberculous Ulcers of the Commissures.—Bettazzi's patient was a man of 46 who developed a tuberculous ulceration in the mucosa of the left commissure of the lips, rebellious to medical measures, and excised after four months. Then a similar lesion developed at the right commissure, exactly like the other. On suspicion of syphilis, specific treatment had been applied but without benefit. One enlarged gland in the region was excised at the same time. The first lesion was of dubious diagnosis, but the tuberculous nature of the second was beyond question. He compares this case with others on record, and emphasizes the initial leukoplasic substratum on which the tuberculous process developed, with hypertrophy at first and then ulceration. No other tuberculous focus was known except a pleural affection which had been apparently cured a number of years before, but this flared up anew under the influence of the exogenous reinfection with localization at the mouth.

Tumors in Salivary Glands.—Cevario discusses mixed tumors in general and then mixed tumors of the salivary glands in particular, reporting two cases of the latter in young women, with photomicrograms. One had been diagnosed as a fibro-enchondroma of the parotid gland, but proved to be a mixed tumor with several unusual features.

Acute Osteomyelitis of the Ribs.—Fantozzi tabulates from the literature 50 cases of acute osteomyelitis of the ribs, and adds another case to the list. In the total 51 cases, 14 were in children under 5; 11 between 5 and 10, and 12 between 10 and 20. In 2 cases the costal osteomyelitis had followed shortly after furunculosis. Inflammatory lesions on the scalp are common in the history of the cases, as also eruptive diseases and pathologic conditions in the lungs. In 2 cases it followed measles; in 6, pneumonia, and in one varicella. The infection seems to be always blood-borne. In 40 of the cases only one rib was affected, and the seventh rib was the one most frequently involved, while the first rib was never affected. In nearly half the cases a sequester was found. His list does not include any known tuberculous cases. The symptoms are those of a deep abscess. No instance is known of perforation into the pleural cavity. The conditions with which it is most liable to be confused are neuralgia, articular rheumatism, pleurisy and pneumonia, and, after the abscess has formed, mastitis, a subpectoral or pararenal abscess or empyema. It is probably more prevalent than is shown by the records, and diagnostic mistakes have probably occurred. The staphylococcus is the micro-organism generally involved, but in his case and in one of Canon's, the streptococcus was found. The data presented seem to show that the indispensable surgical treatment should be early and extensive.

Rivista Critica di Clinica Medica, Florence

Nov. 25, 1920, **21**, No. 33

*Hyperchlorhydria and Vagotonia. C. Talentoni.—p. 385.

Hyperchlorhydria and Vagotonia.—Talentoni gives the details of five cases of hyperchlorhydria, including some with gastrosuccorrhea. Symptoms of cardiac vagotonia were unmistakable in all. In a sixth case there was pronounced hyperchlorhydria but no indications of vagotonia. In still another case there was pronounced vagotonia but no hyperchlorhydria. A possible explanation for this various behavior is the elective action on the nervous system of toxins and hormones, curare, for instance. Another example of this toxic action is the injury of certain nerves by diphtheria, syphilis or other viruses. The vagotonia may affect the lungs alone, and then there is asthma; or the heart alone, or the stomach alone, causing hyperchlorhydria, but all these effects might be due to hormones as well. All these three pathologic conditions have intervals of quiet, and treatment should aim to hasten these intervals of repose. Talentoni says that on this theoretic basis he gives a mixture of the three tinctures of the solanaceae.

Anales de la Facultad de Medicina, Lima

September-October, 1920, **3**, No. 17

*Mycoses in Peru. E. Escomel.—p. 95.
*Influence of World War on Medical Education. J. Arce.—p. 101. Cont'd.
*Blastomycosis in Peru. S. Lozada Benavente.—p. 109.
Mental Capacity of Lima Schoolchildren. F. Chueca.—p. 122. Conc'n.
*Relapsing Fever in Peru. E. del Prado.—p. 134.
*Pharmacology of the Myroxylon Peruiferum Lin. fil. A. Maldonado and N. Esposto.—p. 153. Conc'n.

Certain Mycoses in Peru.—Escomel gives an illustrated description of four different types of mycosis affecting the feet. One is a typical *pinta,* with patches over the body. In the others a trichophyton, penicillium or discomyces was responsible for the lesions.

Effect of War on Science.—Arce remarks that since the close of the World War there has been a special focusing of interest on tropical diseases and on measures to improve medical education. Both of these subjects are of vital interest to Peru, and he discusses recent achievements in these lines.

Blastomycosis in Peru.—The heart of tropical America seems to be the special home of blastomycosis which must be distinguished from the lesions resembling it for which leishman bodies or other agents are responsible, especially the group of tropical ulcers known as espundia. The discovery by Escomel in 1914 of the blastomyces in certain cases explained the failure of the treatment which is effectual in leishmaniasis. Since then blastomycosis has been differentiated in Bolivia, Brazil, Uruguay and Paraguay, and Lozada here describes a large number of advanced cases affecting face and throat after five or six years of the disease. There was no actual suppuration in any of the ulcerations, but the parts affected increased remarkably in size, the lower lip for instance hanging down to cover almost the entire lower jaw. He had opportunity for postmortem examination in a large number of these blastomycosis patients who had succumbed to influenza, but he never found any signs of the process below the vocal cords.

Relapsing Fever in Peru.—Del Prado's experience has confirmed the efficacy of neo-arsphenamin both in treatment and in prophylaxis of relapsing fever. The louse seems to be the only means of its transmission in Peru.

Pharmacologic Study of Myroxylon.—In this concluding portion of their study of the trees producing balsam of Peru, Maldonado and Esposto describe with twenty plates *Myroxylon peruiferum, Myroxylon pereirae* and others, and review the history of balsam of Peru, with an extensive bibliography.

Brazil-Medico, Rio de Janeiro

Nov. 6, 1920, **34**, No. 45

*Case of Malignant Endocarditis. Ribeiro da Silva.—p. 731.
*Pseudo-Cyst in Posterior Cavity of Omentum. P. Cezar de Andrade.—p. 733.
The Milk Supply of Rio de Janeiro. C. Barreto.—p. 734.
Copper Sulphate in Puerperal Infection. A. Amaral.—p. 739.

Malignant Endocarditis.—Ribeiro da Silva remarks that the insidious onset and proteiform manifestations, in connection with the rarity of this disease, render it difficult to diagnose at first. In a case described, the girl of 18 had a syphilitic father and she had had several attacks of acute articular rheumatism, and the family would not allow radical treatment of the chronic tonsillitis. The first symptoms had been fever, general malaise, pains in muscles, joints and head, and purpuric spots on one hand, the spots very tender. The fever, continuous at first became intermittent. The malignant endocarditis was confirmed by necropsy, after death from pulmonary edema over four months later.

Omental Pseudocysts.—There was no history of traumatism, but the girl of 18 had had stomach symptoms for some time with frequent nausea and vomiting, and a tumor could be palpated in the epigastrium, toward the right. The operation revealed a large cyst in the posterior cavity of the omentums; it was sutured to the lips of the incision. The contents were a bloody fluid with several clots.

Crónica Médica, Lima

December, 1920, **37**, No. 690

Endemic Goiter in Urubamba District of Peru. C. Monge.—p. 394.
*Sterility from Narrow Uterine Cervix. E. Escomel.—p. 416.

Treatment of Sterility from Narrowness of the Uterine Cervix.—Escomel deplores the resort to surgical measures in such cases as entirely unnecessary. The first thing is to exclude azoöspermia. Then a laminaria tent is introduced into the woman's cervix down to the fundus of the uterus, selecting one fine enough to be worked through the cervix. It is introduced between the eighth to fifth day before the anticipated menses. The next day this tent is withdrawn and a larger one introduced, and this is withdrawn the next day. By this means the cervix is dilated without harm, except that the tents may sometimes induce pain, but this is bearable. An interval of not more than an hour or two should elapse after the cervix has been thus dilated and the reception of the semen. He has thus successfully treated sterility in six women, and commends the revival of this old method of treating sterility. The tents were held in place with gauze and cotton in the vagina.

Gaceta Médica de Caracas, Venezuela

Nov. 30, 1920, **27**, No. 22

*Hemoglobinuric Fever. G. Delgado Palacios.—p. 277.
Discussion of Case of Dystocia. J. Arráiz.—p. 278.
Second Case of Spirochetal Jaundice in Venezuela. H. Cuenca.—p. 280.
Glaucoma. A. Jiménez Arráiz.—p. 283.
Appendicitis in the Elderly. L. Razetti.—p. 285.
Prophylaxis of Venereal Disease. L. Razetti.—p. 286.

Causes of Blackwater Fever.—Delgado Palacios recalls that hemolysis may have different causes, and that it is possible or the physician to trace it to its source and thus be able to pply logical treatment. One important cause of hemolysis ; a reduction in the osmotic tension of the blood serum. Vhen the sodium chlorid content of the serum is unusually ɔw, the corpuscles are liable to burst. If the freezing point f the blood is found at the normal figure in a case of hemolobinuria, there is no reason for injecting a hypertonic aline solution. But when the sodium chlorid content is very ɔw—as he has sometimes found it in pernicious malaria—apid recovery is liable to follow hypertonic saline infusion. n malaria there is no tendency to retention of chlorids in he blood, and this renders it easy to understand the comlication with hemoglobinuria. Bile salts and alkaline soaps re also liable to induce hemolysis when they occur in abnorıal amounts owing to malfunction of the liver. Chemical ısufficiency of the liver may thus cooperate in inducing emoglobinuria. A third group of agents causing hemolysis ıcludes ether, chloroform and quinin. When the osmotic ension is low and the liver insufficient, the quinin may be ıe drop that makes the glass overflow. The malfunctioning f the liver upsets the normal balance between the substances hich promote and which check hemolysis, such as lecithin nd cholesterin. Still another cause for hemolysis may be ound in the toxins from helminths. Treatment of hemolytic onditions therefore, and prophylaxis, require discrimination nd the use, as the case may be, of hypertonic saline infusion, holagogs, quinin or vermifuges.

Repertorio de Medicina y Cirugía, Bogotá

November, 1920, **12**, No. 2

Tumors of the Kidneys. M. J. Luque.—p. 64. Idem. C. Tirado Macias.—p. 72.
Trichocephalus as Cause of Chronic Appendicitis in the Tropics. A. Echeverría Marulanda.—p. 82.
Pellagra in Colómbia. G. Olózaga.—p. 86.

Kidney Tumor.—Luque gives an illustrated description of case of lipofibroblastoma of the right kidney in a woman of 2. It weighed 33 kg. The tumor had never caused sympıms except those of mechanical origin. There had been no ematuria, and the pains in the anterior abdomen had long een mild. Tirado Macias disagrees with Luque as to the ature of this tumor, his assumption being that it had grown ; a hypernephroma in the adipose capsule of the kidney.

Trichocephalus Responsible for Chronic Appendicitis.—cheverría relates that the trichocephalus was found in sixen of twenty operative cases of appendicitis in Colombia. ı three cases from six to ten of the parasites were disovered. He thinks that this finding of the trichocephalus in opical countries in connection with chronic appendicitis eserves greater attention.

Pellagra.—Olózaga declares that, at least in Colombia, the rincipal factor in pellagra is an intoxication from alcohol. here it is from the native drink chicha. He describes various atures of pellagra and the factors favoring it in Colombia, ıd means to avoid them.

Revista de la Asoc. Med. Argentina, Buenos Aires

October, 1920, **33**, No. 192

ntracranial Hypertension: Physiology and Pathogenesis. B. A. Houssay.—p. 477; Symptoms and Diagnosis. R. Chiappori.—p. 487; Ophthalmology. A. Natale.—p. 511; Operative Treatment. E. Finochietto.—p. 528; Three Cases. J. C. Montanaro and T. Gonzáles.—p. 552; Pseudo Brain Tumor. R. Sánchez Elía.—p. 560; One Case. A. Segers.—p. 565.

Intracranial Hypertension.—The articles in this number of ıe *Revista* represent a symposium at a three day meeting of ıe Argentina Medical Association. Finochietto reported ome successful cases of operation for traumatic aphasia or ıralysis of the hand promptly cured by correcting the epression of the skull from an accident. In one case of acture of the base the craniectomy showed contusion of the ain and a large clot. Its extent made its removal imposble. He sutured the dura, and the symptoms completely isappeared, although slowly and gradually. He recommends similar operation for intradural tardy hemorrhage. In the ıree cases reported by Montanaro and Gonzáles, treatment r syphilis plus lumbar puncture cured one case; the third emed to be merely serous meningitis as complete recovery followed lumbar puncture. In the other case the man of 50 died from the effect of the hydrocephalus following chronic serous meningitis, not benefited by mercurial treatment or lumbar puncture. In the discussion that followed, Rivarola urged the necessity for ophthalmologic examination at the first symptoms of pressure on the brain. He does not approve of routine treatment for syphilis in these cases, especially in children as precious time is wasted, and in his compilation of 140 cases of brain tumors in children, there was only one of syphilitic gumma. In this case systematic mercurial treatment for nine months had not seemed to modify the gumma, as was found at necropsy; the child died soon after the operation. He insists that treatment for syphilis should not be kept up for more than two or three weeks if no benefit is apparent. R. Finochietto recalled that the Cushing decompressive operation has not always given good results in his experience. Relief is transient, sometimes, and the symptoms return. Chutro in his experience in Babinski's service during the war, found the results much better when the dura was not opened, while the relief was almost as prompt and more durable than with the Cushing technic.

Revista Española de Medicina y Cirugía, Barcelona

November, 1920, **3**, No. 29

*Sudden Distention of Gallbladder. I. Nogueras.—p. 583.
*Stain for Elastic Fibers in Sputum. R. Dargallo.—p. 588.
Premature Separation of Placenta. J. M. Vilaplana.—p. 590.
Imaginary Pharyngitis and Rhinitis. P. Borras y Torres.—p. 591.
Deep Roentgenotherapy for Cancer. C. Comas and A. Prió.—p. 593. Conc'n.

Sudden Distention of Gallbladder.—The multipara of 55 presented fever and pains suggesting severe hydronephrosis, but a history of dyspepsia, nausea and moderate pain in the stomach after eating, occasional vomiting, and tenderness in the epigastrium and gallbladder region, and a knowledge of a tendency to cholelithiasis in her mother and in one daughter, turned the scale in favor of the diagnosis of gallbladder mischief. Nogueras states that in cases of not very definite dyspepsia, with nausea, he has the patient stand, and presses on the right iliac fossa while the patient tries to draw a deep breath. This induces intense pain in the gallbladder if this is diseased, while this pain does not develop with gastric or duodenal ulcer, colitis or kidney disease. The operation revealed the gallbladder 18 or 20 cm. long by 8 or 10 cm. wide, and a large gallstone was found in the cystic duct. There was no obstruction to the flow of bile, the disturbances being solely from the reaction of the gallbladder. All the symptoms were cured by the cholecystectomy.

Rapid Stain for Elastic Fibers in the Sputum.—Dargallo first sensitizes with hot 1:3 nitric acid solution, and then stains for ten minutes with a mixture of 3 parts fuchsin; 2 parts ordinary alcohol, and 1 part of a saturated aqueous solution of ferric chlorid.

Semana Médica, Buenos Aires

Aug. 12, 1920, **27**, No. 33

*Hemoptysis in Pneumonia. C. Patiño Mayer.—p. 197.
Tests for Arsenicals and Procain. J. A. Sánchez.—p. 202.
Lethargic Encephalitis; Two Cases. C. Lanza.—p. 204.
*Splenectomy for Rupture. N. López Cross and A. J. Pavlovsky.—p. 208.
*Physiopathology of Chlorids in Pneumonia. G. Segura.—p. 211.
Lectures in Genito-Urinary Course. E. Castaño.—p. 214.
Plasmogenesis. A. L. Herrera.—p. 225.

Hemoptysis of Nontuberculous Origin.—Patiño Mayer reports two cases of severe hemoptysis in pseudolobar bronchopneumonia in adults.

Rupture of the Spleen.—This article gives the findings in the blood in a case of traumatic rupture of the spleen in a man of 35. The variations in the blood formula show that the bone marrow was able finally to substitute the spleen after the removal of the latter.

The Chlorids in Pneumonia.—Segura warns that in pneumonia there is retention of chlorids, and hence saline infusion is contraindicated. He theorizes that the fever is one means for aiding in destroying different toxins, and expectoration is a means of expelling waste. The kidneys are evidently more or less injured by the toxins produced in the course of the pneumococcus process.

Siglo Médico, Madrid

Nov. 6, 1920, **67**, No. 3491

*Adhesive Pericarditis. M. Gil-Casares.—p. 837.
Present Status of Vacuum Extraction of Cataract. E. Llamas.—p. 843.

Adhesive Pericarditis.—Gil-Casares remarks that the initial acute phase may escape detection or be overshadowed by the usually coexistent pleuritis. Most of the patients are young, and the general aspect may be like that of the tuberculous, but the chest protrudes, continuing the outline of the rather prominent abdomen. There is a tendency to cyanosis in hands and feet, but no cough or expectoration. The temperature is unstable, mostly normal, with a brief rise occasionally. The patients feel fairly well in bed, but tire easily and are inclined to dyspnea when up and about, and the ankles swell. The veins in the neck fill during systole and empty themselves suddenly during the ventricular diastole. The dicrotic arterial pulse coincides with the double wave of the venous pulse, as he explains.

Arbeiten a. d. Anat. Institut. d. Univ. Sendai, Japan

Nov. 18, 1920, No. 5

*Embryology of Spleen in Birds. J. Shikinami.—p. 1.
Comparative Anatomy of Shoulder Girdle Muscles. S. Nishi.—p. 27.
*Comparative Anatomy of the Brain-Stem. I-VII. G. Fuse.—p. 49.

Embryology of the Spleen in Birds.—Eight colored photomicrograms accompany this report of research on different kinds of birds and fowls.

Comparative Anatomy of the Brain-Stem.—Fuse's research was done under a grant from the tercentennial Tokugawa jubilee fund. His numerous illustrations portray mostly the relations between the auditory nucleus, the eighth nerve, etc., and the cortex of the cerebellum in mammals.

Deutsche medizinische Wochenschrift, Berlin

Oct. 21, 1920, **46**, No. 43

*Etiology of "Colds" and Influenza. P. Schmidt.—p. 1181.
*Eye Disease Associated with Influenza. E. Fraenkel.—p. 1182.
Serodiagnosis in Influenza and Epidemic Encephalitis. R. Bieling and R. Weichbrodt.—p. 1183.
*Tests with Diphtheria Toxin-Antitoxin Mixture. W. Bieber.—p. 1184.
Immunization Tests with Foreign Antigens Against Tuberculosis in Guinea-Pigs. W. Böhme.—p. 1187.
Heart Flutter. S. de Boer.—p. 1187.
Tonometry with Oscillomanometer. S. Peller.—p. 1189.
Curability of Heart Valve Defects. G. Friedländer.—p. 1191.
*The Blood Picture and Vegetative Nervous System. P. Schenk.—p. 1192.
Dosage of Arsphenamin. W. Weigeldt.—p. 1193.
Congenital Atresia of the Ileum. H. Landau.—p. 1195.
*Foot-and-Mouth Disease in Man. H. Sieben.—p. 1195.
Estimation of Percentage of Disability. E. Spir.—p. 1196.
*Present Status of Diabetes Therapy. P. F. Richter.—p. 1197.
Urinalysis. L. Casper.—p. 1200.

Etiology of "Colds" and Influenza.—Schmidt reports that of 196 inoculations with Berkefeld filtrates of secretions from patients with "colds" (16 different subjects) 25 took effect, 3 cases of influenza being among the results. Of 85 inoculations with filtrates from 12 influenza patients, 9 took effect, there being 5 cases of influenza and 4 of "colds." Following 43 control inoculations with physiologic sodium chlorid solution, 8 cases of "colds" developed but no case of influenza. Schmidt says that his investigations do not support the assumption of a filtrable causative agent in "colds" and in influenza, at least not present in large quantities. He thinks that further inoculation experiments on human beings with filtrates of secretions of coryza and influenza patients are imperatively needed to clear up the question in regard to the nature of the causative agents in these conditions.

Eye Disease Associated with Influenza.—Of 132 cases of influenza Fraenkel found eye involvement in forty-six, which he thinks is a larger percentage than is found in any other acute infection, in the latitude of Germany. Both eyes were not always involved. Hemorrhagic conditions were the most common finding. Hemorrhage of the retina gradually abated and finally disappeared. Microscopic examination of hemorrhagic foci in the retina revealed that the hemorrhage was not accompanied by inflammatory processes. There was no evidence that the changes in the retina were due to invading bacteria.

Immunization Tests with Behring's Diphtheria Toxin-Antitoxin Mixture.—Bieber analyzes the report of Hahn and Sommer on the results of immunization tests performed on 1,097 children in the fall of 1913 in six small towns. Inoculation was done intracutaneously by the Römer method, between the scapulae. On the basis of the reactions it could be said that 633 of the 1,097 children were fully immunized, 255 were "doubtfully immunized" and 209 were "insufficiently inoculated." During the six years that have elapsed since the tests, approximately 15 per cent. of the nonimmunized children and only 4.6 per cent. of the immunized (only 3.3 per cent. of the fully immunized) have come down with diphtheria. In the town of Egeln (5,300 inhabitants) there was an epidemic of diphtheria during said six-year period. Of 304 children who were fully immunized in the fall of 1913, 4.2 per cent. contracted the disease, as compared with 18 per cent. of 1,089 nonimmunized children. Of the nonimmunized, 0.7 per cent. died, against 0.2 per cent. of the immunized. In Bismarck (3,000 inhabitants), which also had an epidemic of diphtheria, not one of the fully immunized children acquired the disease, while 6.7 per cent. of the nonimmunized developed it. From these figures it is evident that inoculation does not furnish absolute protection, though the morbidity and mortality rate may be very materially reduced.

The Blood Picture in Disturbances of the Vegetative Nervous System.—On the basis of a series of personally conducted investigations, Schenk states that in individuals with disturbance of the vegetative nervous system and predominance of the autonomic system we often find a high lymphocyte count and often a slight eosinophilia, whereas no characteristic blood picture is associated with hypertonia of the sympathetic system. Increase of tonus in the autonomic system by subcutaneous pilocarpin injections often produces a slight transient lymphocytosis, but without any accompanying increase of eosinophils. However, the experimental augmentation of tonus in the sympathetic system by injections of epinephrin produces marked changes in the composition of the blood in man. During the course of the first half hour following the injection, the absolute number of white corpuscles in the peripheral circulation increases in consequence of the marked increase of lymphocytes to more than twice the number, dropping then to normal during the next few hours, while the relative and absolute number of neutrophil polymorphonuclears increases and the lymphocytes disappear. The eosinophil cells show no considerable changes in the count over and above the physiologic fluctuation. The hypo-eosinophilia and aneosinophilia noted in animals by some writers is always conspicuously absent in man. Neither pilocarpin nor epinephrin, nor the increased formation of hormones which these drugs produce through the mediation of the vegetative nervous system, has an unequivocal effect on the number of the eosinophil cells in the peripheral circulation.

Local Infections in Man Associated with Foot-and-Mouth Disease in Animals.—Sieben, finding that the descriptions of infections in man, associated with foot-and-mouth disease in animals, such as he found in the textbooks were quite different from the symptoms he has discovered in several cases, describes some of his cases. A woman of 38, who had been milking a goat that had sores on the udder from foot-and-mouth disease, presented a painful eruption on the hands. In the palms and on the volar surface of the fingers there were numerous nodular and very painful infiltrations, ranging from the size of a pea to half of a cherry. The smaller nodules were more recent and were a pale red and less painful than the older lesions, while many had at their summit a flat, white vesicle. The largest nodules were a bluish-black; the vesicles contained very little fluid. The patient complained of fever, headache and general discomfort. The mucous membranes were not involved in the slightest, and there was no similar eruptive process on any part of the body, except that one big toe presented a red, painful infiltration the size of a pea, also capped with a white blister. It was without doubt a specific disease entity. Improvement followed the use of antiseptic dressings. The eruption continued for about ten days. In all three cases it was peculiar that no aphthae formed on the mucous membranes.

The Present Status of Diabetes Therapy.—Richter refers to the experience, during the war, that diabetics frequently improved on a restricted diet, and warns against the danger of drawing too wide conclusions from this fact. The experience of the war proved that an overabundant diet makes the situation worse as regards metabolism and the utilization of sugar, but it did not prove that any considerable reduction from a normal diet necessarily improves matters. The use, for any length of time, of a diet that is deficient in its caloric value is as dangerous for the diabetic as for any one else. Before the war, dietaries containing from 50 to 60 calories per kilogram were not uncommon. Others, more particularly Kolisch, advocated not more than 20 calories per kilogram. Richter is in agreement with von Noorden, who recommends 35 calories per kilogram of body weight, which is much less than is usually given diabetics today. Forced feeding of the patient, in order to bring up his weight as soon as possible, is not in the best interests of the patient and does not increase his capacity. Reduction of the diet below normal may be indicated for a short time in severe cases but is not to be recommended as a permanent diet.

Münchener medizinische Wochenschrift, Munich

Oct. 22, 1920, **67**, No. 43

*Milk Injections in Retinitis. L. Heine.—p. 1221.
*Cane Sugar and Focal Reactions. H. Hasenbein.—p. 1222.
Arsphenamin Accidents. R. Hahn.—p. 1222.
*Aplastic Anemia Following Arsphenamin. H. Gorke.—p. 1226.
Speed of Sedimentation of Blood Corpuscles. Schemensky.—p. 1228.
Action of Cytophilins in Human Serum. Mandelbaum.—p. 1229.
Meinicke and Sachs-Georgi Flocculation Tests. Pesch.—p. 1232; Sachs-Georgi Test. R. Somogyi.—p. 1233.
*Auscultation Over the Clavicle. W. Hildebrandt.—p. 1234.
Peculiar Case of Congenital Syphilis in Infancy. A. Mendelssohn.—p. 1234.
*War in Relation to Mental Disease. Kraepelin.—p. 1235.
*Rigidity of the Posterior Abdominal Walls. R. Drachter.—p. 1235.
"Etiology of Febrile Herpes." Kraupa.—p. 1236; Löwenstein.—p. 1236.

Subcutaneous Injections of Milk in Retinitis.—Heine reports the results of his experiments with subcutaneous injections of milk in albuminuric retinitis. The dosage was from 5 to 10 c.c. If we regard the checking of the deterioration of vision as due in all cases to the milk injections, then out of 17 eyes, 15 were favorably affected thereby. If we consider only such cases as being favorably affected in which there was a marked improvement of vision, the favorable results numbered 11, whereas in 4 the disease process was only stayed. In only 2 did the disease process continue in spite of the injections. Also a series of cases of infectious retinitis and choroiditis was treated with milk injections. The primary results were often excellent, though recurrences were common. As the retina is embryonically closely related to the brain, it was thought that milk injections might affect favorably the cerebral symptoms of kidney patients, and that proved in several instances to be the case, though it must be admitted that sensitive patients complained of severe local pain and general disturbances, following the injections.

Intramuscular Injections of Cane Sugar to Produce Focal Reactions.—Hasenbein reports that by means of intramuscular injections of cane sugar focal reactions may be produced similar to those secured by parenteral injections of milk, etc. Good therapeutic effects have been obtained with injections of cane sugar in the treatment of gonorrhea, more especially gonorrhea of the cervix uteri.

Aplastic Anemia Following Arsphenamin.—Gorke reports two cases of aplastic anemia in women, in which the clinical manifestations and the blood picture seemed to be the direct result of arsphenamin treatment. One case ended fatally and the other in recovery. The disease is very rare and occurs only in persons who are very susceptible to arsphenamin. Only the immediate withdrawal of arsphenamin will check its progress.

Auscultation Over the Clavicle.—Hildebrandt points out a source of error in auscultation of the lungs. If the stethoscope is placed on the shoulder end of the clavicle, very frequently loud, roughened breathing will be heard, even though the lungs are perfectly sound. If the stethoscope is not in contact with the skin all the way around, a false "bronchial breathing" results, in much the same manner as the "sound of the sea" that children are sometimes told they can hear in sea shells.

War in Relation to Mental Diseases.—Kraepelin reports that the number of cases of mental disease due mainly to alcoholism has been very materially reduced since the war. He says further that the American people, after a long and hard struggle extending over many years, has suceeded in freeing itself from the bondage of alcoholism and that Finland has followed in its footsteps, and then he raises the question whether his own people, once it recognizes what is at stake, will not have the fortitude to hold fast to the new conditions, the wholesome effect of which must be apparent to every one, though his vision be never so dim.

Rigidity of Posterior Abdominal Walls in Inflammatory Processes of the Peritoneum.—Drachter recalls Krecke's explanation as to why rigidity of the abdominal walls is sometimes lacking in destructive cases of appendicitis; namely, that the appendix in such cases lies close to the posterior abdominal wall, behind the cecum or behind a loop of the small intestine. In this connection Drachter states that rigidity of the abdominal walls is usually not lacking even though the appendix does lie next to the posterior abdominal wall behind the cecum, but that in such cases it is not rigidity of the anterior walls but of the posterior walls that is found. He emphasizes that the condition of the posterior wall is often neglected in the diagnosis, whereas it is of the greatest importance. The posterior walls are involved particularly in cases in which the appendix and the inflammatory process spreading from it lie nearer to the posterior than to the anterior abdominal wall.

Wiener klinische Wochenschrift, Berlin

Oct. 14, 1920, **33**, No. 42

*Rupture of the Spleen in Malaria. C. Massari.—p. 917.
Syphilitic Polyneuritis. W. Kerl.—p. 921.
*Emaciation Preceding Arteriosclerosis. Királyfi.—p. 923.
*Case of Cysticercus Subretinalis. A. Pillat.—p. 925.
Normal Separation of the Placenta. V. Hiess.—p. 927.
"Microscopic Observations on the Capillaries." H. Schur.—p. 928.

Rupture of the Spleen.—Massari says that owing to the fact that, since the war, there are so many men with abnormal spleens as a result of malaria, we should suspect malaria in all cases of rupture of the spleen, the diagnosis of which is not clear, when associated with only slight trauma. It is important that all malaria patients, and their friends and relatives as well, be informed of the fact that the spleen is especially vulnerable following malaria. Also all first aid stations should have their attention called to the matter, so that no time may be lost in sending malaria patients at once for a surgical examination following even a slight trauma.

Emaciation Preceding Arteriosclerosis.—Királyfi discusses a type of emaciation that he has frequently found preceding arteriosclerosis or associated with the incipient stages of this disease. The patients belonged to the 45-55 age group. They presented no subjective symptoms and no other objective changes, aside from the incipient manifestations of arteriosclerosis. The prognosis, so far as the emaciation was concerned, was favorable, as it usually responded promptly to forced feeding.

A Case of Cysticercus Subretinalis.—In Pillat's case the patient had become affected in February, 1919, with trichinosis from eating raw ham. The temperature rose to 40 C. every day. Along with nausea, vomiting and diarrhea, there appeared a marked swelling of the eyelids, which for a period of ten days were the only objective symptoms, at the end of which time they receded. The patient took no other drugs besides aspirin. In February, 1920, during an attack of influenza, the patient suddenly became aware of cloudy vision in the right eye. The physician consulted diagnosed a subretinal cysticercus. The diagnosis was confirmed in Warsaw and by Dimmer in Vienna, at which time vision had been reduced to counting fingers at a distance of 1 meter. June 12, under general anesthesia, Dimmer removed the invader in the usual manner, making a vertical incision in the conjunctiva 0.5 cm. from the outer edge of the limbus, with temporary resection of the external rectus muscle. The parasite was diagnosed as the larva of *Taenia solium*. When placed in a formaldehyd solution it squirmed violently; then remained motionless. At last accounts, vision had improved but was far from normal.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

June 22, 1920, **82**, No. 3

Collargol in Puerperal Fever. P. W. Siegel.—p. 491.
*Experiences with Contracted Pelvis. P. Gagel.—p. 527.
*Vasomotor Disturbances at the Menopause. B. Zondek.—p. 559.
*Bacteria in Normal Puerperal Uterus. A. Loeser.—p. 577.
*Intake of Fluid in First Two Weeks of Life. F. Kirstein.—p. 650.

Experiences with Contracted Pelves.—Gagel reviews thirteen years' experience at the Jena clinic with 1,556 cases of narrow pelvis. The mortality of the children was 10.9 per cent. She tabulates the operative deliveries, a total of 25.3 per cent., with maternal mortality of 2.5 per cent. and fetal, 31.4 per cent.

Vasomotor Disturbances at the Menopause.—Zondek's tests confirmed the instability of the vascular innervation at the menopause. The vasomotor center is in a chronically irritated condition, which he ascribes to the internal secretion of the modified ovaries. This is responsible for hot flashes and the disturbances in the respiration rate which accompany them, as also the pathologic changes in the distribution of the blood. He explains this by active contraction of the vessels innervated by the splanchnic nerves under the influence of the vasomotor center. This contraction forces large amounts of blood into the peripheral vessels. As suddenly as it occurs, it is ended by stimulus directed elsewhere. Then follows active vasodilation of the abdominal vessels, which aspirates the blood into them, and this is aided by contraction of the peripheral vessels. It is easy to understand that these paroxysmal shiftings of the blood are liable to induce symptoms, palpitations, sweating and a feeling of distress. In the course of his extensive research he noted that mental work, counting, picking out certain letters, etc., influenced the vasomotor center in an unphysiologic way, but this did not occur with physical work. The vasomotor center at the menopause responds abnormally to heat and cold at times.

Bacteriology of the Normal Puerperal Uterus.—Loeser's exhaustive research on this subject has demonstrated that every puerperal uterus contains the micro-organisms of febrile puerperal infection by the fifth day without fail, and in 75 per cent. of the cases this occurs at the third day. He gives forty-eight pages of tables showing the exact conditions in his 1,344 culture tests with plates, agar-tubes or bouillon, not counting the further work required for pure cultures and differentiation of the different strains. The attraction of the raw site of the placenta for the bacteria is one of the factors inducing their upward migration. By the first day after delivery, bacteria were cultivated from the internal os. The anaerobes seemed to climb faster than the others, and serve as a guide. Long labor seems to induce enrichment of the bacterial flora, but the interval between the rupture of the membranes and delivery and the length of the third stage of labor did not seem to affect the bacterial flora. The gonococcus and the anaerobes grow better in the uterus than in the vagina. He took smears repeatedly from different levels in the vagina, cervix and uterus, and examined fifty-six parturients in this way; 56 per cent. of them had not been given internal examination before or during the birth, while four had been repeatedly examined internally.

Amount of Fluid Intake in First Two Weeks.—Kirstein had 820 infants weighed before and after breast nursing, and gives tracings of the resulting weight curves.

Zentralblatt für Gynäkologie, Leipzig

Oct. 23, 1920, **44**, No. 43

Arrest of Hemorrhage in Placenta Praevia. P. Mathes.—p. 1210.
Threatened Rupture of Uterus in Premature Childbirth. A. Werner.—p. 1216.
Encephalitis in Relation to Pregnancy. P. Kreiss.—p. 1220.
*Syphilis in Relation to Pregnancy. R. Hornung.—p. 1222.

Effect of Syphilis on Pregnancy.—Hornung gives statistics from the University Woman's Hospital in Kiel bearing on the effect of syphilis on pregnancy. During the four-year period, 1910 to April 1, 1914, 221 pregnant women were observed who were infected with syphilis in some form or other. There were three twin pregnancies, the outcome of which is of special interest. In one of these, presenting a positive Wassermann reaction but no clinical signs of syphilis, delivery occurred at the end of the sixth month. The first child was stillborn; the second child died the day it was born. The living child gave a negative Wassermann reaction; no serum could be obtained from the stillborn child. Neither child presented any syphilitic changes. In the second case, the mother gave a positive Wassermann reaction, but no clinical evidence of syphilis. About the middle of the seventh month a living child was first born, followed by a macerated stillborn child. The live child is thriving but has twice caused partial inhibition of hemolysis. In the third case of twin pregnancy the mother presented florid syphilis in the second stage and a positive Wassermann reaction. At approximately normal term two living children were born, both of which gave positive serum reactions but no clinical evidence of syphilis. It is thus evident that the results of syphilitic infection are not necessarily the same for both fetuses. No cases were observed in which both twins were stillborn. In the whole series, birth of a living child occurred in 186 cases, or 85.33 per cent.; there were twenty-four (13 per cent.) premature births, seven of which were however determined by other causes than syphilis. There were thirty (13.76 per cent.) stillbirths, all after the fourth month. Of the 124 children of the mothers who gave positive Wassermann reactions but no clinical evidence of syphilis, three presented clinical signs of syphilis—pemphigus specificus, in each case—but gave a negative Wassermann reaction. Of the 73 children given the Wassermann test, 13 reacted positively.

Zentralblatt für innere Medizin, Leipzig

Oct. 16, 1920, **41**, No. 42

Relation of Influenza to Pulmonary Tuberculosis and Scrofulosis. F. Jessen.—p. 721.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 18, 1920, **2**, No. 25

The Medical Journal and the Practitioner. G. Van Rijnberk.—p. 2623.
*Syphilis and Kidney Disease. J. Lankhout.—p. 2649.
Treatment of Ozena. J. De Levie.—p. 2656.
*Caries of Upper Vertebrae. H. Rümke.—p. 2658.
The Midwife in Child Welfare Work. H. Aldershoff.—p. 2696.
Technic for Medical Inspection of Schools. J. Lubsen.—p. 2702.

Syphilis and Kidney Disease.—Lankhout describes two cases of nephritis in syphilitic men of 26. The acute nephritis developed insidiously in the course of hospital arsphenamin treatment, and the albumin content of the urine ran up to 2 per cent. but there was very little hemorrhagic tendency. The kidney functioning did not seem much disturbed, notwithstanding the rebellious edema. The blood pressure was normal. The headache and apathy in such cases are liable to be mistaken for uremia. After six or eight weeks of treatment the edema had almost completely subsided, and the albumin dropped to 1 or 2 per thousand, so the patients were allowed to get up and gradually return to active life. The syphilis was of one or two years' standing in these cases, and systematic mercurial treatment had been given. The toxins from the syphilis virus are probably responsible for the kidney disease, which is more of a nephrosis than a nephritis. The specific treatment did not seem to benefit the kidney disease in his cases; possibly the mercury had rendered the kidneys more susceptible. Neither man had any signs of syphilis at the time, and both have regained full strength and earning capacity. Recent reexamination of one of the patients showed no albumin in the urine. The urea range was from 0.85 to 2 per cent. and specific gravity, 1.009 to 1.025, but the total output of urine was low, only 794 c.c. in twelve hours.

Caries of Upper Vertebrae.—In Rümke's case the woman of 49 had suffered recently from supposed occipital neuralgia, and had begun to snore at night and have some difficulty in swallowing. Roentgenoscopy was negative, but stiffness of the neck finally gave the clue, confirmed by the course of the case, which revealed a tuberculous process in the upper vertebrae. As the findings with roentgenoscopy had been negative at first, the occipital neuralgia was assumed to be of rheumatic origin, and the occipital nerve was stretched. The woman stopped breathing as this was done, but recovered under artificial respiration. Only transient benefit followed. The woman died about a week after the suboccipital spondylitis was finally recognized and an extension cast applied.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 10 | Chicago, Illinois | March 5, 1921

CHRONIC SYSTEMIC INFECTIONS AND THEIR SOURCES *

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The interest of the medical profession in dental problems and in the relation of lesions of the mouth to general disease is not confined to this modern era. Jean Louis Petit, surgeon of Paris, 1674-1760, relates his experience with dental infection and systemic disease in the Traité des maladies chirurgicales. After enumerating the symptoms, including cough, loss of appetite, difficulty in obtaining sleep, chills and fever, from which one of his patients suffered, he continues: "The physicians whom he had consulted were led to believe that he was affected with consumption, and they treated him with this belief, but so far without success. On examination I found that two of his teeth were carious and I advised their extraction. A rapid restoration of the patient's health followed in less than a fortnight."[1] I would invite your attention to the procedure of our ancient surgeon. He does not say that he extracted the teeth, as he might well have done at that time, but that he advised their extraction, and no doubt he secured such dental consultation as may have been available in those days. We have in recent years passed through a period when both dentists and physicians have failed to avail themselves of the advice of their colleagues, but happily, I believe, that day is rapidly closing, and we are entering an era in which cooperation between the two professions will be close and cordial.

The increase of knowledge regarding the relation of acute and chronic local infections to more widespread and often disabling diseases has made possible the prevention of much suffering and has been the means of restoring to health many of those who seemed in previous years to be condemned to recurrent disability and even permanent invalidism. The dental profession has contributed largely to this end by introducing methods for the recognition and cure of infections about the teeth. While experience teaches that the removal of alveolar abscesses frees certain patients from recurrences of their arthritis or other metastatic lesions, and while it is fairly clear why such a result is often to be anticipated, it is not so evident why many other alveolar abscesses remain symptomless and, so far as can be determined, wholly unassociated with metastatic disease. Why should infections of the alveolar processes behave differently, and what are the influences that lead to metastatic infection from an alveolar abscess that has lain quiescent for months or years? Dental infection in its relation to the body may be best understood when considered with other similar sources of metastatic disease, and I propose to discuss some of the more general facts of the mechanism of infection, and later to attempt to apply these conceptions to the solution of the problem of the patient who comes seeking relief. But before passing to the question of metastatic disease, we may consider briefly some of the more general relations between disease of the mouth and that of the remainder of the body.

THE MOUTH AND GENERAL DISEASE

The intimate relation, sometimes causal and sometimes resultant, between disease of the mouth and general disease needs no emphasis. The recurrent glossitis and other oral inflammation of pernicious anemia, the hemorrhages of the gums and mucous membranes in leukemia and scurvy, and the herpes associated with gastric disturbances, exemplify the close interrelations of the tissues of the mouth with the rest of the body. The degenerative diseases, including arteriosclerosis and chronic nephritis, appear to depend for their cause in part on chronic infections derived from the mouth. In a study of the teeth of 329 patients with various diseases in Cook County Hospital of whom 124 were roentgenographed, alveolar abscesses were found in 44 per cent. When these patients were classified according to disease, there were found 76 per cent. of alveolar abscesses in the arthritic group, 47 per cent. of abscesses in the cardiovascular group, and in the remainder, including acute diseases such as typhoid fever and pneumonia, 23 per cent. of abscesses. Other investigators have found a still higher percentage of alveolar abscesses in various groups, and have also emphasized the effect of chronic infection in the production of chronic degenerative diseases. In roentgenograms of 600 adults, Black found 78 per cent. showing areas of bone destruction; but in 72 per cent. there were as yet no evidences of systemic disease. More difficult of demonstration, but of apparently none the less importance to the general health, is the direct absorption of infection and the swallowing of pus derived from infected gums of pyorrhea. The absence of immediate symptoms indicates, not that progressive damage is not occurring, but only that as yet the effects have not become clinically visible. The unfavorable influence of such prolonged exposure to the products of suppuration will be referred to later, but no argument appears necessary to establish the desirability of the elimination of such chronic infections.

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* Read at the annual meeting of the Chicago Dental Society, Jan. 27, 1921.

[1] Buck, A. H.: The Dawn of Modern Medicine, New Haven, Yale University Press, 1920.

MECHANISM OF INFECTION

It is, of course, well known that the sites of chronic infection in the body are many, and include teeth, tonsils, sinuses, prostate, gallbladder, to name only a few of the commoner. It is also a matter of general experience that many people have one or more such infections for months or years without suffering from metastatic lesions in joints, eyes or elsewhere, so far as may be determined from clinical observation. They may be entirely ignorant of the presence of infection in the body. The chief factors that determine whether the infection shall remain confined to its local site, or whether it shall extend into adjacent or distant parts of the body may be grouped under three headings: (1) the virulence or invasiveness of the organism; (2) the nature and extent of the infected tissue, and (3) the resistance of the patient.

Bacteria and other disease producing viruses vary widely in their ability to invade and produce changes in animal tissues, and this variableness of action depends on a number of conditions, among which are the presence or absence of available food supply, suitable oxygen tension, and the degree of protection afforded the bacteria against the fluids and cells of the host. One species of animal is naturally resistant or immune to infection by an organism, while another species is extremely susceptible. Different individuals of a species may differ widely in their susceptibility to a given infection, and this difference in individuals is frequently observable in man.

We commonly think of a virulent organism as one which, like the streptococcus in erysipelas or cellulitis, is able rapidly to invade the tissues, with resulting edema, pain and a course of stormy illness. This conception, while correct so far as it goes, is incomplete and should not divert attention from those infections which proceed more slowly, often unnoticed for a time, but in which the progress of invasion of the host by the bacterium is no less sure. Infection of the latter type is illustrated by some of the common forms of tuberculosis. The chronic types of metastatic disease of joints and eyes arising from infections about the teeth and other localized areas throughout the body, in their chronicity and in the relative absence of symptoms of systemic disease, resemble the latter more than the former group, although all degrees of acuteness of both primary and secondary lesions may be found. The process of invasion consists, however, of a series of short steps, rather than of one continuous process.

Changes in growth reactions and in ability to invade the animal body have been observed in bacteria during successive transfers in the culture tube, and it has been assumed that similar changes in invasive power occur during their residence in some localized area in the body. It is possible that such modifications occur; but indisputable proof of these changes is difficult to obtain, and instances of variations in the disease-producing power of organisms become relatively insignificant when compared with the remarkable constancy of growth and pathogenic power of most disease-producing bacteria or viruses. While it is true that epidemics of contagious disease vary in severity and in case mortality from season to season, and even during the course of a single epidemic, the cultural characteristics and the clinical features of the disease in the typical case do not change in any essential particular. Thus, typhoid fever, lobar pneumonia and epidemic meningitis present the same clinical pictures today as they did twenty or more years ago, and the bacteria that cause them show the same cultural characteristics.

It thus appears that in our inquiry into the mechanism of metastatic infectious disease we must look rather to the remaining two factors, the site and nature of the infection, and the resistance of the patient.

THE EXTENT AND NATURE OF CHRONIC INFECTION

One of the outstanding and puzzling factors encountered at the outset of our survey of chronic localized infections is that while many patients present themselves with evidences of metastatic lesions that evidently have their source in a chronically infected area of tissue, there is a very much larger number of persons who are subjects of chronic local infections of equal or even greater extent, caused by the same bacteria, who show no evidence of secondary infection in the joints or other organs. At first glance such chronic infections might seem to differ in this respect from the acute infections arising from minor wounds; but a moment's consideration will suffice to show that for one pin prick, abrasion or cut that is followed by serious local or general infection, there are tens or scores of similar wounds incurred under conditions that render likely the introduction of pathogenic bacteria into the wound, which promptly heal without clinical evidence of infection.

Evidently the reactions of the cells and fluids of the rest of the body against the impending bacterial invasion, which we are accustomed to speak of as resistance, determine to a large extent the outcome of a local infection, no matter whether it is acute or chronic. The resistance of the body to invasion, however, is not a constant quantity, but rises and falls in consequence of changes in nutrition, or because of fatigue, exposure to cold, or other favorable or unfavorable influences of environment. The course of an acute infection is at once determined by the virulence of the organism, the extent of the area of implantation, and the resistance of the body at the time of the infection, while in the chronic local infection the infecting bacteria are afforded a safe residence in which they may multiply, and from which they may invade the body at any time, and often repeatedly when its resistance is temporarily lowered. Bacteria in chronic lesions thus have many opportunities to invade the body during periods of depressed resistance; or, if the resistance of the body is maintained by a wide margin of safety, they may never be able to effect an invasion sufficient to produce symptoms. The tissues involved in the local chronic infection may be in close connection with healthy tissue, or they may be surrounded by a fairly firm wall of granulation and connective tissue, which affords some degree of protection to the adjacent uninfected structures. In any case, however, there is a fairly direct communication between the local lesion and surrounding tissue by means of lymphatics and blood vessels. Even in so isolated a lesion as an alveolar abscess, the lymphatics pass out to surrounding bone and subjacent tissues, and as Noyes has shown, the lymphatics below the jaw can be injected through the pulp chambers of the teeth of the mandible. The enlarged regional lymph nodes found in association with chronic infections of the mouth and tonsils afford clinical evidence of the close lymphatic connection between infected areas and surrounding tissues.

The degree of confinement of the infected area may influence the passage of organisms through lymphatics and blood vessels, and clinically, generalized infections result more often from lesions entirely closed, either acute or chronic, than from those in which external drainage is free.

The defenses of the body against bacteria that have passed the skin or mucous membranes, or have entered through the gateway of chronic localized infections, are maintained by means of the antibacterial action of the fluids of the body, by the action of the leukocytes and other phagocytic cells, or by a combination of these. Several of these reactions can be demonstrated in the test tube, and have received various descriptive names, such as phagocytosis and agglutination. While some estimate of the probable resistance of the body to impending infection can be made by means of these reactions in the laboratory, it is quite possible that the mechanism of bodily defense involves other or more intricate chemical reactions, which have thus far eluded demonstration by the physicochemical means at our command. Nevertheless, we know that the resultant of these forces which we call resistance varies greatly from time to time, in response to changes in physical environment such as exposure to cold, severe local injuries, starvation, errors in diet, fatigue, and with the changes attendant on the passage from youth to old age.

In view of these many circumstances, one of which or several in combination may serve to favor or to prevent the passage of organisms from a chronically infected area into the body, it is not surprising that such infections may produce metastatic lesions in one person and remain symptomless in another, or that an infection which has remained quiescent and unrecognized for years may suddenly cause widespread and disabling disease.

Resistance to infection, or immunity, is only relative, and the fine balance may be turned unfavorably to the patient by any of the physical agents just enumerated. Immunity which is sufficient to protect against the degree of exposure ordinarily encountered may prove ineffective when the dose of infecting organisms is increased. Antityphoid inoculations confer an increased immunity to typhoid fever, and persons so inoculated do not contract typhoid even when they occasionally ingest typhoid bacilli in numbers in which they usually occur in polluted water supplies. If, however, the same persons are daily exposed by the ingestion of heavily polluted water, as happened to certain companies of soldiers in France in the World War, they do contract typhoid fever. The danger of presuming too much on natural immunity is seen in the serious infections, with sometimes general sepsis and death, which occasionally follow the extraction of many infected teeth at one time. The dental axiom that when many infected teeth are to be removed, only two or three should be extracted at each sitting at intervals of several days, expresses in terms of dental practice the necessity of conserving the resistance of the patient, by avoiding an overdose of infection through the laying open of excessive areas of tissue and lymphatic vessels.

MULTIPLE INFECTIONS

Just as an infection involving large areas of tissue is more likely to result seriously for the patient than is one due to the same cause but confined to a small area, so infection of several areas involving different tissues is more difficult to eradicate than is a small, single lesion. Illustrations of the unfavorable effect on the patient of one infection superimposed on another, such as in secondary pyogenic infections in pulmonary tuberculosis, are also seen in cases of coincident infections of teeth, tonsils and sinuses. In our study of iritis, Dr. Brown and I frequently found two or more sites of infection; and in a number of such instances the relief of the iritis was correspondingly slower than in those cases in which the infection was more limited.

In considering the possible time relations between infections of teeth, tonsils, eyes and joints, the teeth have been charged by some with being the primary offenders. In a number of instances it has seemed not unlikely that the primary source was elsewhere, as in the tonsils, and that occasionally the lesions developing about the roots of pulpless but otherwise presumably healthy teeth were as truly metastatic as was the iritis or arthritis, though occurring at an earlier date. With this thought in mind, it appears not unreasonable for the dentist who is confronted with the problem of keeping in order a mouth in which repeated infections continually add to the difficulty of conservation of the teeth to request a survey of the patient for other sources of infection. The teeth should not be obliged to bear all the odium of primary sin.

OTHER PORTALS OF INFECTION

Even a brief review of the mechanism of infection would be incomplete without some reference to certain other perhaps less frequent and undoubtedly less considered routes of ingress of organisms in chronic and recurrent infections. The relation of these routes to the infections that enter by them may perhaps be best understood by reference, first, to the acute infectious diseases. The walls of the pharynx, trachea and bronchi are supplied with an extremely rich network of lymphatics, which afford means of transport for such bacteria and viruses as are able to pass the mucous membrane. In lobar pneumonia, Blake and Cecil have shown that the disease can be regularly produced in monkeys by the introduction of a minute amount of virulent organisms within the trachea by means of a sterile needle passed through it just below the larynx. Within three hours after such inoculation, organisms can be demonstrated in the walls of the bronchi, and in six hours can be isolated from the blood.

Within the stomach, the free hydrochloric acid of the gastric juice exerts a strong antiseptic action, so that normal stomach contents usually contain few of the commoner organisms, such as streptococci, and thus a large proportion of the pathogenic organisms that pass from the mouth to the stomach are here destroyed. During periods when gastric secretion is suspended or greatly decreased, or when the free hydrochloric acid is neutralized, organisms susceptible to the acid may escape death and pass on to the intestine. That this may occur not infrequently was shown by some investigations of the feces in scarlet fever, a disease in which hemolytic streptococci are found quite regularly in the throat. In 30 per cent. of cases Dr. Moody and I were able to determine hemolytic streptococci in the feces, although in some instances many examinations were required. In typhoid fever it is generally held that the organisms pass from the intestine into the blood stream by way of the lymphatics. Tuberculous lesions of the thoracic duct have been noted in cases of primary intestinal tuberculosis; and other diseases, such as some forms of anthrax and actinomycosis, have been held to have a similar pathogenesis.

Clinically, in certain forms of chronic colitis, arthritis is encountered, and at necropsy in many cases of acute and chronic intestinal infection there is extensive enlargement of the mesenteric lymph nodes.

The number of instances in which the infection which gives rise to an iritis or arthritis commonly associated with chronic local lesions enters the body through the supposedly intact mucous membranes of the pharynx, trachea or intestine is, so far as we can now show, relatively small; but a limited group of carefully studied cases suggests that this route must be considered. Were it not that the recognition of this route seems important in the understanding of certain obscure cases in which the search for the cause of metastatic infection has been heretofore unavailing and in which a further sacrifice of unoffending teeth and other organs impends, an incomplete reference to the gastro-intestinal tract as a source of infection might be regarded as unjustifiable in that it may stimulate rather than check the unscientific use of the term "intestinal autointoxication." Perhaps no term in medicine has been less well defined in the minds of medical men, and no other term has been so overworked, and used as a cloak for ignorance, so often to the detriment of the patient, as this term "intestinal autointoxication," which substitutes a catchy phrase for a careful examination. It is only after a thorough examination of the more usual sites of chronic infection that a diagnosis of metastatic infection arising from this source should be entertained. Neither the acute gastro-intestinal infections and food intoxications in patients previously in good health nor the intoxications from chronic constipation are now under discussion.

In view of the manifold influences both within and outside the body, which may play a part in determining the course of an infection, it does not now seem strange that in one patient the bacteria in an alveolar abscess remain localized, and in another produce metastatic disease. Infections about the mouth probably stand first in point of frequency as a cause of metastatic infections; but the entire burden of effort for the recovery of the patient should not be arbitrarily thrown on the dentist in view of the many other sources of infection, some of which have been frequently overlooked. It also sometimes happens that pains, supposed to be infectious in origin, are in reality due to other causes, including nervous disorders and secondary malignant growths.

THE PROBLEM OF THE PATIENT

In order that the interests of the patient may be best served through close and well correlated team play of dentist and physician, it is essential that the problems of each be understood by the other. The urgency of the demand for correction of dental disease varies greatly in different patients and is determined by considerations which in one case may be quite different from those in another. It is the failure in the first instance to recognize that such differences exist, and then the difficulties of properly evaluating them, that have led to many of the misunderstandings between physicians themselves, and between them and their dental colleagues. I may best make this clear by some hypothetic cases.

A man on routine examination is found to be in fairly good health, or perhaps a little below par in some respects, and he has some teeth with clearly marked or doubtful apical destruction. The correction of such pathologic conditions as are present is evidently a dental problem, in which the judgment of the dentist will determine what, if anything, shall be done with these teeth. It is assumed that definite alveolar abscesses will receive appropriate treatment with a view to conserving, if possible, the masticatory function.

Again, a man suffers from pains in the joints or nerves, frequently described by the popular term rheumatism, and perhaps has minor anatomic changes in the joints. On examination it is found that, in addition to areas of infection elsewhere in the body, he has one or more teeth, the roentgenograms of which show apical destruction, such that the dentist cannot be certain whether active infection is present or not. It is obvious that the dental management should be conservative, along lines determined by the local conditions in the mouth; and the evident infections elsewhere in the body should be dealt with, rather than teeth sacrificed.

Similarly, even when secondary manifestations of infection are more serious, as in the more severe forms of arthritis, the removal of teeth about whose roots there are minor lesions, which the well trained dentist believes to be without active infection, is to be deprecated, especially in view of the resulting interference with mastication and perhaps nutrition, on which the future welfare of the patient so largely depends.

The relative importance of the factors in the following example are decidedly different from those in the foregoing A man lost the sight of one eye by an accident in childhood. He is now having recurrent attacks of iritis in his remaining eye, and vision has been reduced to less than half the normal. Further recurrences must be prevented if he is to escape total blindness. A careful examination detects no demonstrable infectious lesions except a slightly infected tonsil and two or three teeth concerning the infection of which the best dental consultants are doubtful. In view of the irretrievable loss of sight which will result from further iritis, radical treatment of both tonsils and teeth seems to be not only justified, but demanded.

Between these extremes there occur all manner of combinations of findings and degrees of urgency, and a satisfactory decision can be arrived at only through close cooperation of the physician and his dental and other colleagues.

The therapeutic results to the patient of the removal of infection will vary greatly in different persons. The secondary lesions may be limited in extent but cause great disability, as in iritis or arthritis of a joint essential to the use of an extremity, or the lesions may be widespread and progressive, but in the early months may cause relatively little disability. On the removal of an alveolar abscess or other infection, the metastatic inflammation frequently subsides rapidly, in some instances even more rapidly than seems possible on theoretical grounds. In other cases, improvement may be preceded by an exacerbation of the secondary infection, followed by slower but permanent healing. This variability in behavior of the secondary lesions may perhaps be related, in the case of the alveolar abscess, to the type of the infection: whether partially enclosed by a dense layer of granulation tissue, or whether continuous from the dental structures into the alveolar process, with lymphatic vessels freely passing to the surrounding tissues.

When secondary invasion of the joints is widespread, improvement may be slow, even when it seems certain that the original site of infection has been removed. It is only fair to state that a number of good clinicians are extremely doubtful whether anything of value is gained by attempts to remove local infections in cases of widespread arthritis, particularly of the type known as arthritis deformans. It is well known that periods of spontaneous improvement occur independently of such attempts, that in such cases the joints themselves may become sources of infection for other joints, and that the most important measures are those which will assist in increasing resistance by improving the nutrition of the patient. While these facts are evident to any one who has studied such cases, I cannot agree with those who take an absolutely pessimistic view of the results to be anticipated from attempts to rid the body of sources of further infection, provided it is recognized that such measures are only preliminary to patient and perhaps long continued care and general supportive treatment. Even the most thorough treatment, based on clinical studies of metabolism and on the removal of chronic infection, sometimes fails to stay the course of the more severe types of arthritis deformans.

SOME MEDICODENTAL MISCONCEPTIONS

Ten years ago, few physicians concerned themselves with the difficulties encountered by dentists in the care of the teeth, and most dentists were equally uninformed in regard to changes that occur in the body as a result of diseases of the mouth. The mutual study of problems of disease has been of inestimable advantage to both professions; but with this broadened scope of information, there have come certain misconceptions, which have grown largely through incomplete and partial knowledge of anatomy and physiology in the new fields.

I hesitate to refer to so purely dental a question as that of the "dead tooth." Most physicians, and possibly a few dentists, conceive that a pulpless tooth is a "dead tooth." Since the nutrition of a pulpless tooth may still be maintained by the intact peridental membrane, and its lymphatics may still be in vital connection with the lymphatics of the alveolar process, the use of the term "dead tooth" in this connection is inaccurate and misleading. Terminology here may be profitably improved; but the essential fact to be insisted on is that loss of sensory function of the pulp through its death does not fatally impair the nutrition of the tooth, and evidence adequate to warrant its removal must come from sources other than the demonstration of loss of pulp sensation. It is, of course, understood that such a tooth is probably more susceptible to infection, and by reason of its decreased sensitiveness requires more careful supervision, than entirely normal teeth.

Another misconception is encountered in the attempted application of the results of examination of the white cells of the blood to decisions as to the presence or absence of infection about the roots of teeth, and the consequent determination of treatment. Efforts by dentists to study patients more thoroughly by means of laboratory examinations, such as blood counts, are most laudable; but unless the dentist is able himself to interpret his reports, he is very likely to be misled. It repeatedly happens that the dentist, perhaps in doubt as to the presence of apical infection, and desiring to give his patient the best attention possible, sends him to a laboratory, and receives a report that the blood shows a leukocytosis, and that therefore infection of the teeth is still present and is to be sought. Infection about the teeth evokes a reaction in the leukocytes in no wise different from infection in tonsils or in a corn, and the chances of error from the information afforded by a leukocyte count in a patient in whom other sources of infection or the possible physiologic causes of leukocytosis have not been excluded, are much greater than those arising from attempts to determine the condition of the teeth from roentgenograms alone. What is needed is not fewer leukocyte counts, but more intelligent interpretation of the information thereby gained.

This is the era of laboratories. Medical laboratories spring up almost daily, and when they are able to attach the word "research" to their titles, the height of scientific achievement seems assured. That there should be this increase in laboratory study of patients is one of the hopeful signs in medicine and dentistry. The advances in all sciences have come largely through research carried on by laboratory workers. Further, it is obvious that for one piece of investigation which yields permanent and utilizable results, there will be many that seem at the time barren; but these are not necessarily to be discouraged. It seems desirable, however, to consider rather carefully, before embarking on a time-consuming investigation, whether results commensurate with the effort may reasonably be expected. Applying this idea to the study of the individual patient, would it not be well, before putting him to the expense of laboratory investigation, to determine just what is to be gained by the proposed tests, and whether these isolated tests made at various intervals, and perhaps without the controls necessary to the reliable and proper interpretation of the results, can be expected to yield any information that will be of value?

There is no more interesting or profitable field of collateral study for the physician than that of the problems of the teeth, as portrayed by modern dentistry, and I believe dentists will find equal satisfaction in a survey of the changes in the body resulting from disease, the cause of which often finds expression in changes in the teeth.

Frank and friendly discussion and exchange of ideas between the two professions will lead to a better understanding of the problems of each by the other, and will render more effective our efforts to prevent disease and alleviate suffering.

122 South Michigan Avenue.

Group Medicine.—Group medicine in some form, is the only means by which the patient can receive the attention to which the advancement of medical science entitles him. A medical building with a medical library where physicians can meet, common access to laboratories containing modern means of diagnosis with good technicians in charge, the whole managed and controlled by the physicians of a community, would enable every patient, rich or poor, to obtain proper treatment. A basic fee may be charged each physician, the remainder of the expense to be divided in proportion to each member's use of the equipment. Arrangements for mutual consultations, for early diagnosis, and the proper handling of emergency cases should be made. The city's health and institutional work should also be performed by the medical group and the proceeds devoted to bettering the equipment of the laboratories. All these desirable arrangements may be made possible by cooperation between the physicians of a community.—W. J. Mayo, *Surg. Gynec. & Obst.* **32:**102, 1921.

TEST FOR CHANGES IN THE PROTEIN CONTENT OF THE CEREBROSPINAL FLUID

BASED ON THE FLOCCULATION OF LIPOIDS

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The several roughly quantitative, clinical methods now in use for the detection of pathologically increased proteins in the cerebrospinal fluid may be divided into two groups, those in which heating is required, and those which are carried out in the cold. Of the former, the butyric acid reaction [1] has been considerably used because of its delicacy and the readiness with which the results can be read; but the unpleasant odor of the reagent has been a drawback to its use. Amoss [2] has proposed a method in which the native proteins of cerebrospinal fluid are precipitated by boiling for six minutes in a water bath a mixture of the spinal fluid (0.2 c.c.) and an aqueous solution (0.6 c.c.) containing primary phosphate (3 per cent.) and glacial acetic acid (0.05 per cent.). The latter method, while perhaps a trifle less sensitive than the butyric acid reaction, yields practically comparable results, and the use of a single odorless reagent is a distinct advantage. On the other hand, a method in which a single, odorless reagent is used, without heating, would constitute a still further gain in practice.

In the several nonheating procedures the contrast between normal and pathologic is less clear-cut than in the butyric acid reaction or Amoss' test. Such are the Nonne-Apelt [3] and the Ross-Jones [4] methods with saturated ammonium sulphate solution, and Pandy's [5] reaction with concentrated (1:16) phenol (carbolic acid). Trichloracetic acid and sulphosalicylic acid have also been used as precipitating reagents, but as they bring about precipitation in normal as well as pathologic fluids, careful quantitative measurement of the precipitated proteins is necessary. Such quantitative tests with sulphosalicylic acid have been recommended by Ravaut and Boyer [6] and by Denis and Ayer.[7]

It is evident, then, that none of the methods so far used is without drawbacks; hence the attempt to devise a method combining several advantages—the use of a single reagent which can be simply applied (without heating) and is capable of preservation; delicacy, rapidity, and distinctness of reaction.

As will be evident from the constituents of the reagent, the reaction is not altogether based on the direct precipitation of the proteins contained in the cerebrospinal fluid, but is due to a concomitant flocculation of certain lipoids which the reagent contains. The volume of the precipitate produced is therefore more copious than that brought about by the direct precipitation methods, such as the butyric acid, Amoss', Pandy's or Esbach's methods.

THE REAGENT AND ITS MODE OF APPLICATION

The components of the reagent are (1) alcoholic extract of acetone-insoluble tissue lipoids prepared by the method to be described, and (2) a solution containing 0.5 c.c. of glacial acetic acid, 10 c.c. of a saturated solution of picric acid in absolute alcohol, 1.5 gm. of acid potassium phosphate, and 4 gm. of sodium chlorid in distilled water to make the total volume 1,000 c.c. The lipoidal extract and the acid-salts solution, which will be referred to, respectively, as Solution 1 and Solution 2, are later mixed in the manner to be described.

Preparation of the Stock Solution of the Acetone-Insoluble Lipoids (Solution 1).—Beef heart is ground in a sausage machine, and then completely dried by a fan over a heater. One hundred grams of the dried substance are extracted with 1 liter of acetone for five days at room temperature, with daily shakings. The acetone is then discarded, and the mass of solids freed from acetone by evaporation and then extracted with 1 liter of absolute alcohol for five days at room temperature. The golden yellow alcoholic extract, which contains acetone-insoluble tissue lipoids (which has been found also to be an excellent antigen in the complement fixation test for syphilis), is separated from the dried muscle and tested for its suitability as the reagent. The criterion of usefulness is the transparency of a mixture of the alcoholic extract and Solution 2 in a ratio of 1:9. If a marked opalescence bordering on opacity is produced, the extract is unsuitable. As a rule a satisfactory solution—faintly opalescent, but almost transparent—is obtained.

Preparation of Solution 2.—It is convenient to prepare a stock solution of the acids and salts in distilled water as follows: One and five-tenths grams of acid potassium phosphate (KH_2PO_4) and 4 gm. of sodium chlorid are dissolved in 990 c.c. of distilled water containing 0.5 c.c. of glacial acetic acid. Finally, 10 c.c. of a saturated solution (approximately 3.5 per cent.) of picric acid in absolute alcohol is added. If the solution is not to be kept in the refrigerator it is desirable, in order to prevent any fungus growth, to make it up in ten times the strength in which it is to be used, that is, to dissolve the salts in 90 c.c. of distilled water, containing 0.5 c.c. of glacial acetic acid, and add 10 c.c. of the picric acid solution. At the time of use, 1 part of this solution should be mixed with 8 parts of distilled water, and 1 part of the lipoidal solution added.

Preparation and Preservation of the Reagent.—To 9 parts of Solution 2 is added gradually, mixing by gentle agitation, 1 part of the alcoholic lipoidal extract (Solution 1), the resulting mixture being faintly opalescent, almost transparent. (If the process is reversed and Solution 2 poured into Solution 1, a turbidity results which makes the reagent unsuitable.) The mixture in this form has been found to remain unchanged for a period of several weeks and will perhaps prove not to be subject to deterioration; but as the two solutions may be preserved separately for an indefinite period, the reagent can be made fresh from time to time as needed.

It must be mentioned that the ordinary alcoholic extract of beef heart with or without the addition of cholesterin (so-called syphilitic antigens used by some serologists) does not give a useful reagent, but one too sensitive, readily producing precipitation even when mixed with normal spinal fluid. An alcoholic extract of the drief beef heart muscle without preliminary acetone extraction is likewise unadapted, owing to the presence of certain acetone-soluble lipoids (cholesterin, etc.). The addition of cholesterin to a suitable alcoholic extract of acetone-insoluble tissue lipoids, as already described, renders the latter too sensitive and therefore worthless as the reagent.

A differentiation can be made between pathologic and normal spinal fluids without the addition of the salts, acid potassium phosphate and sodium chlorid, to Solution 2; but their presence in the concentrations indicated makes the readings easier and more certain by causing greater opacity of the flocculated lipoids.

MODE OF APPLICATION

Into a small test tube such as ordinarily used for the writer's system of the Wassermann reaction (10 by 1 cm.) is measured 0.1 c.c. of cerebrospinal fluid, and 1 c.c. of the reagent is then added. A normal spinal fluid remains perfectly clear or becomes only faintly opalescent, while a dense general turbidity is produced in all specimens containing an increased amount of globulin or albumin. In cerebrospinal fluids from bacterial meningitis the flocculation is dense and copious, followed by complete or partial precipitation of the granular flocculi within about an hour at room temperature. Specimens from general paresis and tabes dorsalis give a dense flocculation, somewhat less copious than those from acute inflammatory conditions, the granular flocculi settling to the bottom of the tube within a few hours.

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[3] Nonne and Apelt: Arch. f. Psychiat. **63**: 433, 1907.

[4] Ross and Jones: Brit. M. J. **1**: 1111, 1909.

[5] Pandy; Neurol. Zentralbl. **29**: 915, 1910.

[6] Ravaut, P., and Boyer, L.: Presse méd. **28**: 42 (Jan. 17) 1920.

[7] Denis, W., and Ayer, J. B.: Method for Quantitative Determination of Protein in Cerebrospinal Fluid, Arch. Int. Med. **26**: 436 (Oct.) 1920.

The reaction is rapid, the maximum opacity being reached within a few minutes; the granulation and subsequent sedimentation of the flocculi, however, require a longer time. The reaction takes place at any temperature from that of the icebox to that of the incubator, but room temperature has been found most satisfactory. If haste is necessary, the reaction can be read within ten minutes; but a supplementary reading after the tubes have been left at room temperature for several hours or over night is advisable. A mild reaction is indicated by a slight general turbidity, best recognized in reflected light.

The method has been applied to a large number of specimens of cerebrospinal fluid, and comparative observation shows that the test runs parallel with the butyric acid reaction and hence promises to be a useful addition to the diagnostic methods applied to the cerebrospinal fluid.

Quantitative determination of the protein contents of the spinal fluid can also be made with this reagent. The details of the procedure are reserved for later publication.

THE NECESSITY OF CLEAR THINKING IN MILK MODIFICATION

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A considerable portion of the work of the general practitioner consists in infant feeding. On account of the numerous methods of milk modification recommended and the calculation involved, many men become discouraged with the subject, lose interest in it, and give it little attention. The baby as a consequence suffers.

A large proportion of the babies in this country are fed under the advice of general practitioners. Much of their work is good; also, much of it is careless, largely because a practitioner who is dealing with the whole domain of medicine may feel that infant feeding is one of the least important parts of it, forgetting that the proper feeding of the young infant that is deprived of its natural nourishment is one of the most important departments of preventive medicine. There is no branch of preventive medicine in which better results can be obtained by the application of intelligent methods.

It is vital for every general practitioner to have a good working knowledge of infant feeding. Broadly speaking, his knowledge may be grouped under three heads:

1. How to dilute or combine milk or cream in such a way as to secure any desired combination of quantities of the three food elements (fat, sugar and protein), in the resulting mixture.
2. The pathogenesis and nature of the various digestive and nutritional disturbances of babies.
3. A knowledge of what combinations of the food elements are suitable for any particular baby, sick or well.

The practitioner must have clearly fixed in his mind the elementary nature of milk; he must not look on milk as milk, but he must look on it as being made up of fat, sugar, protein, salts and water. He must realize that disturbances of digestion arise from sugar, from fat, or from protein or from improper combinations of these elements, and that, therefore, he must take into account the amounts of these that he is feeding to any baby, and be able to vary each one of them at will in any mixture he offers. He must also have some numerical method of expressing these amounts. It is this necessity for clear thinking with regard to milk modification that I wish especially to discuss.

THE MODIFICATION OF MILK

By the modification of milk is meant changing the composition of the original cow's milk in such a way as to make it suitable for the digestion of the particular infant that is being fed. It is possible to feed some babies successfully on undiluted cow's milk, but these babies represent a small minority. For practical purposes it may be said that it is always necessary to modify cow's milk before it is fed to young babies. Since the beginning of scientific infant feeding, many methods of modifying milk have been proposed; some authorities have recommended simple dilutions of whole milk, while others have felt that babies generally do better if more fat is given. The latter group has, therefore, added cream to the modification or has used dilutions of cream in order to obtain the higher fat content. It is often possible to feed the normal baby on a wide variety of foods, as he has considerable power of adapting himself within certain limits to changes in the composition of his diet. It therefore follows that no one method of milk modification is the only one that can be used. Any method of milk modification is correct for any particular baby, if the mixture contains the proper amounts and proportions of the various food elements for him to grow and develop normally. It is desirable, however, to proceed in a rational manner, to change the original cow's milk by design and not haphazard, and to have at one's command methods of milk modification which will allow of varying at will the individual constituents of the milk—fat, sugar, protein and salts—to meet the needs of various babies with different digestive powers. It is also desirable in any system of milk modification to have a way of expressing what has been done in the exact language of figures, in order to make it clear to ourselves and intelligible to others, and to make our procedures available for purposes of record. Any method of milk modification involves, therefore, a certain amount of calculation. Much of the confusion with regard to infant feeding has arisen on account of the numerous ways of calculation and methods of modification that have been recommended. The important thing is that the particular method of modification which has been used is not the significant fact, but that the content of the resulting mixture as regards the various food elements is the point that must be continually borne in mind. Many times the identical result may be obtained by two different methods of modification. An intelligent practitioner should know his food elements, should have clearly fixed in his mind approximately how much of each one of these elements he desires to feed to the baby; then he may proceed to concoct this combination by means of any method of modification with which he may be familiar. Some men get into the habit of using one particular method; others may use methods that are radically different, but may secure equally good results. Any one who is feeding babies should have at his command several methods, and should use the one which is most adaptable to the particular case with which he happens to be dealing.

There are present three methods of milk modification in general use: those of (1) whole milk dilution; (2) top milk (cream) dilution, and (3) gravity cream and skimmed milk mixtures.

WHOLE MILK DILUTIONS

The method of whole milk dilution is the simplest method of milk modification. It was the first one used, before the development of modern infant feeding, and in the last ten years has had a revival of popularity. Its chief advantage is its simplicity: any mother, no matter how ignorant, can be easily taught to mix together milk, water and sugar. It is also easy for the physician; and most men who are in the habit of using whole milk dilutions pay but little attention to the percentages of the food elements in the mixture; they think rather in terms of ounces of milk and of sugar. It is possible in many cases to feed babies successfully by this method; but it has its limitations, in that it is not at all elastic, and in many cases the ratios which one would like to have between the fat and the protein in the mixtures cannot be obtained, owing to the fact that if the milk is diluted one third or one half, as the case may be, the fat and the protein will each be diluted in the same proportion. In whole milk dilutions, therefore, the ratio between the fat and the protein will always be the same, and it is impossible to feed high fats by the use of this method, as the fat content of the milk is so much reduced by dilution. It does not apply so well to very young babies as do the other methods of milk modification, as the usual dilution is so great that the fat percentage of the resulting mixture is much lower than the baby might be able to take with advantage. In normal babies after the eighth or ninth month it is, however, the method of choice, as the dilution for these older babies is so slight that the fat percentage is not much reduced. There is no question, however, but that many young babies may be successfully fed in this way. The chief objection to it is that it is not comprehensive or elastic enough to furnish us with certain combinations of the food elements that we may need, and every practitioner should have in his armamentarium other methods besides this one. Even if whole milk dilutions are used and no matter how much infant feeding is simplified by their use, it is always well to keep track of the approximate percentage of each food element in the mixture. It is not possible or desirable to get away from a certain amount of calculation; and a knowledge of the percentage composition of the food acts as a check on what is being done. No matter what method of milk modification one adopts, in order to have any idea whatsoever about the possibilities of his mixture he must have at least approximate knowledge of its elementary components (fat, sugar and protein). The easiest way to have this knowledge is to think and speak in terms of percentages. Whole milk dilutions may be used in either one of two ways; the usual procedure being the first:

1. The desired number of ounces of milk and water plus the desired number of tablespoonfuls of sugar are prescribed; then the percentage composition of the mixture is calculated. In using whole milk dilutions one does not usually pick out in advance the percentage composition of the formula, as in many cases he will have picked out a formula which cannot be obtained by these methods. After a certain amount of experience in using this method, one knows without calculation about what the percentage composition of any given dilution of whole milk is, and he expresses his formula in terms of ounces of milk and water and tablespoonfuls of sugar rather than in terms of percentages. In order to proceed rationally, in order to have a clear conception of what he is doing, and especially in order to keep his food elements in mind, he must have an idea of the percentage strength of his mixture. Every competent feeder of infants has this knowledge, whether he expresses it on paper or not.

Let us suppose that the baby is being fed on whole milk, 36 ounces; water, 12 ounces, and lactose (milk sugar), 4 level tablespoonfuls. Then, as whole milk contains fat, 4 per cent.; sugar, 4.5 per cent., and protein, 3.2 per cent., we are giving 36/48 or ¾ whole milk, which equals ¾ of 4 = 3 per cent. of fat in the mixture; ¾ of 4.5 = 3.3 per cent. of sugar in the mixture, and ¾ of 3.2 = 2.4 per cent. of protein in the mixture.

A level tablespoonful of lactose added to a 48 ounce mixture raises the sugar percentage 0.8 per cent. (Table 1). Therefore, using 4 level tablespoonfuls of dry lactose, we have added 3.2 per cent. of sugar to the mixture which, plus the sugar that has already been put in with the milk (3.3 per cent.), gives 5.5 per cent. total sugar, and the baby is getting: fat, 3 per cent.; sugar, 5.5 per cent., and protein, 2.4 per cent.

The same method is used in figuring any whole milk dilution.[1]

Level tablespoonfuls of sugar are best calculated by the use of the sugar table, and ordinarily I believe it is best to use level tablespoonfuls instead of rounded, as more accuracy is obtained in this way. If rounded tablespoonfuls were used, the calculation would be a little different. Suppose we had used in the foregoing formula 3 rounded tablespoonfuls of lactose. A rounded tablespoonful of lactose weighs one-half ounce; therefore we have added 1½ ounces of lactose. To transfer this to percentages, 1.5/48 × 100 = 3.1 per cent. sugar added.

Table 1 will be found convenient to remember; it is, I think, the easiest way to calculate sugar.

TABLE 1.—CALCULATION OF SUGAR

One level tablespoonful of lactose raises the sugar percentage:

2.40 in a 16 ounce mixture
2.00 in a 20 ounce mixture
1.60 in a 24 ounce mixture
1.20 in a 32 ounce mixture
1.00 in a 40 ounce mixture
.80 in a 48 ounce mixture

Sucrose (cane sugar) is somewhat heavier than lactose. Dextrimaltose is somewhat lighter (Table 2).

TABLE 2.—COMPARATIVE WEIGHT OF SUCROSE, LACTOSE AND DEXTRIMALTOSE

	Sucrose Gm.	Lactose Gm.	Dextrimaltose Gm.
1 level tablespoonful.................	15	10	9
1 rounded tablespoonful.............	25	16	14

MEASURES

3 level teaspoonfuls = 1 level tablespoonful
2 level tablespoonfuls = 1 large kitchen spoonful

It is not necessary, however, to make special calculations for sucrose or for dextrimaltose; it is usually accurate enough to calculate as if for lactose and then, if using sucrose, to use a little less than the calculation calls for; if using dextrimaltose, a little more.

2. The second way of using whole milk dilutions is with the aid of a table and is not quite so practical as the first method. In any whole milk and water dilution, if five six-

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[1] In using this method there is no necessity of being too accurate: for example, supposing we were using 10 ounces of milk and 22 ounces of water in a mixture, it would be perfectly correct to call this one-third milk, or fat, 1.3; sugar, 1.5; protein, 1.1.

teenths of the mixture is milk, that is, 5 ounces of milk in a 16 ounce mixture, and the rest water, the percentages are: fat, 1.25; sugar, 1.40; protein, 1.00. Similarly, if more milk is added, the percentages are as given in Table 3.

TABLE 3.—PERCENTAGES OF FAT, SUGAR AND PROTEIN, ACCORDING TO PROPORTION OF MILK IN MIXTURE

Milk	Fat	Sugar	Protein
6/16	1.50	1.70	1.20
7/16	1.75	2.00	1.40
8/16	2.00	2.25	1.60
9/16	2.21	2.50	1.80
10/16	2.50	2.80	2.00
11/16	2.75	3.00	2.20
12/16	3.00	3.30	2.40

The amount of sugar necessary to add can be determined by referring to the sugar table (Table 1). The table of whole milk dilutions is calculated on the basis of sixteenths. Of course, if one is dealing with a 32 ounce or a 48 ounce mixture, the fraction 5/16 or 6/16, etc., is multiplied through by 2 or 3, as the case may be; that is 5/16 is the same as 10/32 or 15/48. Proportionate calculations can be made for 24 ounce or 40 ounce formulas; that is, in a 24 ounce mixture the amount of milk required to give the same percentages would be 1½ times what it would be for a 16 ounce mixture, or in a 40 ounce mixture it would be 1¼ times what it would be for a 32 ounce mixture. Thus we can accurately figure from this table 16, 24, 32, 40 and 48 ounce mixtures, which are the most common ones used.

TOP MILK (CREAM) DILUTIONS

The top portions of a quart of milk, after it has been allowed to stand about six hours, contain varying amounts of fat, as in Table 4.

TABLE 4.—AMOUNT OF FAT IN TOP MILK *

Top 2 ounces mixed contain	24.0% fat
Top 3 ounces mixed contain	22.5% fat
Top 4 ounces mixed contain	21.4% fat
Top 5 ounces mixed contain	19.2% fat
Top 6 ounces mixed contain	16.8% fat
Top 7 ounces mixed contain	15.0% fat
Top 8 ounces mixed contain	13.3% fat
Top 9 ounces mixed contain	11.5% fat
Top 10 ounces mixed contain	10.5% fat
Top 12 ounces mixed contain	9.0% fat
Top 14 ounces mixed contain	7.8% fat
Top 16 ounces mixed contain	7.0% fat
Top 18 ounces mixed contain	6.3% fat
Top 20 ounces mixed contain	5.8% fat
Top 22 ounces mixed contain	5.4% fat
Top 24 ounces mixed contain	5.0% fat
Top 26 ounces mixed contain	4.7% fat
Top 28 ounces mixed contain	4.5% fat
Top 30 ounces mixed contain	4.3% fat

* From Morse and Talbot's "Infant Feeding."

It is possible by different dilutions of these creams of varying fat percentage to secure mixtures containing more fat than is possible with the use of whole milk dilutions. High fats and rather low proteins are obtained by the use of this method of modification, whereas by the use of whole milk dilutions, low fats and relatively high proteins are obtained, as we have seen. As may be seen from the table, there are a good many different strengths of cream which may be used; practically it will be found best to confine oneself to the use of the top 10 ounces, top 16 ounces and top 24 ounces, containing 10, 7 and 5 per cent. of fat, respectively. The amounts of sugar and of protein contained in these three different creams vary a little, as shown by Table 5; but the variations are so slight that they may be disregarded, and for practical purposes the sugar and protein content of the various creams may be considered to be 4.50 and 3.20 per cent., respectively.

In using these three creams, the possible combinations which would be of practical value in infant feeding are as given in Table 6.

Surgar may, of course, be added up to any desired percentage, using the same sugar table as for whole milk dilutions.

This method of milk modification is employed considerably, and when used with intelligence carries with it no objections. It is not at all uncommon, however, to see mixtures containing 5 or 6 per cent. of fat obtained by this method, which is, of course, quite unsuitable for any baby. If cream dilutions are used, the fat content of the original cream and of the resulting mixture must be borne carefully in mind. Many men forget this. It is possible, of course, in using this method, to get innumerable formulas by various dilutions of 6, 8 and 12 per cent. creams, or by dilutions of the bottom milk after certain amounts of the cream have been removed; but the introduction of so many different strengths of cream and of milk makes such a complicated array of figures which are so difficult to remember, that it is best for practical purposes, if using this method, to confine onself to dilutions of 10, 7 and 5 per cent. creams, as given above. The use of even these three strengths of cream introduces an unnecessary complication, as any mixture that can be obtained by these methods can likewise be obtained by the gravity cream and skimmed milk method by using only one standard strength of cream, in combination with skimmed milk.

TABLE 5.—COMPOSITION OF TEN, SEVEN AND FIVE PER CENT. CREAMS *

	Fat	Sugar	Protein
10% cream	10.00	4.40	3.25
7% cream	7.00	4.45	3.40
5% cream	5.00	4.50	3.50

* From Morse and Talbot's "Infant Feeding."

GRAVITY CREAM AND SKIMMED MILK MIXTURES

The method of gravity cream and skimmed milk mixtures is the method of milk modification that is the most adaptable to the needs of various babies. In one respect it is more complicated than the other methods, as instead of using simply dilutions of milk or of cream, when we have but one diluted factor to consider, we have here two diluted factors. The purpose of this method is to furnish a means of obtaining practically any combination of the food elements that we desire. Most of the protein is furnished by the skimmed milk; then enough cream of a known fat content (16 per cent.) is added to supply the required fat percentage. It is inevitable in any such method as this that there should be a certain amount of calculation; we could not speak simply in terms of so much cream, skimmed milk, water and sugar, and have any idea whatever of what we were giving to the baby. We must speak in terms of percentages always in using this method.

TABLE 6.—COMBINATIONS OF TEN, SEVEN AND FIVE PER CENT. CREAMS OF PRACTICAL VALUE

Combination	Fat	Sugar	Protein
Ten per cent.:			
Cream, 1 part; water, 2 parts	3.3	1.5	1.1
Cream, 1 part; water, 3 parts	2.5	1.1	.80
Seven per cent.:			
Cream, 1 part; water, 1 part	3.50	2.25	1.60
Cream, 1 part; water, 2 parts	2.50	1.50	1.10
Cream, 1 part; water, 3 parts	1.8	1.10	.80
Five per cent.:			
Cream, 2 parts; water, 1 part	3.2	3.00	2.2
Cream, 1 part; water, 1 part	2.50	2.25	1.60
Cream, 1 part; water, 2 parts	1.70	1.50	1.10

My own feeling is that this is the best method of milk modification for general use. It does not apply to very ignorant patients, who have not the intelligence or the desire to go through the procedure involved; for these, whole milk dilutions must be used. Most mothers or nurses will be able to handle gravity cream and skimmed milk dilutions without trouble, however, and the amount of calculation involved for the practitioner is not at all difficult or complicated when it has been once mastered. It is a most practical and intelligent way of feeding, and enables the practitioner to change the amounts of protein and of fat in his mixtures much more easily than by any other method. It tends to do away with empiricism, and tends to make those using it think more accurately in terms of the food elements than they would otherwise. Its disadvantage is that there is more calculation involved in it than in the other two methods of milk modification. If it is worth while, if it offers advantages, and I believe it does, the small amount of extra trouble involved should not count against it.

Let us consider, for a moment, what we mean by gravity cream and skimmed milk. After a quart of milk in the ordinary milk jar has stood about six hours, the cream comes to the top, and is separated from the milk by a fairly definite line known as the cream line. All this cream is known as gravity cream. This will usually amount to about 6 ounces. All the cream down to the cream line is then gravity cream, and contains: fat, 16; sugar, 4.5, and protein, 3.2 per cent. What is left behind is the "skimmed milk," which contains: fat, 0; sugar, 4.5, and protein, 3.2 per cent. These figures are not strictly accurate, but the errors in one counterbalance those in the other. "Skimmed milk" actually contains a little fat, but for practical purposes this may be disregarded. The advantages of using "gravity" cream instead of creams obtained in other ways is that it does away with confusion, and we have simply to remember that the cream we are dealing with always contains 16 per cent. of fat instead of trying to remember the fat content of several different layers of cream, as is done by the "top milk" method. The best method of separating the gravity cream from the skimmed milk is to dip it off with a little dipper devised by Dr. Henry Chapin of New York, and called, after him, the "Chapin dipper." This can be obtained at any large drug store. Pouring can be used if no dipper is obtainable, but it is not quite so accurate. An important practical point to remember is to tell the mother to remove all the cream on the quart, and to explain to her carefully what gravity cream is. Otherwise she is very likely, supposing the formula calls for 3 or 4 ounces of cream, to take off simply the top 3 or 4 ounces, and use this, in which case she would be using a 20 or 22 per cent. cream, and would be putting more fat in the mixture than was prescribed. All the cream down to the cream line should be removed, put into a bowl and mixed; then the required number of ounces is taken from this.

The easiest way of calculating gravity cream and skimmed milk mixtures is by the use of a table of factors, which can be carried in the pocket or notebook on a little card, and which is easily memorized after it has been used a few times. By its use all the necessary calculation can be done in the head. The question of calculation is what has deterred many men from using the gravity cream and skimmed milk method, and it is true that the long way of calculating, figuring each quantity out step by step, is rather laborious. Nor have the various algebraic equations which have been proposed from time to time helped the situation; they have made it more complicated. The method about to be described is really practical and simple, and the calculation involved is so easy that no one need be daunted by it, no matter how hazy he may be with regard to mathematics. By its use we are confined to 16, 20, 24, 32, 40 and 48 ounce mixtures; but as these are the mixtures ordinarily used, this is not a disadvantage. The basis of the method is that in these mixtures certain constant simple ratios exist between the fat percentage desired and the number of ounces of gravity cream required to get it; also, definite ratios exist between the protein percentage desired and the number of ounces of cream plus skimmed milk required to get it.

PRINCIPLES OF CALCULATION

1. *Amount of Cream.*—In a 16 ounce mixture the number of ounces of gravity cream required is always the same as the fat percentage desired. In a 32 ounce mixture the number of ounces of gravity cream required is always twice the fat percentage desired; in a 48 ounce mixture, three times. There are similar factors for the other mixtures (20, 24 and 40 ounce mixtures, Table 7). This does away with all paper calculations, as the whole thing is so simple that it can be done in the head in a moment.

TABLE 7.—FACTORS

	Fat Factor *	Protein Factor †
16 ounce mixture	1.00	5.00
20 ounce mixture	1.25	6.25
24 ounce mixture	1.50	7.5
32 ounce mixture	2.0	10.0
40 ounce mixture	2.50	12.5
48 ounce mixture	3.0	15.0

SUGAR TABLE

One level tablespoonful of lactose raises the sugar percentage:

2.40 per cent. in a 16 ounce mixture
2.00 per cent. in a 20 ounce mixture
1.60 per cent. in a 24 ounce mixture
1.20 per cent. in a 16 ounce mixture
1.00 per cent. in a 40 ounce mixture
.80 per cent. in a 48 ounce mixture

EXAMPLE

Suppose we wish a 32 ounce mixture containing: fat, 2.5; sugar, 6, and protein, 1 per cent.

To determine:

1. *Gravity cream:* 2.5 × 2 (fat factor for 32 oz.) = 5 oz. gravity cream.
2. *Skimmed milk:* 1.00 × 10 (protein factor for 32 oz.) = 10 oz. skimmed milk plus cream. Minus 5 oz. cream = 5 oz. skimmed milk.
3. *Sugar:*
    (*a*) Sugar furnished by skimmed milk and cream: 1.00 (protein percentage desired) × 1½ = 1.50% sugar.
    (*b*) Sugar to add as dry lactose: 6.00 — 1.50 = 4.50% more to be added. One level tablespoonful of dry milk sugar added to a 32 oz. mixture raises the sugar percentage 1.2 per cent. Therefore add 4 level tablespoonfuls of milk sugar.

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* Multiply by percentage of fat desired. This gives ounces of gravity cream to use.

† Multiply by percentage of protein desired. This gives ounces of gravity cream plus skimmed milk to use.

2. *Amount of Skimmed Milk.*—In a 16 ounce mixture the number of ounces of skimmed milk, plus cream required, is always 5 times the percentage of protein desired; in a 32 ounce mixture, 10 times; in a 48 ounce mixture, 15 times. Similar factors exist for the other mixtures (20 ounce, 24 ounce, etc.). The number of ounces of cream and the number of ounces of skimmed milk plus cream having been determined, the amount of skimmed milk necessary is easily obtained by subtracting the one from the other.

3. *Amount of Sugar to Add.*—Some sugar is, of course, put in with the cream and skimmed milk, as both of these contain sugar. In order to know how much more sugar to add in the form of dry sugar to bring the total up to the desired percentage, it is necessary first to know what percentage the cream and skimmed milk furnished. The percentage of sugar furnished by the cream and skimmed milk is always 1½

times the percentage of protein desired. The extra sugar to be added is figured from the sugar table, showing how much the percentage of sugar is increased in any mixture by adding a level tablespoonful of sugar.

This is an accurate and at the same time an exceedingly simple method, once its details are understood, and by its use the gravity cream and skimmed milk method of modification should be robbed of its difficulties and be made practical for general use. If the reader will take the trouble to study it, he will see that this is true.

It seems to me that the best thing for the average practitioner to do is to learn the whole milk and the gravity cream and skimmed methods, discarding the method of top milk dilutions. He will then have at at his command a wide range of formulas, and if he desires to feed more fat to his babies than can be obtained by the whole milk method (which is undoubtedly serviceable in many cases), he can turn to gravity cream and skimmed milk mixtures. Any method of calculation seems complex and difficult to understand at first glance; at least it does to me in any textbook of infant feeding I may happen to pick up. Let me insist that no man can learn a method of calculating milk formulas by simply reading it over once or twice; he must take pencil and paper, sit down and figure a few sample formulas. Then he will have no trouble. It is worth while to be able to feed with accuracy. The old days of haphazard feeding have gone by; but there are altogether too many practitioners even now who do not know what they are feeding their babies; to them cream is simply "cream," irrespective of its fat content; many of them have not even a knowledge of the composition of whole milk. The obtaining of approximate accuracy in infant feeding is so easy that it seems a pity it should not be universally adhered to. I say "approximate accuracy," for of course it is not possible or necessary to secure absolute accuracy in any milk modification. The ingredients vary too much; and any chain is only as strong as its weakest link. Relative accuracy is what is desired, and in calculating formulas it is not necessary to pay much attention to insignificant fractions. *The ability to express in numerical terms the approximate amount of each individual food element in the baby's milk mixture seems to me to be a necessary fundamental of scientific infant feeding.*

Expression in percentages has been usually employed. Expression in grams or in drams would be equally as good, if one were accustomed to think in that way. The "percentage method," so called, is really not a method of feeding; it is a method of expression merely, and it does not demand that those who follow it should feed high or low fats, sugars or proteins; it merely requires that cognizance should be taken of the amounts of these elements that are to be fed. The expression of these amounts in terms of percentages is usually the most convenient notation to adopt.

SUMMARY

There are several methods of milk modification in good use, and it is not of great importance which one is used, provided the physician gives enough food in total quantity and the proper combination of the individual food elements to suit the digestion of the baby he is dealing with, and that he knows approximately the amount of each food element in the mixture, in order that he may vary these quantities at will, that he may be able to proceed in a rational manner, and that he may be able to express clearly to others, in the exact language of figures, what he has done.

The modification of milk is the mechanical part of infant feeding. It is not the calculation that is difficult—any inexperienced medical student can quickly learn milk modification and calculation: the part of infant feeding that is difficult, that requires judgment and experience, that often eludes many of us in spite of years of experience with many babies, *is knowing when to feed what.*

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ACUTE INFECTION OF THE THYROID GLAND

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The infrequency of acute inflammation of the thyroid gland, either as a primary infection or as a complication to other inflammatory processes, whether local or constitutional, has prompted me to report four cases and also to review some of the literature on this subject. This review, even though limited, establishes the fact that relatively few acute inflammatory conditions of the thyroid gland have been reported.

In dealing with the subject I have made no attempt to collect data relative to the acute infections complicating goiter—strumitis—but to review that dealing with infections of the normal thyroid gland—thyroiditis.

The fact that the thyroid is one of the ductless glands, well isolated from surrounding tissue by a dense capsule, enjoying a bountiful blood supply, and with a lymphatic drainage, rather independent of the lymphatics of the neighboring structures and containing a colloidal material rich in iodin, seems to favor it as an organ rather invulnerable to invasion by pyogenic organisms as compared to other glandular structures.

Primary acute inflammation of the thyroid gland—thyroiditis—is almost never seen. Acute inflammation of the goitrous gland—strumitis—may be occasionally observed. In general pyemia with involvement of various organs, the thyroid is rarely included, as it is one of the most resistant of all the tissues to infection. However, in connection with certain infectious diseases, acute inflammation of the thyroid has been described, so we find an occasional rare case of thyroiditis reported following such infections as puerperal fever, influenza, typhoid fever, diphtheria, erysipelas and similar infections. These acute inflammations, when they do occur, are usually purulent. Pus accumulation (abscess) is found in the majority of these cases. According to Crotti, "acute thyroiditis consecutive to infectious diseases whose bacteriologic factors are still unknown, as in scarlet fever, measles, parotitis and acute inflammatory rheumatism, do not suppurate." While these possibilities have been mentioned by most authors, a search of the pathologic index of cases treated in any modern hospital reveals few if any cases which have been complicated by a suppurative process in the thyroid.

The avenues of infection of the thyroid are: (1) by contiguity; (2) by direct inoculation, and (3) hematogenous. That suppurative thyroiditis is seldom the result of similar processes of contiguous structures is amply demonstrated by its rarity. Skin lesions, tuberculous and nonspecific cervical adenitis, acute pharyngitis, laryngitis, tonsillitis, peritonsillar abscesses, and the two anginas, Vincent's and Ludwig's, are all common, but how often do we hear of suppurative thyroiditis complicating either or any of them? Suppurative thyroiditis, the result of direct inoculation, while quite possible as the result of a stab wound, is readily understood, in that any structure may be subject to a similar injury, but deserves only mention in passing.

Those of hematogenous origin would merit the most consideration, and it is more than probable that the majority of suppurative thyroiditides have their origin in this manner. Again to quote Crotti:

> Kocher—before he was supported by bacteriologic knowledge—maintained that every case of acute thyroiditis or strumitis was due to metastasis of an infectious agent located somewhere in the organism, or originating in the intestinal canal. Later bacteriologic findings maintained the correctness of his view.
>
> Thyroiditis may occur spontaneously without any apparent cause, or as a complication of another infectious process. This happens especially during convalescence from an acute illness, and is less frequent in chronic cases.
>
> As the thyroid has no excretory canal and does not come into contact with a mucous membrane of any sort, if an inflammation sets in and if the possibility of an infection by direct traumatism or by propagation from the neighboring tissues has been excluded, there remains only one possible way by which the micro-organism might have traveled, and that is by the hematogenous route. Bacteria thus thrown into the blood current settle in the thyroid.

In three of the four cases reported below the infection followed a respiratory inflammation; and in the fourth case, while the thyroid complication is coincident with an abdominal inflammation, the fact that there was a very transient and mild inflammation of the pharynx cannot be overlooked.

The onset of the symptoms in all of these cases is usually sudden. There is pain in the neck, frequently referred to the ear, teeth, shoulder, arm or chest, depending on the amount of pressure produced by the inflammation and furthermore on the toxic effect of the micro-organism. This is associated with an elevation of temperature and a rapid pulse, a persistent cough with pronounced changes in the voice, dyspnea, which at times may be so severe as to require tracheotomy, painful swallowing, and extreme restlessness.

The leukocyte count is usually increased unless there has been a profound infection of long duration.

The physical examination reveals exquisite tenderness over the anterior portion of the neck below the larynx. There is usually swelling, which may be localized or diffuse; redness, and a marked induration, which sometimes makes it difficult to differentiate from woody phlegmon. There is usually rigidity of the muscles of the side affected, so that if only one lobe is inflamed, the head will be turned toward that side. Palpation of the gland is usually unsatisfactory because of the pronounced tenderness.

REPORT OF CASES

Case 1.—G. S., a girl, aged 4, entered the hospital, April 12, 1912, suffering from empyema. She was operated on and was making a satisfactory recovery when, a few days after the operation, her mother became dissatisfied because of the hospital treatment and separation from her child, and took the child home. A few days later the child developed a sudden pain in her throat, became very restless, and showed marked dyspnea, rapid pulse rate, acute elevation of temperature, and extreme cyanosis. Dyspnea was so pronounced that a tracheotomy had to be performed at the patient's home. She was then brought to the hospital, where an abscess of the thyroid was drained. The dyspnea was relieved primarily by the tracheotomy, and after the incision of the thyroidal abscess, the patient breathed perfectly well without the tube. The patient then made an uneventful recovery, and was able to return to her home in two weeks.

Case 2.—Mrs. J. B., white, aged 42, who was suffering from an attack of influenza of three weeks' duration, during which time the temperature had ranged from 99 to 101 F., and who was regarded as convalescent, suddenly became conscious of very severe pain in the throat which was followed by extreme shortness of breath, hacking cough, rapid pulse, and a temperature of 100. On admission to the hospital, physical examination was rather unsatisfactory in that the patient was suffering from extreme dyspnea and was quite alarmed over her condition; but she exhibited marked rigidity of the neck muscles of the right side with brawny induration over the region of the thyroid, exquisite tenderness over the entire anterior region of the neck being localized over the thyroid gland. The head was turned to the right side. Examination of the throat disclosed a slight pharyngitis. Under 0.5 per cent. procain anesthesia a transverse incision was made and the thyroid gland exposed. On incision of the capsule of the gland, pus escaped and the patient was immediately relieved of her respiratory distress. Drainage was provided for by a small rubber tube; the tissues were closed about the drains, and the patient made an uneventful recovery and was able to leave the hospital within three weeks.

The foregoing two patients were operated on by Dr. A. M. Shipley.

Case 3.—Mrs. L. L., aged 37, white, entered the hospital, July 15, 1919, for incomplete intestinal obstruction due to adhesions resulting from a hysterectomy performed three years before. On the fifth day following the operation, during which time the patient exhibited a normal chart and was entirely comfortable, she developed a sudden chill accompanied by pain in the neck and associated with a temperature of 102 F. There was a recurrence of chill the following day. Examination of the wound revealed nothing abnormal; there was no drainage instituted following the laparotomy. Examination of the urine was negative. The patient had had an attack of malaria some years before, so repeated examinations of the blood were made, but did not disclose any plasmodia. A blood culture was negative. There was a slight leukocytosis. Laryngologic examination was negative, although the patient still complained of pain in the throat and a hacking cough. After quinin and acetylsalicylic acid therapy the patient made an uneventful recovery and was discharged from the hospital at the end of two weeks, having exhibited normal temperature and pulse rate during the last week in the hospital. Within four days after returning to her home, however, she had a recurrence of the pain in the neck, with a temperature of 100 F. She was again admitted to the hospital and complete examination made, including roentgenoscopy of the sinuses and teeth. Two teeth with abscesses at their roots were discovered and subsequently removed, but without any effect on the painful condition over the region of the thyroid. Examination of this region of the neck was absolutely negative except for the fact that there was tenderness on pressure over the thyroid gland. The patient was held under observation for a week, at the end of which time she developed a brawny induration over the thyroid with marked redness, and exquisite tenderness on the slightest manipulation. Dyspnea was very pronounced, and the temperature was 102 F. Under gas anesthesia the neck was opened by a transverse collar line incision; no pus was found before the thyroid was exposed. The capsule of the thyroid was opened, disclosing numerous necrotic areas in the gland substance with a marked parenchymatous swelling. Drainage was provided for by a small rubber tube, and gutta-percha; the tissues were closed about the drains. The patient returned to her room entirely comfortable, there being no dyspnea. The staphylococcus was isolated in culture from the thyroid. The patient made a satisfactory recovery and was able to return to her home within two weeks.

Case 4.—E. R., a white man, aged 55, had suffered an attack of influenza while in Cuba in the early autumn of 1919. Following the influenza he had pleurisy with effusion, and aspiration was performed a number of times for that condition. He returned to the United States convalescent, but continued to experience an irritating cough with an occasional slight attack of laryngitis. About the middle of October he noticed a small swelling in the lower anterior portion of his neck, and was unable to wear a collar or to keep his shirt band buttoned. The cough became more exaggerated, and on October 21 he entered the hospital for treatment. Examination of his neck revealed a small globular mass in the median line of the neck about one-half inch below the lower limit of the thyroid gland. The skin was firmly attached to this mass, and there was fluctuation and local rise of temperature. There was no dyspnea, but a very noticeable irritating cough. Under 0.5 per cent. procain anesthesia the abscess was opened and was found to originate in the thyroid gland. Culture of the exudate disclosed *Staphylococcus aureus.* The abscess had dissected its way from the thyroid through the intramuscular space, pointing directly in the median line. Drainage was provided for by a small rubber tube, and the incision was closed about the drain. The patient made a rapid recovery.

COMMENT

It has been possible to follow the courses of all of these patients for definite periods. The first three are still living and entirely well, there being neither deficiency of secretions nor an oversecretion of the thyroid. The fourth patient was last heard from six months after the operation, at which time he suffered no ill effects from the operation.

33 West Preston Street.

TYPHOID SPINE *

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RED BANK, N. J.

The incidence of typhoid spine—first described by Gibney in 1885—is given by one observer [1] as one in 1,800, and by another [2] as one in 6,905 cases of typhoid fever. The greater proportion occurs in males (ninety-two to sixteen in Murphy's 108 cases), owing to their greater liability to trauma, and in the lumbar region (fifty-nine against thirty-nine in other regions, same series), because these vertebrae suffer greater strain [3] and also contain more cancellous [4] bone, a favorable nidus for *B. typhosus*. In cases of typhoid, necropsies have demonstrated its presence in this situation, though no spinal symptoms were noted throughout the course of the disease.

The pathologic process of the condition has been classified by Terrillon [5] as (1) simple periostitis; (2) osteitis with subperiosteal abscess, and (3) periostitis with osteitis.

Osler [6] maintained that the disease was purely a neurosis. The one necropsy reported—that by Rugh [7] in 1915—showed that the disk between the third and fourth lumbar vertebrae was missing and had been replaced by a bony overgrowth. On section, connective tissue, rich in blood supply sufficient to cause ankylosis, was found replacing the cartilage and bridging over the space of the disk.

The few roentgen-ray findings available have varied. Murphy thus summarizes them:

Two cases, four foci punched out lesions.
Three cases, no findings.
Two cases, deposits of new bone.
Two cases, lack of clearness of intervetebral disks.
One case, distinct changes.
One case, actual bone destruction.
One case, narrowing of disk.

Pancoast [8] describes the roentgen-ray findings as a narrowing or obliteration of the intervertebral space. The clinical picture as reported in cases varies with this pathology.

The onset of spinal symptoms varies in time from the third week of the disease to four years after its termination. Bohmansson [9] points out that *B. typhosus* may be latent in an individual giving a negative Widal reaction until stimulated by vaccine treatment, and may still give rise to symptoms. He reports such a case presenting acute hip symptoms, and concludes that typhoid bone lesions may result in a case which has never presented the clinical picture of typhoid fever at any time.

Murphy, however, reports a case in which the onset of the fever occurred in May, though the spinal symptoms did not appear until September of the same year, and explains this by deposition of the bacillus in the vertebrae from the blood of the patient as a carrier at the time of the onset of the spinal symptoms, because of trauma which provided a favorable soil.

The average case begins with a gradual onset, usually after the febrile state of the disease has passed. The temperature is elevated to a point usually less than 103, and the rise in pulse rate accompanies it. The leukocyte count ranges from 6,000 to 18,000. The patient is anxious, and there is usually great mental irritability.

The complaint is usually of pain at the site of the lesion on twisting or jarring, though this may be obscured by the referred pains. The spine is carefully guarded against abrupt movements.

At the lesion, the muscles are rigid and the spinous and transverse processes are painful on pressure. There is found a kyphosis in comparatively few instances. In only four cases has there been suppuration requiring drainage.

The referred symptoms sometimes seen are severe radiating pains to one or both sides of the chest, abdomen or scrotum, and either arm or leg. Less commonly there has been described a rhythmic contraction synchronous with the pulse, believed to be due to pressure through masses of exudate about the spinal roots at the foramina.[3] In one case these contractions were stopped by pressure on the abdominal aorta. In a few cases there has been described hyperesthesia or paresthesia. Muscular atrophy is infrequent. The knee jerks are usually exaggerated.

The differential diagnosis is to be made from neurasthenia, tuberculosis of the spine (Pott's disease) and lumbago.[2] The relief from fixation is not immediate, as in tuberculosis of the spine, nor absent, as in neurasthenia. Lumbago is transient.

Spondylitis deformans could hardly be confused with typhoid spine, the lesion in the latter being more circumscribed.

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* Read before the Annual Clinical Conference of the Hospital for Ruptured and Crippled, Nov. 19, 1920.

[1] Galli, Giovanni: Ueber Spondylitis typhosa, München. med. Wchnschr. **62**: 501 (April 13) 1915.

[2] Murphy, J. B.: Bone and Joint Disease in Relation to Typhoid Fever, Surg., Gynec. & Obst. **22**: 119 (Aug.) 1916.

[3] Carnett, J. B.: Typhoid Spine, Ann. Surg. **61**: 456-471 (July) 1915.

[4] Silver, David: Typhoid Spine: Report of a Case with Radiographic Evidence of Structural Change; Analysis of the Reported Cases; Complete Bibliography, Am. J. Orthop. Surg. **5**: 194 (Oct.) 1907.

[5] Terrillon: Des periostities consecutives à la fièvre typhoïde, Progr. méd. **12**: 285 (April 12) 1884.

[6] Osler, William: On the Neurosis Following Enteric Fever, Known as the Typhoid Spine, Johns Hopkins Hosp. Rep. **4**: 72, 1895.

[7] Rugh, J. T.: Report of a Case of Typhoid Spine with Autopsy Findings, Am. J. Orthop. Surg. **13**: 289-292 (Oct.) 1915.

[8] Pancoast, H., in Frazier: Surgery of the Spine and Spinal Cord, New York, D. Appleton & Co., 1918, p. 223.

[9] Bohmansson, Gusta: On the Diagnosis and Therapy of Bone Typhoid, Ann. Surg. **69**: 245 (March) 1919.

The prognosis as to life is, of course, perfectly good. There is often more or less complete ankylosis, owing to absorption of the disks. Relapse to the extent of a return of pain may follow too early discarding of support.

The treatment is fixation by plaster-of-Paris jacket, traction or brace.

REPORT OF CASE

The patient first came in for relief of back pain, in the service of Dr. Royal Whitman, and was seen by Dr. A. H. Cilley, through whose courtesy the case is reported. The history given was of a typical case of typhoid beginning March 6, 1920, in a neighborhood epidemic. The fever ran the usual course; but, on sitting up during convalescence, the patient experienced a severe pain in the right lumbar flank and a milder discomfort in the lumbodorsal region. This lasted two weeks and was followed by pain in the left lumbar flank, the spine pain becoming more severe. After two weeks this left lumbar pain subsided and the spine pain became excruciating. At this time a kyphosis was noticed at the site of the pain.

On examination, the patient was extremely nervous and apprehensive; the pupils were widely dilated, there were dark rings about the eyes, and the face was flushed. The pulse ran about 110. Locally, there was spasm and rigidity of the muscles about the dorsolumbar region, and a well marked kyphosis apparently involving the tenth dorsal to the second lumbar vertebra. This was painful to pressure. There was no local heat, redness or swelling. There were no referred symptoms.

A diagnosis of typhoid spine was made and a jacket applied in ventral suspension, pressure being exerted on the kyphos during its application.

A moderate degree of correction was obtained, and the pain subsided within forty-eight hours. Two weeks later a second jacket was applied, giving full correction, which again was worn for two weeks, when a third jacket in an overcorrected posture was applied and worn two months. The pain was entirely gone at this time, and the jacket was discarded. The kyphosis had been flattened out, and the muscular spasm, of course, was gone. There was limitation of motion in all directions, but this yielded to massage carried out three times a week for two weeks. Roentgenograms taken six weeks and four months after the onset of spinal pain were negative.

COMMENT

The interesting points seem to be: (1) the occurrence of the lumbar pains; (2) the formation of a kyphosis, though the roentgenograms were negative, and (3) the ease of reduction of the deformity.

The lumbar pains resembled, to some extent, acute rheumatic involvement in the history of their course, and apparently were not referred pains.

The kyphosis is explained by Murphy, who found it in seventeen of fifty-nine cases as due to periostitis with a consequent softening of the ligaments and disorganization of the disks. It is doubtful whether changes not apparent now to confirm this view in the case will be seen in a later roentgenogram.

The uneventful course and rapid recovery may be ascribed to the ease of reduction of the deformity and consequent early correction, before fixation has progressed to any great extent.

17 Broad Street.

Qualitative and Quantitative Errors of Diet.—The food of civilized man is presented to him in so appetizing and so concentrated a form that he is led to eat not only much that is bad for him, but also to consume an excess of it. The person endowed with a constitutionally clamant appetite is thus far defective as regards his instinct; he derives great pleasure from eating, and this leads him almost certainly, his inward monitor failing him, to injure his health by eating too much, and the better his digestion the more likely he is to do this.—*Med. Press,* July 14, 1920.

STUDIES OF THE NASOPHARYNGEAL SECRETIONS FROM INFLUENZA PATIENTS

PRELIMINARY REPORT ON CULTIVATION EXPERIMENTS *

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In a preliminary report [1] in The Journal describing the effects produced in the lungs and blood of rabbits by an agent present in the nasopharyngeal secretions of patients within the first thirty-six hours of uncomplicated epidemic influenza, we stated that during the course of these experiments we had seen "in cultures, both from the lung tissue of affected rabbits and in the filtered nasopharyngeal washings from cases of influenza, tiny bodies, almost invisible, which decolorize by Gram's method, and which stain generally with difficulty with nuclear dyes." Further, in the more complete report on transmission experiments on rabbits with these nasopharyngeal secretions,[2] it was stated that while aerobic cultures of the affected lung tissue of rabbits were negative for ordinary bacteria, except in cases of obvious contamination, the results of anaerobic cultivation were to be described in another communication.

We now desire to report our observations on the cultivable bodies to which these references were made and which were first encountered in November, 1918, in anaërobic cultures of the filtered nasopharyngeal secretions of a case of epidemic influenza.

EXPERIMENTS AND RESULTS

The materials employed for the cultivation experiments were the filtered nasopharyngeal washings from patients in the early and late stages of uncomplicated epidemic influenza; filtered and unfiltered lung tissue from patients who had succumbed to secondary or concurrent pneumonias; filtered and unfiltered lung tissue from rabbits experimentally inoculated, and control specimens.

In the first cultivation tests, 1 c.c. of filtrate or 0.5 cm. cube of lung tissue was added to a large piece of sterile rabbit's kidney (from 0.6 to 0.8 gm.) in a 20 by 1.5 cm. test tube. These materials were then covered with about 10 c.c. of sterile human ascitic fluid of a p_{H} of from 7.8 to 8.0 but not of greater alkalinity. The tube contents were then overlaid with 2.5 c.c. of sterile liquid petrolatum and the tubes were stoppered with cotton and placed in an anaerobic jar as described by McIntosh and Fildes.[3] The establishment of anaerobic conditions in the jar was indicated by the decolorization of a tube of methylene blue in broth included with the cultures. In later experiments a layer of solid petrolatum was substituted for the liquid petrolatum so that the jar could be eliminated, and similar strict anaerobiosis of the medium could be maintained.[4]

The material was incubated at 37 C. for from eight to twelve days. On about the fifth day a slight haziness was noted, usually reaching upward 1 cm. from the kidney tissue level. This faint cloud became denser, reached its maximum about the eighth day, and by that time had extended upward to about 3 cm. from the bottom of the tube. The supernatant medium developed simultaneously a very faint opalescence, at times hardly discernible. After standing two weeks, the medium became clear, owing to the settling of the cloud to the region of the kidney tissue.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] Olitsky, P. K., and Gates, F. L.: Experimental Study of the Nasopharyngeal Secretions from Influenza Patients, J. A. M. A. **74**: 1497 (May 29) 1920.

[2] Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **33**: 125 (Feb.) 1921.

[3] McIntosh, J., and Fildes, P.: Lancet **1**: 768 (April 8) 1916.

[4] Gates, F. L., and Olitsky, P. K.: J. Exper. Med. **33**: 51 (Jan.) 1921.

Film preparations made from the material at the very bottom of the tube—the most favorable part of the culture medium for this purpose—showed on staining with ripened alkaline (Loeffler's) methylene blue numerous minute bodies, stained purple, and distinct from the precipitated granules of protein matter. These bodies, which have been observed in numerous primary cultures and in several hundred subplants for as many as seventeen generations, are from 0.15 to 0.3 micron in length and are comparable in size to the globoid bodies found in poliomyelitis. Viewed with apochromatic lenses at 3,000 diameters, they appear to be elongated, their length being about twice to three times their breadth; hence they are bacilloid rather than coccoid. They often occur discretely, sometimes in diploform and rarely in short chain formation of three or four members. In some young cultures but more often in older ones, a clumped arrangement is discernible. These clumps range in size from that of a blood platelet to that of a polymorphonuclear leukocyte. In these masses, the individual bodies are distinct. In any case, the outline of each body is regular and the tendency to pleomorphism is not marked, although in some preparations an occasional longer body is to be seen. One culture is now in its seventeenth generation, and the form and size of the bodies therein are still similar to those in the initial culture.

When few in numbers, the bodies sometimes are obscured by protein or stain precipitate and to the unaccustomed eye they are made out with difficulty. In general they stain with difficulty with the usual dyes. Giemsa's and Manson's stains dye them a lavender shade, but are unsatisfactory on account of concomitant precipitation. For this reason carbolthionin (Nicolle), carbolfuchsin, steaming safranin and fuchsin are unsuitable also. They are decolorized by Gram's method. The counterstain, safranin, requires steaming. The negative reaction to Gram's stain is a constant feature of old and young cultures.

Initial cultures in a semisolid medium consisting of one part of agar to two parts of human ascitic fluid usually fail to show signs of growth. But subcultures do develop in this medium with the formation of minute colonies, too small to be exactly defined in the medium; the evidence of growth is usually noted by haziness or an even clouding of the medium from below upward to within 2 to 3 cm. from the surface.

In mass cultures, such as were employed by Flexner, Noguchi and Amoss[5] for growing the globoid bodies of poliomyelitis, a turbidity appears throughout the solid agar layer after the third day, and a diffuse though slight haziness of the fluid layer after the fifth day.

On account of their size, the dark field does not offer a satisfactory method for their detection or examination, because of their similarity in size to the familiar "dancing bodies" found also in control preparations.

Although growth is obtained in a medium containing carbohydrates and alcohols such as dextrose, maltose, lactose, saccharose and mannitol, these substances appear not to be attacked by the bodies. Gas is not formed, not is any odor detectable in the culture medium during growth.

The bodies are destroyed by heating at 56 C. for one-half hour and by chloroform vapor after from one to one and one-half hours' exposure. They are capable of growing in symbiosis with a number of ordinary bacteria, among which may be mentioned *B. pfeifferi*, the pneumococcus, *Streptococcus viridans*, *Streptococcus hemolyticus* and the staphylococci.

The cultivated bodies pass through V and N Berkefeld candles.

The bodies have been cultivated from the filtered nasal washings of patients in the first thirty-six hours of epidemic influenza, rarely from specimens taken in the later stages of the disease. They were not found in filtrates of lung tissue from patients who succumbed to secondary pneumonias. They were recovered in pure culture from the filtered and unfiltered lung tissue of rabbits and guinea-pigs inoculated with the filtered or unfiltered nasal washings from fresh influenza cases and from the lung tissue of rabbits injected with active material, which had been immersed in sterile 50 per cent. glycerol for nine months.

Similar cultivation of control materials, consisting of the filtered and unfiltered nasopharyngeal washings from healthy persons free from influenza, or from those suffering from coryza, lung tissue of normal rabbits, and lung tissue of rabbits suffering from respiratory affections such as "snuffles" or pneumonia uniformly failed to yield growths of the bodies.

The intratracheal injection in rabbits or guinea-pigs of washed mass cultures of these bodies is followed in from twenty-four to forty-eight hours by a temperature rise, conjunctivitis and leukopenia involving especially the mononuclears. This condition endures for from one to three days; thereafter the animals return to normal. If an animal is killed during this reaction, the organs are found to be normal with the exception of the lungs, which show edema and emphysema, and hemorrhages in the parenchyma and involvement of the trachea and bronchi in the process. From these lungs, the same bodies can be cultivated.

SUMMARY AND CONCLUSION

From the filtered nasopharyngeal washings from early cases of uncomplicated epidemic influenza and from the lung tissues of experimental animals, we have cultivated minute bodies of characteristic morphology which are strictly anaerobic, are filtrable, and withstand glycerolation for a period of months.

The effects on the blood and in the lungs of rabbits and guinea-pigs injected with these bodies are similar to those produced by the filtered and unfiltered nasopharyngeal secretions from early cases of epidemic influenza.

BENCE-JONES PROTEINURIA

A REPORT OF THREE CASES WITH METABOLIC STUDIES

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In 1847, Henry Bence-Jones reported before the Royal Society of London the finding of a peculiar form of protein in the urine in a case of osteomalacia fragilis rubra; the most characteristic feature of this protein was its behavior toward nitric acid. This reagent yielded a precipitate with the urine of the patient which dissolved on heating and reappeared on cooling, a reaction which led Bence-Jones to believe that it was not the ordinary serum albumin of nephritis. The kidneys were sound clinically. At necropsy the ribs were cut with the greatest ease, and the bodies of the vertebrae were capable of being sliced with a knife. Microscopically, the kidneys were normal.

Thirty-nine years passed before a second case was reported by Kühne,[1] who published the result of a urinalysis in which he rediscovered the reactions of Bence-Jones, and a diagnosis of osteomalacia was made clinically, but necropsy was not obtained.

Kahler,[2] in 1889, described a third case in which the diagnosis also was osteomalacia, since the urine gave Bence-Jones reactions; but at necropsy, instead of osteomalacia, multiple round-cell sarcoma, that is, multiple myeloma, was disclosed. Kahler suggested that Bence-Jones reactions might be of service in the diagnosis of multiple myeloma, and that possibly the other two cases of osteomalacia with proteinuria had been instances of this disease.

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[5] Flexner, Simon; Noguchi, Hideyo, and Amoss, H. L.: J. Exper. Med. **21**: 91, 1915.

[1] Kühne, quoted by Hamburger (Footnote 7).

[2] Kahler, O.: Zur Symtomatologie des multiplen Myeloms; Beobachtungen von Albumosurie, Prag. med. Wchnschr. **14**: 33-45, 1889.

From 1889 to 1917, 205 instances of Bence-Jones proteinuria were reported, the greatest number being in cases of multiple myeloma. A summary and complete bibliography of the subject up to 1917 is contained in Rosenbloom's[3] paper. According to Miller and Baetjer,[4] 80 per cent. of all patients with myeloma have Bence-Jones protein in the urine. During the last twenty years, numerous cases have been reported of the existence of this protein in other diseases (Table 1). Bence-Jones proteinuria, therefore, is not essentially dependent on one disease, but is a manifestation of disease affecting endogenous metabolism.

TABLE 1.—OCCURRENCE OF BENCE-JONES PROTEINURIA IN VARIOUS DISEASES

Multiple myeloma	80 per cent. of cases
Lymphatic leukemia	3 cases (Askanzy, Decostello)
Myeloid leukemia	3 cases (Boggs)
	1 case (Miller-Baetjer)
Myxedema	1 case (Fitz)
Exophthalmic goiter	1 case (Von Jaksch)
Carcinomatosis	1 case, primary carcinoma of stomach (Orum)
Nephritis	2 cases (Miller and Baetjer)
	1 case only instance of Bence-Jones proteinuria observed in a case of genuine nephritis; no bone lesions other than those of secondary anemia (Goat and Brewer)
Hypertension	5 cases, no albumin but casts (Miller and Baetjer)
Pyrodin poisoning	Experimentally produced in dogs

TABLE 2.—EXCRETION OF BENCE-JONES PROTEIN DURING THREE-HOUR INTERVALS IN CASE 1

Hours	General Diet																	
	8/31/20 to 9/1/20		9/1/20 to 9/2/20		9/2/20 to 9/3/20		9/3/20 to 9/4/20		9/4/20 to 9/5/20		9/5/20 to 9/6/20		9/6/20 to 9/7/20		9/7/20 to 9/8/20		9/8/20 to 9/9/20	
	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.
8 p.m. to 8 a.m.	1,455	10.43	640	6.46	1,150	8.72	1,150	8.26	1,050	8.19	675	2.39	850	17.85	845	9.21	995	9.36
8 a.m. to 11 a.m.	228	2.02	360	2.38	95	2.10	210	1.21	460	6.51	225	1.77	255	0.58	325	2.28	100	2.04
11 a.m. to 2 p.m.	380	2.48	375	1.89	120	2.13	250	2.31	400	2.30	200	1.37	235	2.12	360	2.72	125	2.18
2 p.m. to 5 p.m.	230	2.61	240	2.07	128	2.20	165	2.56	175	0.65	170	3.61	440	0.17	160	3.75	305	3.05
5 p.m. to 8 p.m.	129	1.34	305	2.24	161	5.21	250	2.54	135	5.03	180	1.72	250	3.55	180	2.88	122	2.27
Total	2,422	18.88	1,910	15.04	1,654	20.36	2,025	16.88	2,220	22.68	1,450	10.86	2,030	24.27	1,870	20.74	1,647	18.90
Total night		10.43		6.46		8.72		8.26		8.19		2.39		17.85		9.21		9.36
Total day		8.45		9.58		11.64		8.62		14.49		8.47		6.42		11.53		9.54

Hours	Nonprotein Diet														High Protein Diet					
	9/9 to 9/10		9/10 to 9/11		9/11 to 9/12		9/12 to 9/13		9/13 to 9/14		9/14 to 9/15		9/15 to 9/16		9/16 to 9/17		9/17 to 9/18		9/18 to 9/19	
	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.
8 p.m. to 8 a.m.	810	8.19	910	7.32	750	7.56	1,210	20.14	840	6.72	895	5.83	960	3.93	1,010	8.41	900	6.54	890	9.71
8 a.m. to 11 a.m.	50	0.98	240	1.98	205	1.78	190	1.62	150	2.11	75	2.13	95	2.99	100	2.67	205	2.03	300	3.25
11 a.m. to 2 p.m.	178	2.71	280	2.20	125	1.94	130	2.34	130	2.12	130	1.91	120	1.79	280	1.74	150	2.10	215	2.04
2 p.m. to 5 p.m.	250	2.29	240	2.13	450	2.22	450	1.54	130	1.51	160	2.13	230	1.92	300	2.54	350	1.96	310	2.76
5 p.m. to 8 p.m.	190	2.38	140	1.50	280	2.10	245	2.48	190	2.08	120	2.28	190	1.21	100	1.89	130	2.75	120	1.75
Total	1,478	16.55	1,810	15.13	1,810	15.60	2,225	28.12	1,440	14.54	1,370	14.28	1,595	11.84	1,390	17.25	1,735	15.38	1,835	19.51
Total night		8.19		7.32		7.56		20.14		6.72		5.83		3.93		8.31		6.54		9.71
Total day		8.36		7.81		8.04		7.98		7.82		8.45		7.91		8.84		8.84		9.80

On the whole, the most characteristic reactions of Bence-Jones protein are its precipitation from acid urine at temperatures of from 55 to 60 C. (131 to 140 F.), its disappearance at the boiling point with the formation of a clear solution, and its reappearance as the solution cools. When concentrated nitric or hydrochloric acid is added to urine containing Bence-Jones protein, the latter precipitates in a dense white cloud, which goes into solution as the temperature is raised to the boiling point and reappears again as the urine is cooled.

The origin of this protein is still in doubt; the most tenable hypothesis, that of Hopkins and Savory,[5] is that it represents either "normal, abnormal or aberrant stages of bone synthesis, the completion of which is hindered by indeterminate pathologic conditions."

Three cases of Bence-Jones proteinuria are herewith reported: one in a patient with an obscure diagnosis, one in a patient with a generalized carcinomatosis, and one in a patient with true multiple myeloma. Metabolic studies were made on each patient to determine variations in excretion on various diets. The quantitative estimation of Bence-Jones protein in each specimen of urine was determined by the method of Folin and Denis,[6] with the exception that the urine was kept at a constant temperature of 60 C. for three hours instead of for twelve hours.

TABLE 3.—EXCRETION OF BENCE-JONES PROTEIN DURING THREE-HOUR INTERVALS IN CASE 2

Hours	General Diet					
	9/18/20 to 9/19/20		9/19/20 to 9/20/20		9/20/20 to 9/21/20	
	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.	Urine, C.c.	Protein, Gm.
8 p.m. to 8 a.m.	1,375	1.02	860	1.33	450	4.9
8 a.m. to 11 a.m.	385	0.25	320	0.70	219	0.47
11 a.m. to 2 p.m.	160	0.15	350	0.77	186	0.46
2 p.m. to 5 p.m.	255	0.32	.....	....	35	0.07
5 p.m. to 8 p.m.	340	0.51	310	0.88	218	0.26
Total	2,515	2.25	1,840	3.68	1,108	6.16
Total night		1.02		1.33		4.9
Total day		1.23		2.35		1.26

REPORT OF CASES

CASE 1 (319680).—Mr. H. M. R., aged 41, registered in the Mayo Clinic, Sept. 24, 1920. At various intervals for the last three years, considerable amounts of albumin had been found in the urine. In June, 1919, he had had an acute attack supposed to be referable to the gallbladder, which was followed by a complaint in some respects suggestive of duodenal ulcer. Pallor of skin and weakness were increasing.

On examination, the patient's blood pressure was found to be normal. The urine contained albumin, but was free from casts, pus cells or red blood corpuscles. The values for blood urea, total nonprotein nitrogen, and for the phenolsulphonephthalein functional test were normal. Because of the presence of large quantities of albumin in the presence of these normal findings, Bence-Jones proteinuria was suspected in spite of the absence of growths or pains in the bones, and the protein was then found in considerable quantities (Table 2) An additional feature of interest was the absence of a demonstrable pathologic lesion of any of the bones, either by physical examination or by roentgenographic studies. A roentgenogram of the gastro-intestinal tract disclosed nothing abnormal, and an exploratory operation revealed a normal stomach and a normal gallbladder. Specimens from the pancreas and from the liver revealed mild chronic inflammatory changes.

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[3] Rosenbloom, J.: A Review of the History of Bence-Jones' Protein and Multiple Myeloma, with Complete Bibliography, Med. & Surg. **1**: 257-277 (May) 1917.

[4] Miller, S. R., and Baetjer, W. A.: Bence-Jones Proteinuria, Some Observations on Its Occurrence, with Particular Reference to Nephritis and Hypertension, J. A. M. A. **70**: 137-139 (Jan. 19) 1918.

[5] Hopkins, F. G., and Savory, H.: A Study of Bence-Jones Protein, and of Metabolism in Three Cases of Bence-Jones Proteinuria, J. Physiol. **42**: 189-250, 1911.

[6] Folin, O., and Denis, W.: Metabolism in Bence-Jones Proteinuria, J. Biol. Chem. **18**: 277-283, 1914.

Case 2 (333896).—Mr. J. E. D., aged 49, who came to the Clinic, Sept. 14, 1920, stated that the mass which had been on the right side of the chest for many years had increased in size during the last six months and that it had become somewhat tender. In June, 1920, during a sudden twist of his body he fractured the tenth rib on the right side in the posterior axillary line. He had had pain for one month in the lower portion of the right chest, a cough, and a dull aching pain across the lumbar and sacral vertebrae.

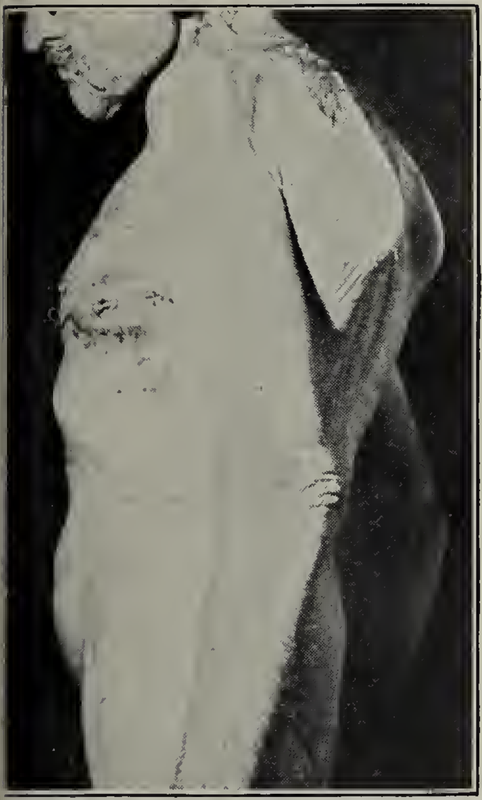

Fig. 1 (Case 3).—Tumor mass of left thoracic wall, and kyphosis of the dorsal vertebrae.

The outstanding features on physical examination were two tumor masses, one approximately 4 cm. in diameter, attached to the tenth right rib in the anterior axillary line, and one approximately 2.5 cm. in diameter attached to the fourth left rib in the parasternal line. On fluoroscopic examination there was evidence of infiltration of both lungs, which showed many nodular areas of metastasis characteristic of carcinoma. Metastasis was also found in the lumbar and sacral vertebrae. The primary origin of the carcinoma was not discovered. Bence-Jones proteinuria was discovered early in this case (Table 3).

Case 3 (339622).—Mr. R. L., aged 69, examined in the clinic, Nov. 15, 1920, had been well until two years before, when stiffness of the neck and back had developed following exposure and a wetting. Four months later a nodule was discovered on the left thoracic wall attached to the fifth and sixth ribs; it began to increase in size and became quite painful. The patient complained of extreme pain in the right half of the thorax, and a troublesome loose, productive cough.

Repeated examinations of the lungs were negative. The umor was attached to the fifth and sixth ribs, and in the left nterior axillary line measured 10 by 7.5 cm. The lower porion of both sides of the thorax bulged, and the dorsal vertebrae were fixed (Figs. 1 and 2). There was a marked tenderness to pressure on the second, third, fourth, fifth and sixth ribs of the right side in the parasternal and anterior axillary ines. The skull and the long bones were not tender to pressure.

A roentgenogram of the bones showed multiple circumscribed areas of destruction, varying in size from 0.2 cm. to 0.5 cm., in the skull, the femurs, tibias and radii, and a fracure of the fifth, sixth, seventh and eighth ribs of the right side (Figs. 2, 3 and 4).

A specimen removed from the tumor mass on the left side of the chest wall was reported to be round-cell sarcoma or myeloma.

In this case and in Case 1, a large amount of albumin in otherwise negative urine, a severe secondary anemia, normal blood pressure, normal kidney function, normal blood urea and normal total nonprotein nitrogen suggested Bence-Jones protein, which was found to constitute the entire albumin content (Table 4).

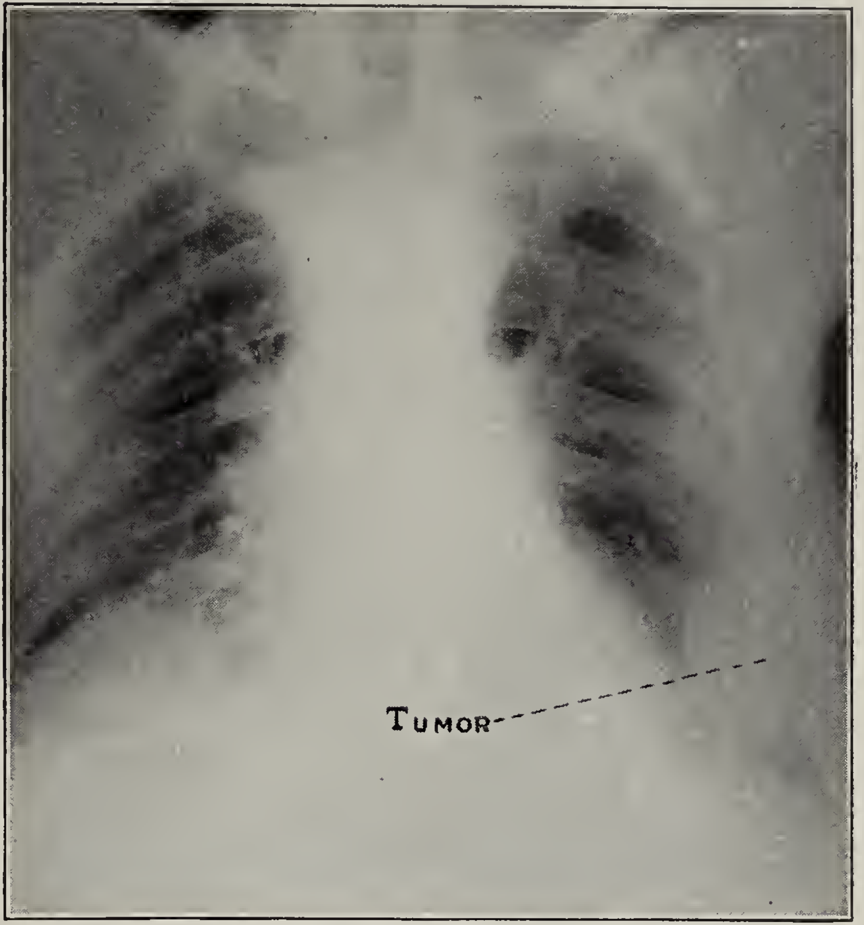

Fig. 2 (Case 3).—Tumor mass of the left thoracic wall.

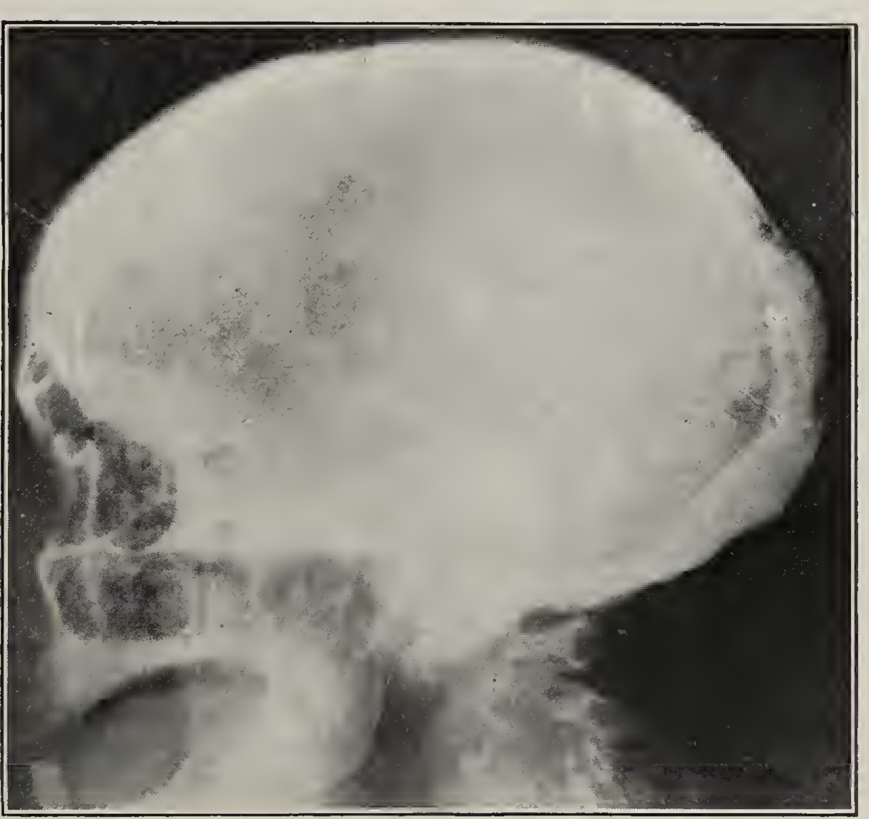

Fig. 3 (Case 3).—Multiple myeloma in bones of the skull. The dark areas are areas of destruction of bone. The increased thickness of the skull, especially in the occipital region, is suggestive of Paget's disease of the bone, but is distinguished from it because the dark areas represent bone destruction, while with Paget's disease there are areas of bone production or eburnation.

According to Hamburger's[7] classification, there are three types of multiple myeloma: (1) multiple myeloma mistaken for osteomalacia (Kahler's case); (2) visible tumors with pathologic fractures, and (3) multiple myelomas with vague or absent bone symptoms, diagnosis being made at necropsy. Case 1 probably belongs to the latter group and in many respects is similar to the case reported by Ellinger,[8] whose patient too had symptoms of gallbladder disease with jaundice, chills and fever for six weeks, a marked progressive secondary anemia, a Bence-Jones proteinuria, and no symptoms referable to the bones.

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[7] Hamburger, L. P.: Two Examples of Bence-Jones' Albumosuria Associated with Multiple Myeloma, a Preliminary Report, Bull. Johns Hopkins Hosp. **12**: 38-45, 1901.

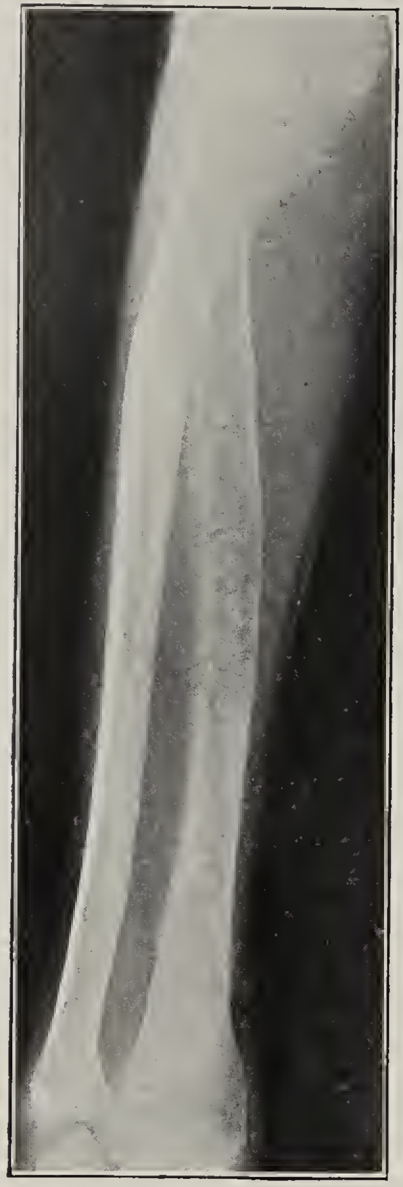

Fig. 4 (Case 3).—Multiple myeloma in the radius and ulna. The dark, blotchy areas show destruction of bone.

The urine in Case 1, after standing for three days under toluene, became darker and deposited a large amount of white material at the bottom of the container. When shaken, the urine exhibited a sheen resembling that of castile soap and revealed under the microscope the typical crystals of Bence-Jones protein (Fig. 5). These crystals had precipitated spontaneously at room temperature. The only other instance of spontaneous precipitation is recorded by Rosenbloom. Magnus-Levy, Grutternick and de Graaf [9] succeeded in precipitating Bence-Jones protein in crystalline form. Dr. D. W. Wilson of Johns Hopkins Medical School, working on this case with us, succeeded in isolating the protein from the blood plasma.

Blood examinations in our cases and in those of Anders and Boston [10] showed a marked secondary anemia (Table 5).

EXPERIMENTAL STUDY

Effect of Diet on Output of Bence-Jones Protein.—The problem was to ascertain the effect of food, particularly of protein intake, on the quantitative output of Bence-Jones protein. Accordingly, the patients were placed on various diets and the urine was collected at three-hour intervals during the day and during the twelve-hour period from 8 p. m. to 8 a. m. The amount of protein in each specimen was determined by Folin and Denis' method with modifications. A similar problem was studied by Hopkins and Savory, in 1911, and by Folin and Denis, in 1914. These investigators found that there is no definite or constant relation between total nitrogen and the albumin in the urine, and that the protein content of food bears no direct relation to the elimination of Bence-Jones protein.

In this series the first patient excreted from 10.8 to 22.68 gm. of Bence-Jones protein every twenty-four hours, whether on a general diet, on a low protein diet or on a high protein diet (Table 2). The second patient remained under observation only three days, and since he was somewhat stuporous, collections of urine were not accurate (Table 3). In both cases, however, the amount excreted during the day was in most instances somewhat in excess of that excreted during the night; on some days the reverse was true. The amounts excreted during three-hour periods remained practically constant. The specimens of urine from the third patient were collected during the day and night (Table 4). Estimations of the total urinary nitrogen as well as of the quantity of Bence-Jones protein were made by means of the micro method of Folin. There was little constant variation in the amount of Bence-Jones protein excreted by the three patients irrespective of protein intake; and there is not a constant relation between the quantity of Bence-Jones protein and the total nitrogen excreted.

TABLE 4.—EXCRETION OF BENCE-JONES PROTEIN DURING TWELVE-HOUR INTERVALS IN CASE 3

		Total Nitrogen, Gm.	Protein, Gm.	Diet
11/ 9/20	8 a.m. to 8 p.m.	2.4	5.4	Milk
	8 p.m. to 8 a.m.	6.3	8.45	
11/10/20	8 a.m. to 8 p.m.	5.0	7.8	Milk
	8 p.m. to 8 a.m.	2.0	4.79	
11/11/20	8 a.m. to 8 p.m.	3.3	7.4	Milk
	8 p.m. to 8 a.m.	4.4	7.3	
11/12/20	8 a.m. to 8 p.m.	3.0	6.9	General
	8 p.m. to 8 a.m.	3.8	9.44	
11/13/20	8 a.m. to 8 p.m.	—	—	—
	8 p.m. to 8 a.m.	—	—	—
11/14/20	8 a.m. to 8 p.m.	1.7	10.5	Mosenthal
	8 p.m. to 8 a.m.	1.5	3.87	
11/15/20	8 a.m. to 8 p.m.	3.8	9.3	General
	8 p.m. to 8 a.m.	2.2	5.7	
11/16/20	8 a.m. to 8 p.m.	2.0	9.1	General
	8 p.m. to 8 a.m.	2.0	5.76	
11/17/20	8 a.m. to 8 p.m.	2.4	2.4	General
	8 p.m. to 8 a.m.	4.4	8.25	
11/18/20	8 a.m. to 8 p.m.	—	—	General
	8 p.m. to 8 a.m.	3.7	6.67	
11/19/20	8 a.m. to 8 p.m.	3.9	7.0	Starvation
	8 p.m. to 8 a.m.	2.7	5.07	
11/20/20	8 a.m. to 8 p.m.	—	—	—
	8 p.m. to 8 a.m.	—	—	
11/21/20	8 a.m. to 8 p.m.	2.7	5.73	General
	8 p.m. to 8 a.m.	3.2	7.07	
11/22/20	8 a.m. to 8 p.m.	6.3	18.5	General
	8 p.m. to 8 a.m.	3.0	2.34	
11/23/20	8 a.m. to 8 p.m.	4.7	6.04	General
	8 p.m. to 8 a.m.	5.2	6.04	

Effect of Intravenous Injection of Bence-Jones Protein.—In order to determine the effect of an intravenous injection of the protein, 1.6 gm. of Bence-Jones protein in 20 c.c. of physiologic sodium chlorid solution was injected intravenously at 8:25 p. m., Nov. 22, 1920. The patient began to chill at 9:15, and continued to do so until 11 p. m. The twelve-hour specimen of urine from 8 p. m. to 8 a. m. contained 2.34 gm. of Bence-Jones protein, with a total nitrogen of 3.01 gm. Twelve hours later the quantity of Bence-Jones protein increased to 18.5 gm., with a total nitrogen of 6.26 gm. These values were the highest obtained at any time from this patient.

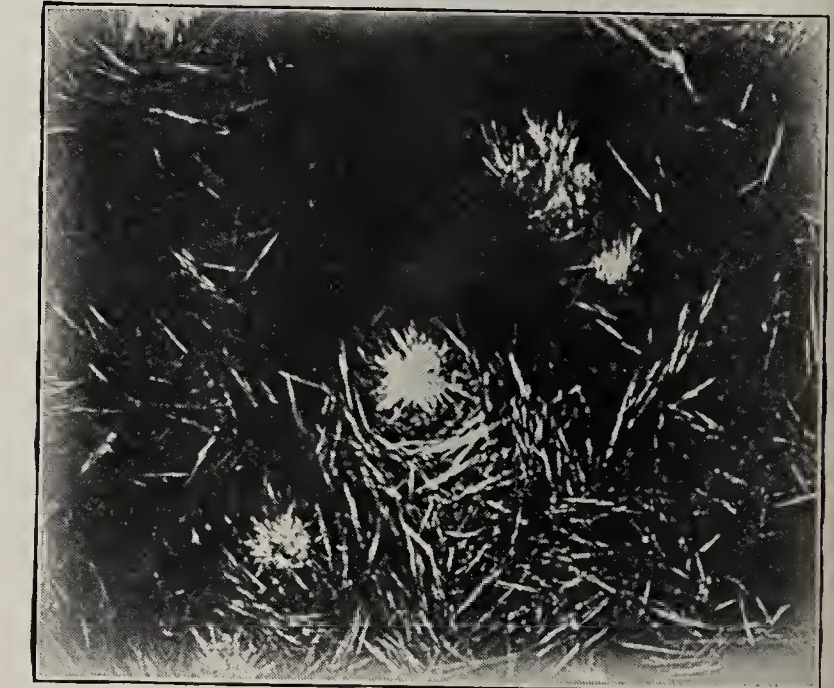

Fig. 5 (Case 1).—Bence-Jones crystals, which precipitated spontaneously from urine at room temperature.

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[8] Ellinger, A.: Das Vorkommen des Bence-Jones'schen Körpers im Harn bei Tumoren des Knochenmarks und seine diagnostische Bedeutung, Deutsch. Arch. f. klin. Med. **62**: 255-278, 1898-1899.

[9] Quoted by Rosenbloom (Footnote 3).

[10] Anders, J. M., and Boston, L. N.: Bence-Jones Albumosuria, with Report of Three Cases, Lancet **1**: 93-97, 1903.

Studies of Saliva, Bronchial Secretions and Cerebrospinal Fluid.—Nov. 18, 1920, saliva and bronchial secretion in Case 2 were examined for Bence-Jones protein, since the patient had had a productive cough for many days. A few drops of acetic acid (2 per cent.) were added to the saliva; mucin was precipitated and filtered out. The filtrate was heated, and a white precipitate (turbidity) appeared which did not change when the solution reached the boiling point. A precipitate was not obtained when saturated ammonium sulphate was added to the saliva. Bence-Jones protein was therefore absent.

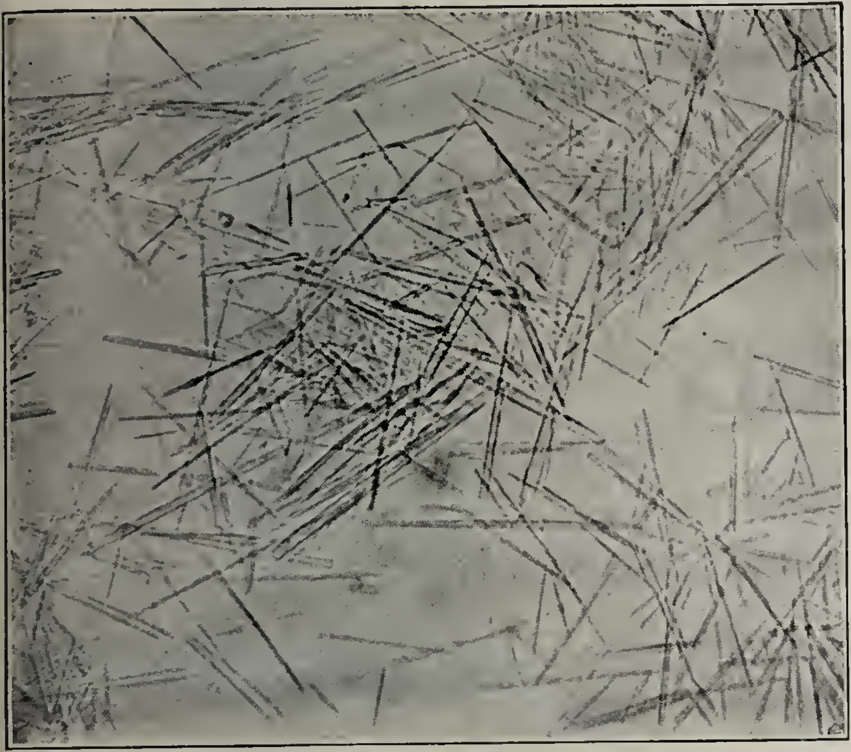

Fig. 6 (Case 1).—Bence-Jones crystals, which precipitated spontaneously from urine at room temperature.

A few drops of nitric acid (concentrated) were added to material coughed up by the patient; the white precipitate was filtered off. The filtrate heated to the boiling point gave a clear solution which, when cooled, become quite turbid, and cleared again when it was boiled. This was positive evidence of Bence-Jones protein in the bronchial secretion. The spinal fluid was examined for Bence-Jones protein, but none was found.

TABLE 5.—BLOOD ANALYSIS IN THREE CASES OF BENCE-JONES PROTEINURIA

	Case 1						Case 2	Case 3
	7/21/20	7/29/20	8/4/20	9/1/20	9/10/20	9/17/20	9/19/20	9/9/20
Hemoglobin	42.0	40.0	45.0	44.0	40.0	40.0	50.0	61.0
Erythrocytes (millions)	2.5	2.84	2.49	3.01	2.35	2.7	3.56	3.97
Leukocytes	3,200	3,600	2,800	5,800	3,400	5,000	5,600	11,400
Color index	0.9	0.7	......	......	......	1.7+	0.7+	0.7+
Cells counted	200	200	200	200	200	200	200	500
Polymorphonuclear neutrophils	43.0	48.0	40.5	64.5	62.5	41.0	68.0	73.0
S. lymphocytes	2.5	46.0	57.0	32.0	31.0	51.0	15.0	16.0
L. lymphocytes	0.5	5.5	2.5	2.5	6.0	2.5	5.0	4.8
Eosinophils	1.0	0.5	....	....	....	2.0	1.5	1.0
Basophils	....	....	....	1.0	0.5	2.5		
Anisocytosis	Slight	Moderate	Slight	....	....	Moderate		Slight
Poikilocytosis	Slight	Slight	Slight	....	....	Moderate Monocytes 10.5		Slight

CONCLUSIONS

1. A large quantity of albumin in otherwise negative urine in a patient with normal renal function and normal blood pressure and a marked secondary anemia should suggest the possibility of Bence-Jones proteinuria, especially when bone lesions are present.

2. Bence-Jones proteinuria is significant from a diagnostic and from a prognostic standpoint of multiple myeloma, since it occurs in 80 per cent. of all cases, and usually is followed by death within two years.

3. The quantity of Bence-Jones protein excreted is independent of the protein intake, evidenced by an approximately constant excretion for three-hour periods, irrespective of changes in diet.

4. The amount of Bence-Jones protein excreted during the night when food is not taken is only slightly less than the amount excreted during the day.

5. There is not a constant relationship between the quantity of Bence-Jones protein and the total urinary nitrogen excreted.

6. As the finding of Bence-Jones protein in the urine led to its detection in the blood, it may be possible that other proteins of a similar or dissimilar nature are in existence in the blood and are not excreted by the kidneys.

STEREOSCOPIC ROENTGENOGRAPHY

THE VISUALIZATION OF SURFACES FOR THE BETTER LOCALIZATION OF UNDERLYING FOREIGN BODIES

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SAN FRANCISCO

The use of stereoscopic roentgenography has become a commonplace and, but for the difficulty of examining the plates, would be in still greater use. I would point out that for most purposes the use of large plates and the reflecting stereoscope is entirely unnecessary. Most conditions requiring examination in this way can be included within the dimensions of a 3 by 4 plate, and two such plates taken under a tube, with a difference of 2½ inches from their centers, could be examined in an ordinary stereoscope, whereof the accompanying illustrations are sufficient proof. In most cases in which this is done, the area to be examined stereoscopically would be determined first by the fluoroscope, or a single exposure on a large plate. Working in this way, any one possessing an ordinary roentgenographic outfit is in a position to make perfect roentgenostereograms.

In connection with these general remarks on roentgenographic stereograms, I should like to comment on the fact that an alternation in the position of the two plates alters the apparent point of view of the object examined, so that under one condition it appears to be viewed from the front, and in the other from behind; in my opinion, however, such an effect is in one case purely pseudostereoscopic, and does not form a scientific basis for interpretation. The unreliability of pseudostereoscopic effects is well known, and when

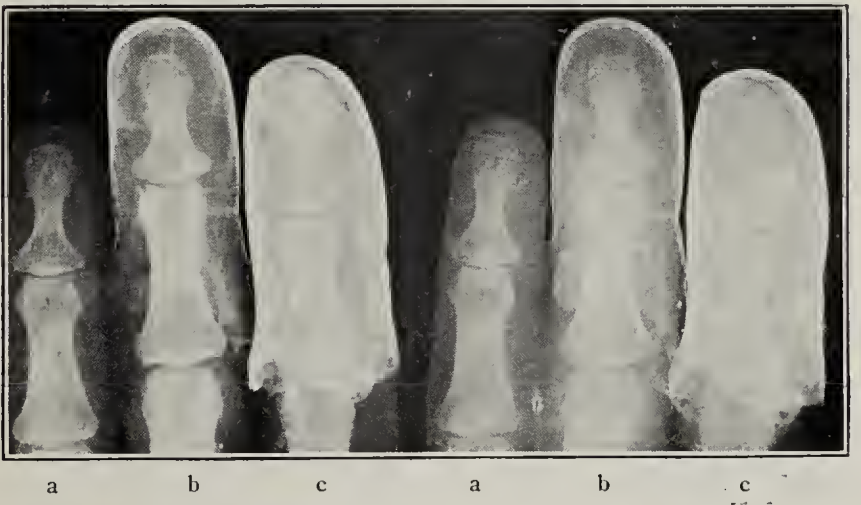

Fig. 1.—Roentgenostereogram with paraffin lead coating: *a*, skin uncoated; *b*, skin coated far side of bone; *c*, skin coated near side of bone.

a part requires an examination from two opposite positions, separate plates should be made for each.

The localization of foreign bodies by stereoscopic roentgenograms has been in much use with somewhat unreliable results. In the roentgenogram we are dealing solely with shadows, and the correct relation of these, even with the aid of the stereoscope, is dependent on our ability to form standards of comparison, which in the average case is that of the nearest bone. As between bone and bone, this is often sufficient; but as between bone and adjacent soft surfaces, such criteria are usually lacking. Many means of forming judgments as to the position of foreign bodies embedded have been suggested, most of them being difficult to apply, and not always successful—among these, the placing of objects on the skin surface which, however, I am told by those who have used it, is far from perfect. Finally, Béclère [1] suggested that the whole skin surface might be made visible by inunction with petrolatum and salts of bismuth. This appealed to me and to Dr. Ferdinand Freytag (whose assistance I desire to acknowledge), but, we did not find the use of petrolatum and bismuth at all satisfactory; the material was irregular in its distribution, and the effect confusing. The results of using salts of barium were still worse; nor does lead, although more opaque to the roentgen ray, lend itself kindly unless properly prepared. Experience in painting had taught me that what is known as Flake White No. 2 in oil colors is capable of extremely fine division and even superimposition, and a little experimentation proved that this was a perfect medium for rendering visible even the finest details of the skin.

The only objection that I found in its use was the somewhat troublesome washing necessary to remove it. With the view of finding a substitute that could be immediately detached, I experimented with coatings made by melting together the flake white in the proportion of 20 to 100 parts of paraffin. Such a mixture melts and can be coated on the surface without burning, and afterward removed as a solid shell. It does not render the fineness of detail given by the simple paint, but can be used without difficulty over small areas and, so far as I can see, affords the same frontal point of view for the comparison of distance. The accompanying photographs show the difference in appearance between the two methods.

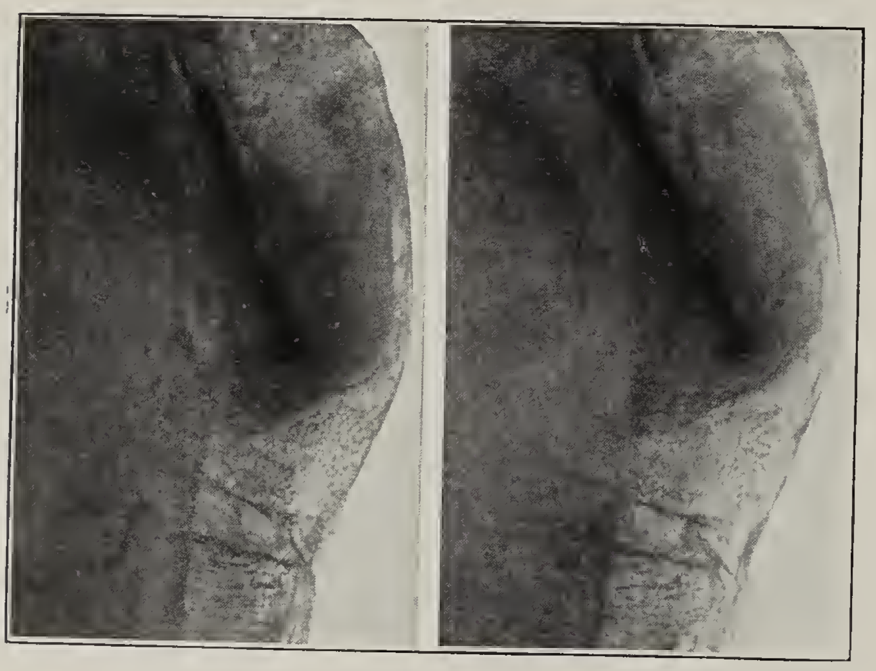

Fig. 2.—Roentgenostereogram showing direction and position of nail with reference to skin and patella.

The surface to be coated should have the flake white carefully rubbed in and maintained at a smooth and even thickness. It should be thick enough not only to fill the markings on the skin surface, but also to coat the intervening ridges of skin. A little experience will teach the proper depth. When the roentgenogram is taken, a piece of paper should be placed beneath the coated surface, so that the paint will not smudge the casette. In areas in which there is a double skin surface, I am of opinion that the best way is to coat only the surface that is toward the light, as the appearance of the distant skin may confuse rather than help. Examples of these methods are given in Figure 1.

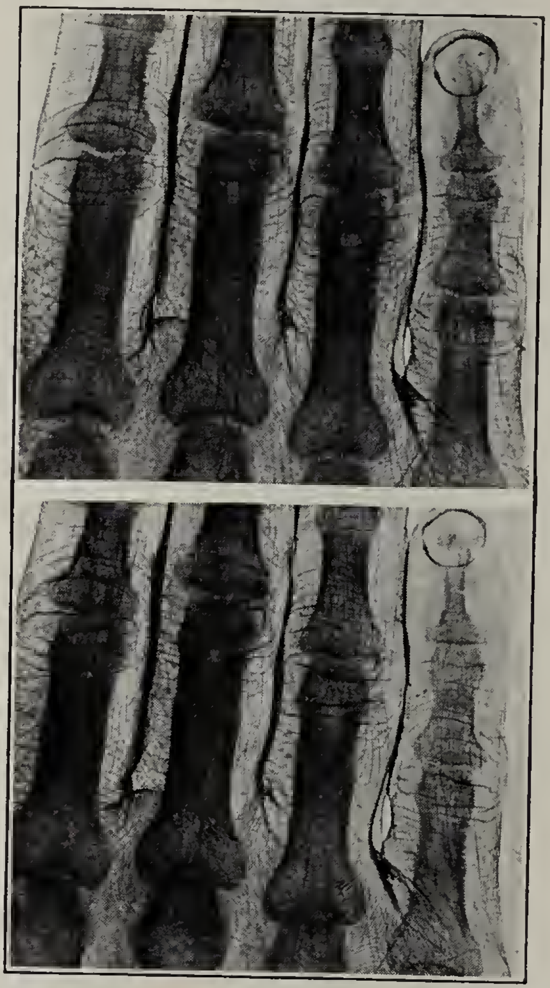

Fig. 3.—Lead coating (flake white in oil No. 2) on both sides of hand.

Besides giving a better basis of judgment for the position of foreign bodies, this procedure has a field in determining the direction of anal and other fistulas, and in the visualization of the eyelid for the better localization of small foreign bodies in the eye. Doubtless other uses will occur.

Progress of Child Welfare.—How far the states have officially recognized the importance of child welfare work is brought out in the annual report of the Children's Bureau of the United States Department of Labor. At the present time thirty-five states have child hygiene or child welfare divisions, while only eight states had such divisions before an organized effort for their establishment was carried on as part of the children's year campaign. New Jersey, which has appropriated $150,000 a year for its child hygiene division, has so far adopted the largest budget of any state for this special work. However, some bureaus with only meager appropriations, through the cooperation of medical, public health and social welfare organizations have been able to carry out far-reaching plans of health work. The Federal Children's Bureau acts in an advisory capacity to the state organizations and renders direct assistance in the development and administration of the work. To assist private organizations engaged in child welfare work, the bureau publishes bulletins on office administration, records, publicity and other problems.

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[1] Béclère, H.: Bull. Soc. franç. de photog. 7, May, 1920.

A COLOSTOMY OPERATION

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AND
ELLIOTT C. BURROWS, M.D.
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The reluctance with which a colostomy operation is consented to often leads to unnecessary suffering. If a better functioning outlet for the bowel were supplied, there would be more satisfaction for both patient and surgeon. We have used the operation we describe for a number of years and find that the bowels can be controlled to move once daily. The effectiveness of the method depends on the muscular and pressure constriction of the new formed canal as it passes through the rectus muscle and subcutaneously for a considerable distance, whereby minor waves of peristalsis in the colon are resisted, and expulsion of its contents in small amounts and at frequent intervals is prevented. An additional advantage of the operation is that when performed for nonmalignant disease of the rectum or as a preliminary to resection, it is possible at a later date easily to reestablish the continuity of the bowel by a side-to-side anastomosis of the two parallel segments of sigmoid passing to the abdominal wall. The colostomy opening is then closed without extensive dissection, and as the abdominal portion of the operation of closure is performed well away from the infectious colostomy area, danger of infection is lessened.

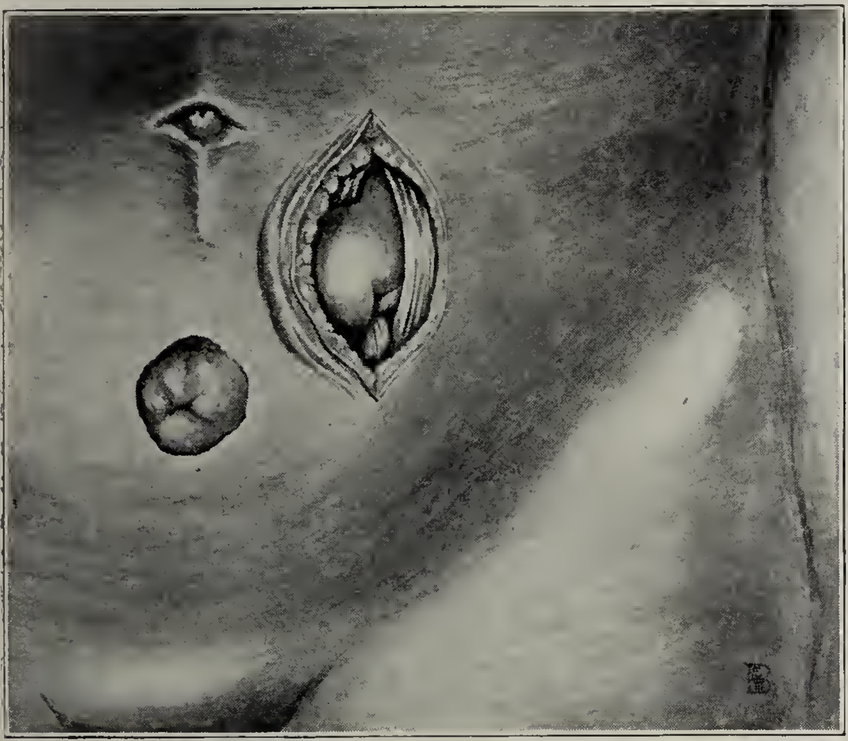

Fig. 1.—Abdominal incision through left rectus; sigmoid brought through subcutaneous channel to colostomy opening.

The colostomy operation incision is made through the skin, subcutaneous tissue and anterior rectus sheath near the outer border of the left rectus muscle. It passes between the parallel fibers of the rectus muscle at about its outer third. The incision is 3 inches long, with its upper extremity at the navel level. A subcutaneous channel is then made on the anterior rectus sheath, extending from the primary incision downward and inward, to about midway between the pubis and umbilicus, where a vertical skin incision 1½ inches long opens into it.

Through the abdominal incision the sigmoid is sought, and its proximal and distal segments are distinguished. It is brought through the rectus muscle with the proximal segment less redundant than the distal. Both segments of sigmoid are brought through the rectus muscle and through the subcutaneous channel. The peritoneal and muscle tissues are sutured above and below the exit of the bowel, and the latter is fastened with two silk sutures to the anterior sheath of the rectus. The skin incision is closed. The two segments of the sigmoid then protrude at the small midline cutaneous incision. The bowel is left closed for twenty-four hours; or, if opened at once, a rectal tube is sutured into the proximal segment.

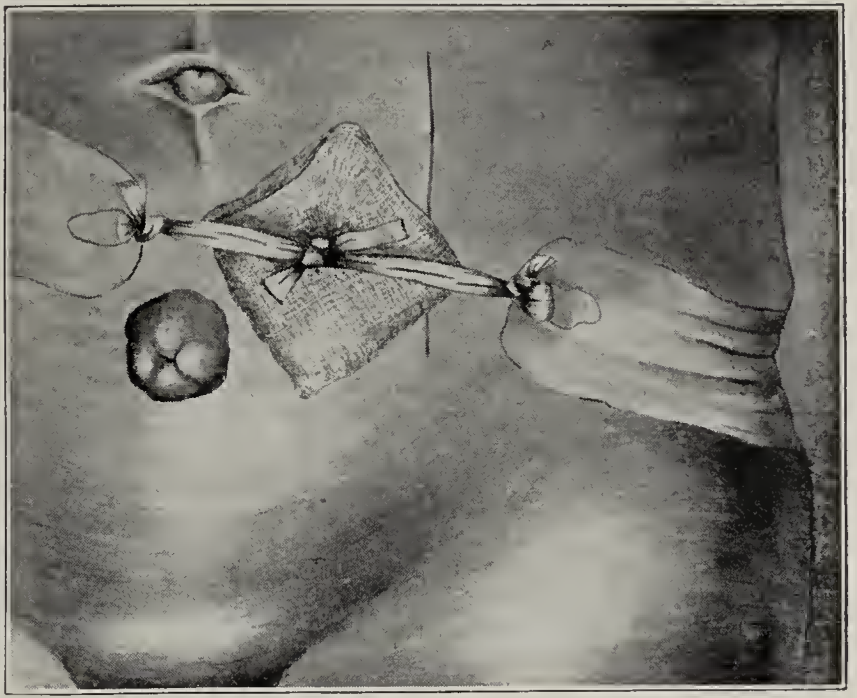

Fig. 2.—Gauze pad to control bowel contents for a period of two weeks.

For two weeks the bowel contents are controlled by means of a pad as shown in Figure 2 and evacuated by a daily injection of a small amount of water. Thereafter, a special pressure apparatus is fitted, as shown in Figure 3, with an opening over the colostomy and a small detachable rubber bag supplied for any possible

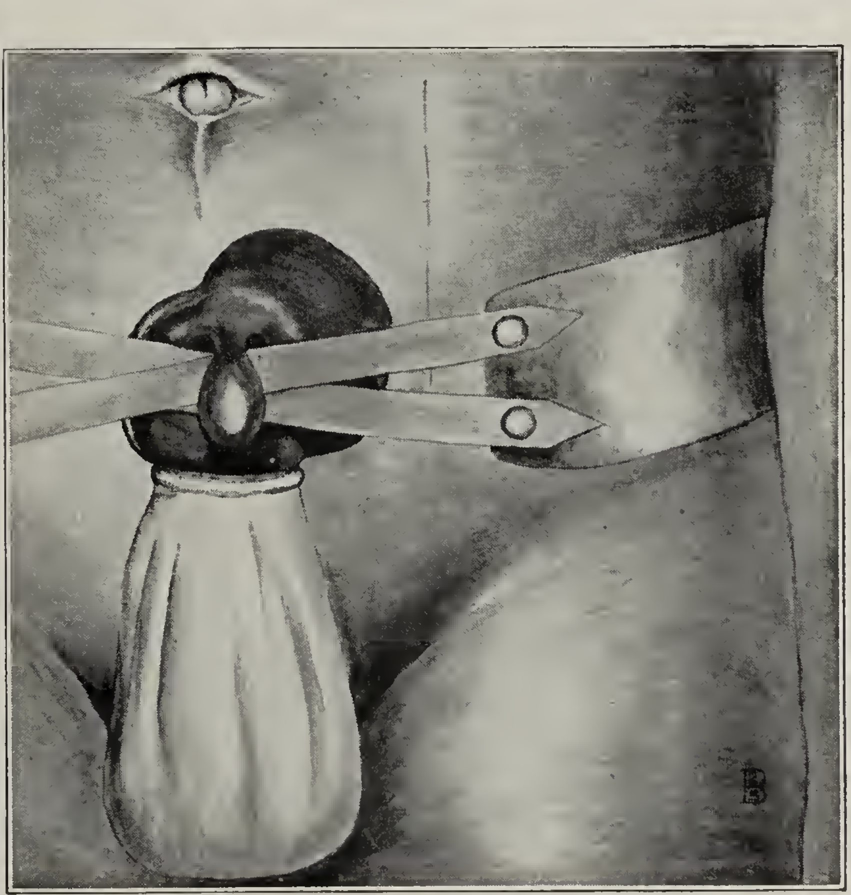

Fig. 3.—Special pressure apparatus with detachable rubber bag fitted over colostomy.

contents escaping during the day. The belt part of the apparatus, passing around the pelvis, is tightened as required, and the pressure is thereby exerted on the subcutaneous portion of the bowel.

17 East Thirty-Eighth Street.

GRANULOMA INGUINALE *

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NEW YORK

Less than a year ago, Dr. Douglas Symmers[1] described two cases of granuloma inguinale that occurred in American negroes who had never been outside the United States, demonstrating in the ulcerative lesions of both patients the intracellular inclusions which are held to be characteristic of this disease. Although Grindon,[2] in 1913, called attention to three cases in St. Louis, the diagnosis was based on clinical grounds, so that the investigations of Dr. Symmers are the first actually to establish the fact that the disease is not peculiar to the tropics but is endemic among negroes in this country. Since the appearance of his paper, I have had an opportunity to study three additional cases occurring in the Urological Service of Bellevue Hospital, and another case has been observed by Dr. Jessup at the New York Skin and Cancer Hospital. Moreover, I have been informed of the occurrence of apparently identical cases in Texas, Mississippi and New Jersey. It would seem, therefore, that the disease is not uncommon in this country. This assumption is significant in view of the fact that the condition, while incapacitating, is not only easily recognized, but is susceptible of cure.

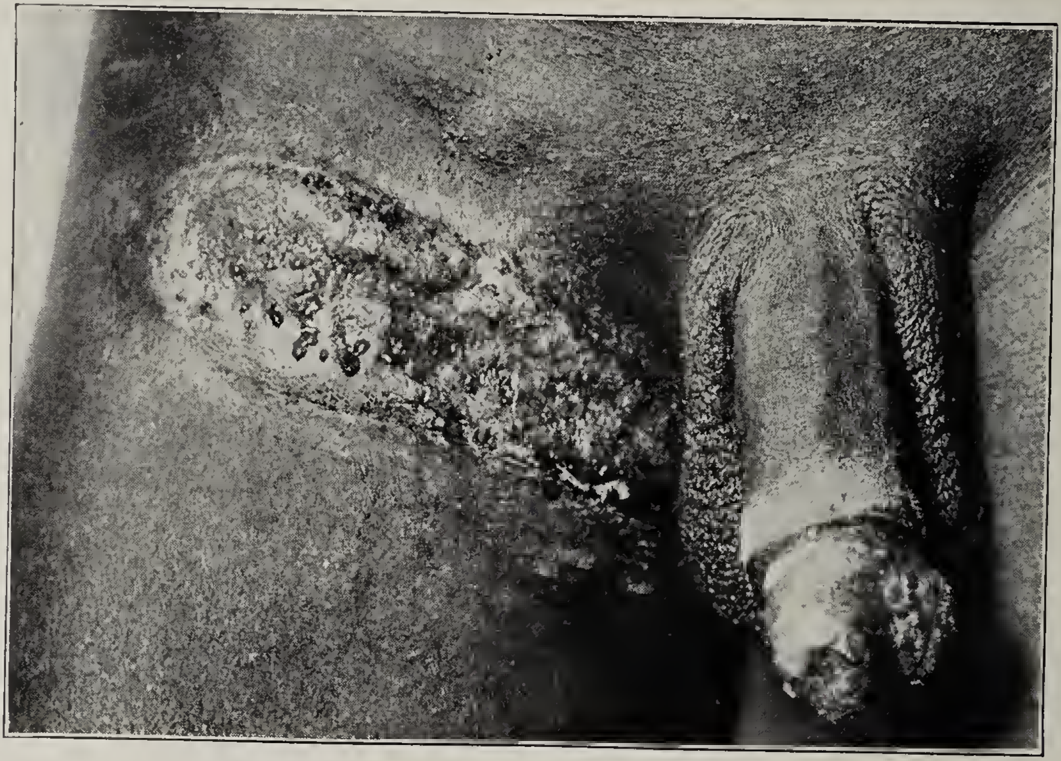

Fig. 1 (Case 2).—Extensive involvement of penis and thigh.

Clinically, granuloma inguinale—known also as serpiginous ulceration of the genitals, groin ulceration, granuloma venereum, etc.—begins as a small, moist papule which soon ulcerates. Progressively and eccentrically the surrounding tissue is invaded and destroyed. The lesions are vivid in hue and appear as ulcerated masses of granulation tissue. The terminal picture is that of a dense contracting scar "surrounded by a serpiginous irregular border of nodular, somewhat raised, red, glazed, delicately skinned or pinkish superficially ulcerating or cracked new growth" (Manson). Coincident adenopathy is rare. The lesion is painless unless pressed on, it bleeds easily, and at times it may be the seat of an intense itching or burning sensation. Usually the wounds emit an offensive odor, asserted by some observers to be pathognomonic.

Although the disease is most frequent in women, attacking especially the vulva and adjoining tissues, it is not uncommon to find involvement of the male genitalia, perineum and the anal, inguinal and suprapubic regions, as well as the inner surfaces of the thighs. Furthermore, lesions have been found on the lips and cheek and in the mouth. The process spreads both by autoinoculation and peripheral extension, showing no tendency to spontaneous healing.

As a clinical entity, granuloma inguinale was first described by Conyers and Daniels[3] in 1896, when nine cases were reported. Since then more than fifty have been recorded by various observers in different parts of the world. It is found chiefly in the tropics, particularly India, southern China, East and West Indies, the Fiji, Solomon and New Hebrides Islands, Tripoli, along the western coast of Africa, and on the eastern coast of South America from the Guianas to Argentina. Sporadic cases have been reported in Australia and London. It is to be noted, also, that nearly all of the described cases have been in negroes. Croker,[4] however, has seen the condition in a white male.

The etiology of granuloma inguinale is not a definitely settled question. By some (Maitland,[5] Wise[6]) who record having seen *Spirochaeta pallida* in the lesions, the process is regarded as syphilitic. Others (Conyers and Daniels[3]) believe it to be tuberculous. *Spirochaeta refringens* has been demonstrated in lesions by MacLennon.[7] Donovan,[8] in 1905, described certain inclusions in the mononuclear cells found in the sores. Since that time most observers[9] have agreed on the constancy with which this micro-organism is to be demonstrated in the lesions, and the tendency seems to be to accord it an important rôle in the production of the disease.

Morphologically, these inclusions of Donovan are encapsulated, gram-negative, coccoid, and diplococcobacillus forms. Some investigators have been able to obtain the organisms in pure culture. Numerous attempts to obtain pure cultures in our cases were fruitless.

The derivation of this particular organism is uncertain. Donovan[8] believed the germ to be a protozoan; Flu,[9] a chlamydozoa; Siebert,[9] an encapsulated diplococcus; Aragão and Vianna,[10] a separate genus of schizomycetes. In the hands of Walker,[11] it confirmed to the group of encapsulated bacilli of which the *Bacillus mucosus-capsulatus* of Friedländer is, perhaps, the best known. This encapsulated form was demonstrated in four of the five cases at Bellevue. Walker's observations are particularly interesting in view of the occurrence of apparently related bodies in rhinoscleroma.

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* From the Urological Service, Bellevue Hospital.

[1] Symmers, Douglas, and Frost, A. D.: J. A. M. A. **74:** 1304 (May 8) 1920.

[2] Grindon: J. Cutan. Dis. **31:** 236, 1913.

[3] Conyers, J. H., and Daniels, C. W.: Brit. Guiana Med. An. **8:** 13, 1896.

[4] Croker: Diseases of the Skin, Ed. 3, p. 1096.

[5] Maitland: Brit. M. J. **1:** 1463, 1906.

[6] Wise, K. S.: Brit. M. J. **1:** 1274, 1906.

[7] MacLennon, A.: Brit. M. J. **2:** 995, 1906.

[8] Donovan: Indian M. Gaz. **40:** 414, 1905.

[9] Siebert, W.: Arch. f. Schiffs- u. Tropen-Hyg. **2:** 379, 1907. Martini, E.: Ibid. **17:** 160, 1913. Flu, P. C.: Ibid. **9:** 87, 1911.

[10] Aragão, H., and Vianna, G.: Mem. do Inst. Oswaldo Cruz **2:** 211, 1913.

[11] Walker, E. L.: J. M. Res. **37:** 427 (Jan.) 1918.

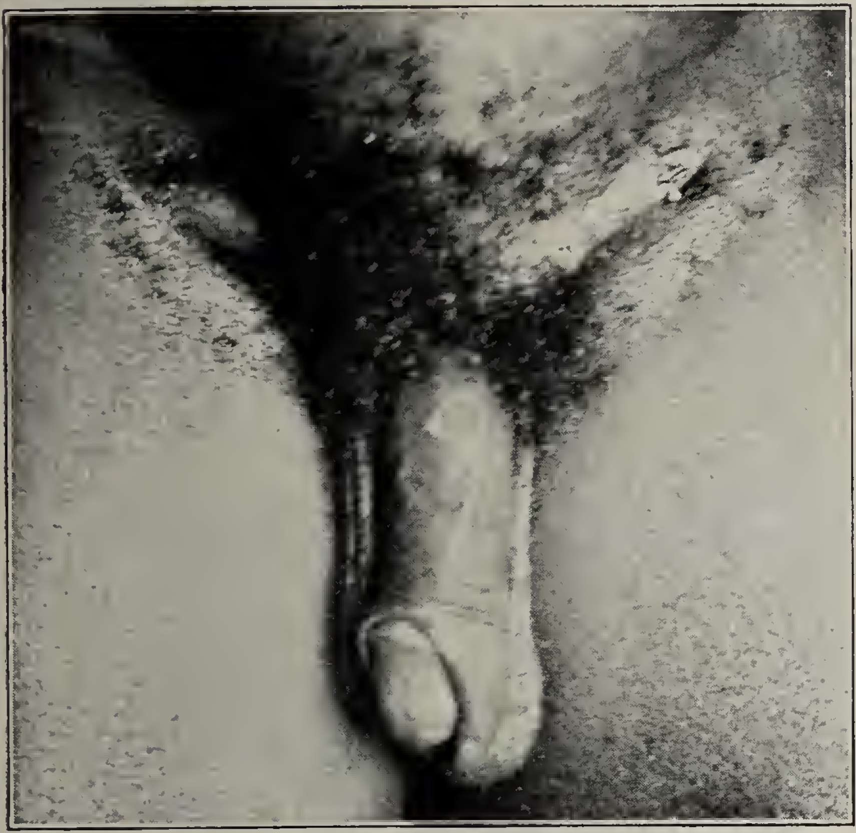

Fig. 2 (Case 3).—Nearly healed inguinal wound, with small healing lesion of prepuce.

Usually the patient gives a history of previous trauma, such as circumcision, or of infection, most frequently bubo, the ulceration occurring either after the infection has cleared up or dating its progress from the time of the primary infection, ordinary treatment being inadequate. This at once raises the question as to whether the organism found may not be a secondary invader, engrafting itself on devitalized tissue and giving rise to the granulomatous process. Repeated attempts to produce the disease by inoculation into human tissue have been unsuccessful.[11]

Microscopically, the picture is not unlike that of any other simple granulomatous process. There is marked round-cell infiltration accompanied by great numbers of plasma cells and eosinophils. Vascularity, as a rule, is not marked. The epithelial papillae show extensive prolongations in some fields; in others, atrophy is present. The superficial epithelial layers in still other places are necrotic or missing. Absence of giant cells and caseation is to be noted. The cells containing the inclusions are oftenest large and mononuclear. We were not able to identify the cell inclusions in tissue sections.

Formerly, when the nature of the disease was unrecognized, cauterization, arsphenamin, neo-arsphenamin and other antisyphilitic therapy, vaccines, surgical extirpation and the roentgen ray were employed with uniformly unsuccessful results. We now believe that in tartar emetic (antimony and potassium tartrate[12]) we have a specific drug for this condition. This belief is founded on the successful treatment of more than fifty cases in various parts of the world.

In different hands the dosage varies, but nearly all have used a 1 per cent. solution, which may be given intravenously in amounts as high as 20 c.c. without reaction. Our practice at Bellevue Hospital has been to begin with about 2 c.c. of the tartar emetic solution diluted with 8 c.c. of sterile distilled water. The injections are given intravenously three times a week, 1 c.c. more of the antimony solution and 1 c.c. less of the water being used at each treatment until the full strength (1 per cent.) is given. With the 1 per cent. solution we have not given more than 12 c.c., although others have used as much as 20 c.c. at a time. We have noted that when given on successive days, a moderate reaction occurs the second day.

At present we can record but one cure. A course of treatment covers from six to eight weeks. In Cases 2 and 4 the patients left against our wishes, remaining in the hospital only three and two weeks, respectively, after treatment was begun. It is advised by Aragão and Vianna[10] that about twelve injections be given after cure is apparently complete, to insure against recurrence. They have not seen a recurrence in those cases which have had such a course.

REPORT OF CASES

Case 1 (reported by Dr. Symmers[1]).—The intracellular inclusions were found.

Case 2 (reported by Dr. Symmers[1] at time of previous admission).—The intracellular inclusions were also found in the secretions from the ulcers in this patient. The man, colored, a native of Georgia, but residing in Pennsylvania at the onset of his disease, returned to Bellevue, June 10, 1920, after having left against advice in February, 1920. Briefly, his present history began in February, 1916, with the appearance of a papule on the penis three weeks after exposure. No secondary symptoms followed. The papule broke down, and granulomatous ulceration of the penis resulted. Two months later a similar papule appeared on the anterior surface of the right thigh, ulceration followed, and a rather moist granulomatous lesion, extending across the thigh, resulted. After vigorous antisyphilitic therapy, the inguinal lesion was almost healed when the patient left against advice. Soon, however, the ulcer reappeared, identical with the previous manifestation.

He was admitted, Jan. 13, 1920, at which time the wound was curetted and, after intensive antisyphilitic treatment, was nearly healed a month and a half later. The ulcerated area about the penis was also improved. This improvement was temporary, however, for at the time of readmission, in June, lesions were present on the thigh and penis, appearing much the same as five months previously. A rather vigorous course of roentgenotherapy was carried out for two weeks, but no improvement resulted. The patient was then given 44 c.c. of 1 per cent. tartar emetic solution intravenously over a period of three weeks. Induration disappeared, a fine pinkish epithelial layer grew out, and

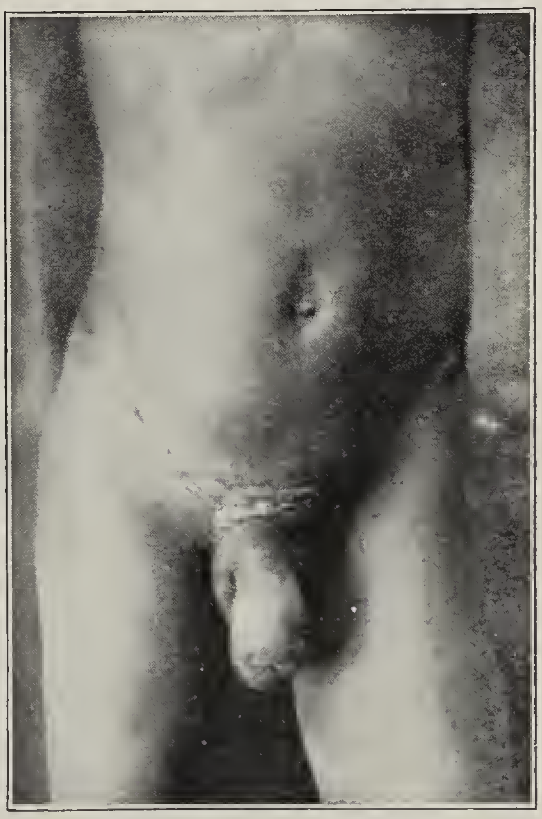

Fig. 3 (Case 4).—Marked involvement of groin, with extensive edema of penis.

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[12] To prepare the solution, 5 gm. of antimony and potassium tartrate is dissolved in 500 c.c. of distilled water. The solution is then passed through a Berkefeld filter until, on culture, it is sterile. Five tenths c.c. of hydrochloric acid is added to prevent precipitation.

the wounds were healing rapidly when the patient again left against advice and has not reported again.

At no time was the Wassermann test positive to either alcoholic or cholesterinized antigens.

Case 3.—A negro man, aged 28, a resident of Macon, Ga., where he has lived since birth, was first admitted to Bellevue Hospital, Jan. 3, 1920. For the last four months he had been bothered by a score on the glans penis near the frenum. The lesion began as a papule, ulcerating two months later. Because of considerable paraphimosis, a dorsal slit was made. About the same time an area of ulceration following a similar papule appeared in the left groin. The Wassermann reaction was + at this time. An intensive course of arsphenamin and mercury brought about no improvement in the local condition. February 3 (one month after admission), the inguinal granulations were curetted and cauterized without improvement. He then left against advice.

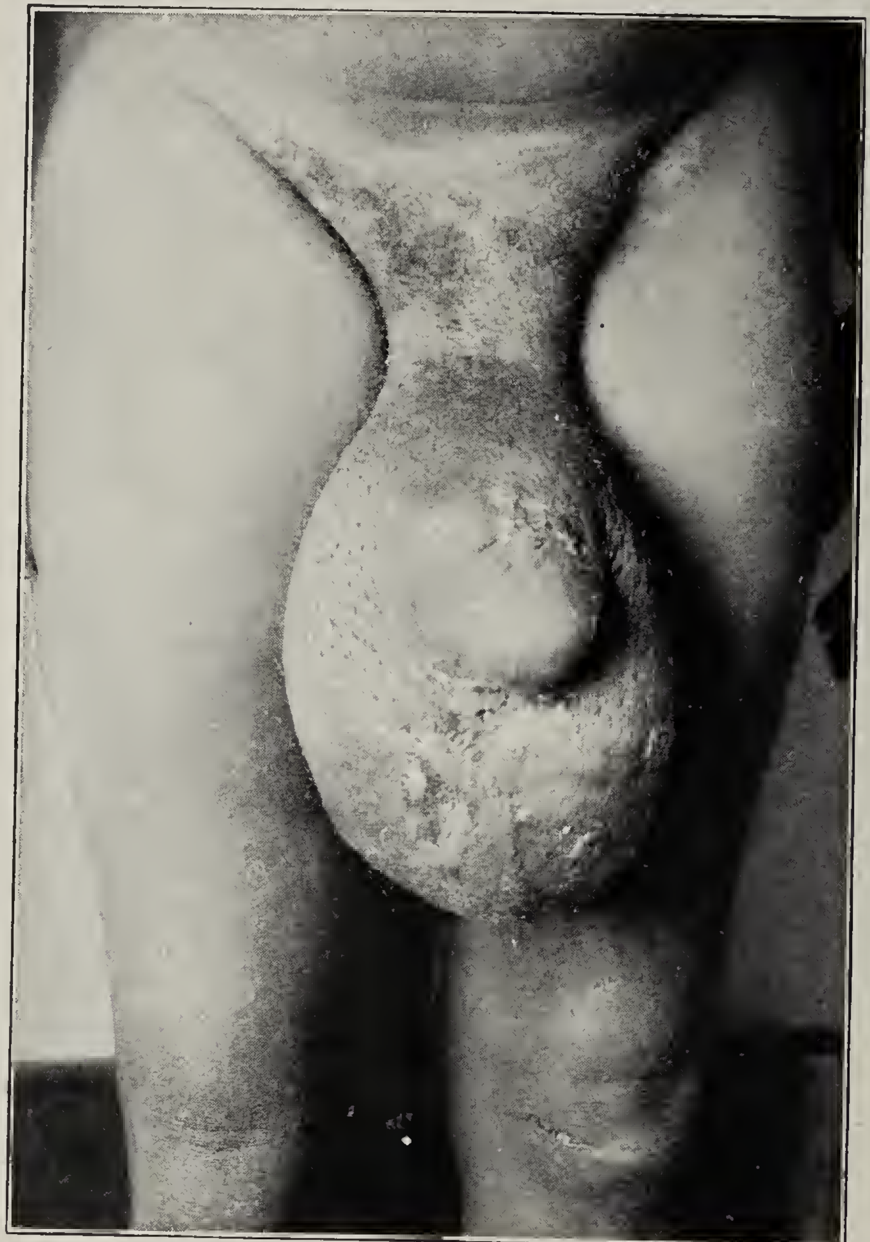

Fig. 4 (Case 5).—Elephantiasis type of granuloma inguinale, showing obliteration of penis. This is one of the rarest of all known varieties.

Five months later, August 15, he returned with an ulcerating granulomatous lesion on the frenum, in the wound of the dorsal slit, and in the left groin, the clinical picture being that of granuloma inguinale. The groin lesion, which was 3 inches in length and nearly an inch in width, followed the course of Poupart's ligament to the pubis. Adenopathy was absent. A small, rather dry incrustation covered the lesion. We were unable to demonstrate the organisms in smears, this being the only case in which we were unsuccessful. The serpiginous margins were markedly indurated. Examination of tissue removed from the edge of one of the lesions disclosed a granulomatous growth with rather marked infiltration of eosinophils.

The patient has now had a total of 95 c.c. of 1 per cent. tartar emetic solution intravenously over a period of seven weeks. At the present time all wounds are entirely healed save for the presence of a small scaly incrustation at the site of the biopsy. To date this is the only case that we can report as cured.

Case 4.—A negro man, aged 27, who was a native of Savannah, Ga., and had never been outside the United States, was admitted to Bellevue Hospital, Sept. 5, 1920, complaining of an ulcerating wound on the lower abdominal wall. Chancre was denied. Eight years before he was circumcised, suffered postoperative priapism, and in the course of an erection the sutures pulled out. The glans penis was then amputated. Seven months before admission he had a spontaneous bubo which was incised and promptly healed.

The onset of the present condition was gradual and occurred three months previous to admission with a small papule on the side of the shaft of the penis. This papule ulcerated and gradually formed an indolent sore the size of a quarter. Three weeks later he noticed a similar papule just above the pubis on the right side. The papule ulcerated and spread slowly until the lesion reached from the right anterosuperior spine to a point 2 inches to the left of the median line and downward between the scrotum and thigh on the right side, extending nearly to the anus. On admission, this area was covered by a rather thick cream colored exudate and was swarming with maggots. The edges were moderately indurated and serpiginous; the surface was made up of shining, bright red vegetating granulations which bled easily and were sensitive to pressure. The Wassermann reaction was negative to both antigens. The intracellular organisms described by Donovan were found.

The patient was then given a total of 42 c.c. of 1 per cent. tartar emetic solution over a period of two weeks. In this time the wound became quite dry and less indurated, and there was new epithelial growth and active wound repair. He then left against advice and has not returned for further treatment.

Tissue specimens showed only a granulomatous growth with a necrotic epithelial layer and rather marked infiltration of polymorphonuclear leukocytes.

Case 5.—A negro man, aged 32, admitted, Sept. 23, 1920, presented a large scrotum with numerous granulomatous lesions about the penis and over the anterior scrotal surface. The patient was a native of Savannah, Ga., and was living there at the time of the onset. He had, however, traveled on coastwise steamers through the tropics, but had not been in the tropics for some time previous to the onset of the disease. Chancre was denied. One year previously he had gonorrhea and a small bubo. The bubo was incised and healed rapidly.

One month previous to admission he noticed a small papule on the dorsal prepuce. One week later this was found to have ulcerated, and the lesion was spreading down over the anterior surface of the scrotum. Ten days after onset the scrotum began to swell, gradually attaining a length of 8 inches and a breadth of 6 inches. The penis became markedly edematous, and as an organ was nearly obliterated. The lesions were rather shiny, brilliant red, granulomatous nodules with serpiginous borders. In the deeper portions, ulceration was present and was accompanied by purulent exudate. Itching and burning were complained of at times, but no pain was present unless the sores were pressed on. It is interesting to note that this is the type of granuloma described by Daniels[13] as constituting the so-called elephantiasis-like variety, and is exceedingly rare. The characteristic organisms were demonstrated in the lesions. The Wassermann reaction was negative. Examinations for filariae were also negative.

The patient was given 67 c.c. of 1 per cent. tartar emetic intravenously over a period of nearly three weeks. Marked improvement in the condition of the sores was evidenced by diminution in size of the scrotum, drying up of the lesions, disappearance of induration, and formation of new epithelial layers at the wound margins. Discomfort also disappeared.

During the fourth week the scrotum abruptly became markedly edematous and painful. The patient's temperature rose to 106, and the spleen was palpable two finger breadths below the costal margin. The patient presented the picture of general sepsis, the etiology of which for some time was unknown. Blood culture was sterile. Six days after this reaction a moderate sized abscess appeared at the lower pole of the scrotum. This was excised under local anesthesia, at which time the edematous tissues within the scrotum were found to be necrotic. A large transverse incision was made and a small amount of free pus evacuated.

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[13] Daniels, in Allbutt and Rolleston's System of Medicine **2**: 708, 1912.

It was then decided advisable to make wider incisions and, under ether, the lower half of the scrotum was removed. Lateral incisions, carried up to the base of the penis, opened many pus pockets and permitted the tissues to be laid open. On making lateral slits through an exceedingly hard and indurated prepuce, we found the glans penis 1½ inches from the preputial orifice.

The patient died eight hours later, death being due in all probability to sepsis coupled with operative shock. At the time of death the cutaneous lesions were nearly healed, only a small ulcerating area being present on the dorsal prepuce.

It is, of course, necessary to consider the possibility of the condition's being syphilitic. In Cases 2 and 3 the history or serology are at least suggestive, but antisyphilitic therapy failed to produce any permanent results, whereas in Case 3 the patient was cured by the antimony treatment.

CONCLUSIONS

1. Granuloma inguinale is a clinical entity.
2. It is endemic in the United States, particularly among negroes, and is probably not uncommon.
3. The intracellular inclusions described by Donovan seem to bear a direct etiologic relationship to the disease. They are found with striking constancy. It likewise seems probable that they represent secondary invaders, promoting and perpetuating the process of ulceration.
4. The diagnosis of granuloma inguinale must be considered in all chronic ulcerative lesions of the genital and perigenital tissues, especially in negroes from the subtropical Southern states.
5. The intravenous administration of tartar emetic constitutes a specific treatment.

Bellevue Hospital.

DISSOCIATION OF MICROBIC SPECIES

A PRELIMINARY COMMUNICATION *

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The observations reported herewith have been made in the course of virulence studies with the bipolar bacillus of rabbit septicemia (*B. lepisepticum*). The majority of the strains used in these experiments were isolated from pneumonias occurring spontaneously in the normal animal stock of this laboratory. This organism, freshly isolated from the rabbit, grows well on mediums enriched with rabbit blood or serum, but poorly on ordinary mediums. In experiments dealing with the quantitative estimation of virulence, dilutions from six to ten hour rabbit serum broth cultures were carried out, in plain broth, to 10^{-9} c.c. of the original culture. Subcultures of dilutions of 10^{-2} to 10^{-9} were made in parallel series of 5 per cent. serum broth, and of plain broth.

On incubation, all of the cultures in serum broth grew. On the other hand, growth occurred in the plain broth subtubes from 10^{-3} or 10^{-4}, but not from higher dilutions. The character of the growth in the plain broth series is strikingly different to that in the serum broth series. The serum broth subtubes, especially those of the higher dilutions, grow diffusely, with little or no precipitate. The organisms in the plain broth tubes grow in clumps, and rapidly sink to the bottom of the tube.

When care is taken to plate out the two types in serum agar, subcultures from the granular type persist in their granular character, even when returned to serum broth. Those from the diffuse type grow diffusely, both in serum and in plain broth. The Microbe G (granular growth) is morphologically indistinguishable from Microbe D (diffuse growth). The colonies on serum agar of Microbe G are markedly different in appearance to those of Microbe D. This fact makes possible the demonstration that the G and D types preexist in the original culture. In a word, the granular growth character is not the result of a mutation of the organisms of the primitive culture, resulting from transfer to plain broth.

DIFFERENCE IN TYPES

The most striking biologic difference between the two types lies in their virulence for rabbits. Microbe G has failed to kill young rabbits in dose of 10^{-2} c.c. Microbe D from the same parent culture, subjected to an identical number of transplants, on the same medium, killed in dose of 10^{-6} c.c. Rabbits surviving large injections of the low virulent G are resistant to multiple fatal doses of the virulent D.

Both types G and D are agglutinated in relatively high titer by serum from animals immunized with the parent culture (G + D). Serum from rabbits immunized with the pure D culture agglutinates both G and D microbes. On the other hand, serum resulting from G type immunization is much more active against G than against D. These interesting relationships will be discussed fully in the more detailed report to follow.

CONCLUSION

It would seem certain, from the foregoing data, that cultures of the rabbit septicemia bacillus contain individuals of distinctly different character. These individuals can be dissociated by various methods, and once separated, have so far remained true to type. The facts reported have a direct bearing on the question of microbic heredity and of attenuation. The question at once arises as to whether the G and D varieties coexist in the primitive material responsible for the natural infections, or whether the G form appears as a mutant shortly after removal from its natural habitat in the host.

Government of Hospital.—The final governing authority of the hospital should be a board of trustees. No member of the board should be a member of the active or consultant medical staff of the hospital. Hospitals which are under a religious, or public, city, or federal organization and which therefore cannot have trustees, should appoint an advisory committee similarly constituted. In addition to the men members of the board of trustees who represent chiefly financial, administrative and broad public interests and experience, it is of much importance that there be included on the board of trustees a representative of some institution of higher education, viz.: university, normal college, and women members whose experience and interest can be relied upon to contribute constructive ideas and opinions.—M. M. Davis, *Mod. Hosp.* **16**:23, 1921.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

Clinical Notes, Suggestions, and New Instruments

AN AUTOGRAPH HISTORY OF A CASE OF ADDISON'S DISEASE

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Up to the age of 19, the writer enjoyed excellent health. At that time he left his home on a Canadian farm and went to school in a nearby city, where a hearty farm appetite, a cheap boarding house and insufficient physical exercise combined to cause an indigestion that has continued, to some extent, up to the present time. This indigestion was in the form of gastric and intestinal fermentation of fats and carbohydrates. It produced a feeling of weariness, drowsiness and depression that often interfered with his studies. This condition continued, in varying degree, for a good many years and at times caused depression, both physical and mental, almost as marked as Addison's disease does at the present time.

While working as assistant in the pharmacologic laboratory of the University of Michigan in 1892, the writer and others observed pus cells in his urine. An investigation to determine the source of this pus was made by several members of the medical faculty without definite result. One young pathologist asserted that he had found tubercle bacilli in the urine, and on the strength of this evidence a diagnosis of tuberculosis of the bladder and probably of one kidney was made, and treatment was instituted. Cystitis developed, probably from local examination and medication. This cystitis improved after going to northwestern Nebraska in 1894, but some irritability has remained up to the present. Since 1892, although the patient has been examined and treated by several eminent physicians, no further evidence of tuberculosis has been discovered. The presence of pus in the urine, however, continued for twenty-six years.

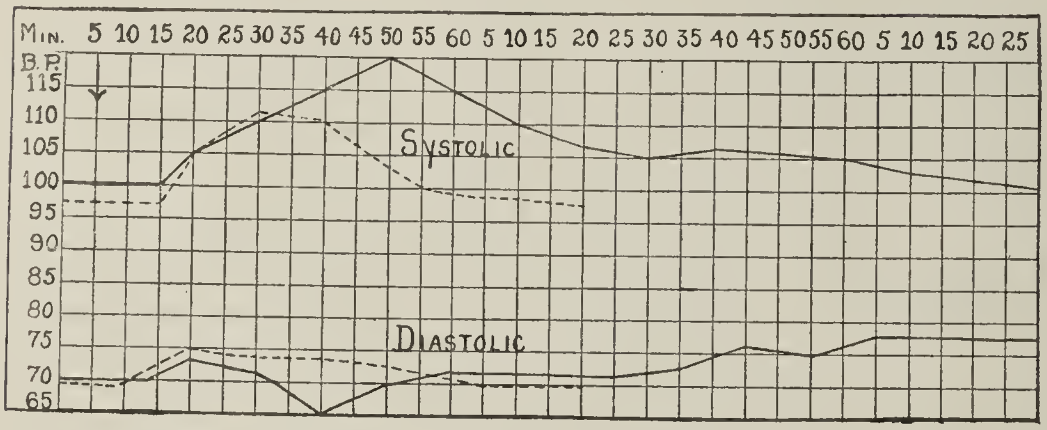

Fig. 1.—Comparison of the effects on the blood pressure of $\frac{1}{200}$ grain of epinephrin when administered hypodermically in physiologic salt solution (broken line) and when given in acacia mucilage (solid line). Arrow indicates time at which epinephrin was administered.

During this time his general health was fairly good, except for an occasional attack of malaise, weakness and anorexia, which lasted for two or three days. Fever was only occasionally observed. In 1896, 1903 and 1910, there were prolonged attacks of much greater severity, with initial chill and high temperature, sweating, marked weakness and some uneasiness in the region of the right kidney, but at no time was there sharp pain.

In 1917 and 1918, he lost in weight and failed gradually in health and strength. A roentgen-ray examination revealed a shadow of considerable size in the region of the right kidney and a diagnosis of renal calculus was made. In May, 1918, he consulted Dr. W. F. Braasch of the Mayo Clinic, Rochester, Minn., in regard to a test of the kidney function. The test revealed a practically functionless kidney on the right side while the left appeared normal. The blood pressure taken at this time read 110 mm., systolic; 80 mm., diastolic.

Removal of the affected kidney was advised, and a right nephrectomy was performed by Dr. E. S. Judd. The removed kidney was found to be almost entirely destroyed by suppuration, but no evidence of tuberculosis was observed. A calculus of undetermined composition, about 1 by 3 cm. in size, was found in the pelvis of the removed kidney.

The patient made a rapid initial recovery, but complete restoration of health was delayed. About six weeks after operation, he had quite a severe attack of acute arthritis of the metatarsophalangeal joint of the great toe of the right foot. During the subsequent eighteen months, he had six attacks of this character, of varying severity. All of these except the last affected only the right great toe. The attacks were diagnosed as gout and presented all the symptoms of that disease. Each attack was preceded or accompanied by rather severe gastro-intestinal disturbance. During this time, he regained a fair degree of health and strength but did not regain normal weight.

During the last week in March, 1920, he had a very severe attack of gout, affecting both great toes. He took several quite large doses of cinchophen (phenylcinchoninic acid) following which a very severe general urticaria developed which caused so much distress that he scarcely slept or took food for a week. He finally developed marked prostration with constant nausea, frequent vomiting of strongly acid fluid, frequent intestinal cramps and drowsiness, with very vivid dreams. The urine at the time contained a large amount of acetone and the blood pressure was 90 mm. systolic, 70 mm. diastolic.

Under the care of his physician, Dr. A. Sachs of Omaha, he slowly improved, and in three weeks he was able to be up, but he continued to be very weak. Bronzing of the skin of the hands and face was first noticed at this time and a diagnosis of Addison's disease was made. It may have been present to a slight degree previously, but the writer had neither observed it, nor had it been called to his attention before this time. In addition, the constant weakness and the extreme irritability of the alimentary tract, first observed after this illness, led the writer to believe that the onset of Addison's disease was comparatively sudden.

During the month of May, he took epinephrin solution by mouth, and doses up to 2 c.c. of the 1:1,000 solution produced no apparent effect. About the first of June, Dr. E. M. Houghton, director of the research laboratories of Parke, Davis and Company, sent him a preparation of dried whole suprarenal gland and a similar preparation of whole pituitary gland. He took a 5 grain capsule of each, twice a day, during the month of June, but could observe no beneficial results.

The first of July, he went to Rochester, Minn., where he entered the Mayo Clinic for treatment. The bronzing at this time was more marked than in April. There were areas of bronzing around the waist, along the spine and there was a dark band on the forehead where the hat band pressed. There was a dark line on the mucous membrane of the lower lip and a small spot on the mucous membrane of the hard palate. The hands and face were appreciably darker than in April. The blood pressure was 82 mm., systolic, and 64 mm., diastolic, on the first reading at the clinic. The alimentary canal was extremely irritable and intolerant of many articles of food. Constipation was marked, and a sensation of tension in the bowel was felt. Bowel movements consisted of hard small fecal masses passed with difficulty, and laxatives, with the exception of magnesia, caused severe purgations, distress and prostration. There was very little pain or abdominal tenderness. Blood examination revealed: hemoglobin, 68 per cent., 4,380,000 red cells and 7,600 white cells. Roentgen-ray examination of the chest was negative. Blood uric acid was 6.9 mg. per hundred c.c. and blood urea 44 mg. per hundred c.c. His basal metabolic rate was about —30.

He was referred to the service of Dr. L. G. Rowntree, and after a diagnosis of Addison's disease had been confirmed, he entered the Stanley Hospital for treatment. He was ordered placed on a purin free diet, and in about two weeks the blood uric acid fell to 2.2 mg. per hundred c.c. His digestive system did not tolerate milk or cream; but eggs, butter, sugar and other foods of high caloric value were fairly well digested and he gained in weight on an average of 1 pound a week during the six weeks of his stay in the hospital. Epinephrin was administered hypodermically and the first injection of the contents of an ampule of a 1 : 10,000 solution produced quite marked sensations of exhiliration and increased strength. Later injections of an equal amount produced less marked sensations. Injections of one half to 1 ampule, containing 1 c.c. of a 1 : 10,000 solution, were given twice daily during his stay in the hospital. During this time an attempt was made to use a solution of epinephrin in dilute mucilage of acacia for the purpose of delaying absorption and prolonging the epinephrin action. A comparison of the blood pressure results after the administration of 1/200 grain of epinephrin in sterile salt solution and the same amount in acacia solution, hypodermically, is shown in Chart 1. Epinephrin solution by rectum was tried also, and the sphygmomanometer revealed positive pressure results. Chart 2 shows the amount and duration of increased pressure produced by rectal injection of 2 c.c. of a 1 : 1,000 solution of epinephrin diluted with physiologic sodium chlorid solution. This method of medication was used twice daily for several months. He also used rectal injections of dried whole suprarenal gland, 10 grains dissolved in physiologic sodium chlorid solution, but the pressure results were less marked and not definitely measurable. Tyramin, an active constituent of ergot, closely related chemically to epinephrin, was tried and the blood pressure results from the hypodermic injection of 40 mg. are shown in Chart 3. Although the pressure rose sharply from tyramin, it did not continue for as long a time as from epinephrin, and there was a total absence of sensory manifestations such as invariably follow all but very small doses of epinephrin, so it is probable that the sensory effects of epinephrin are due to some cause other than a rise in pressure.

Improvement was observed almost from the beginning of hypodermic epinephrin medication. The earliest results were relief of the feeling of tension in the abdomen and an increased food tolerance. Soon an increase in strength and endurance was observed. On the patient's arrival in Rochester, the first of July, he could not walk two blocks without extreme weariness and shortness of breath, but two weeks after beginning hypodermic epinephrin medication he could walk a mile without much fatigue. A little latter it was observed by himself and others that the bronzing was perceptibly less, and by the latter part of August, when he returned to his home in Omaha, the "hat band" mark on the forehead had disappeared. The treatment begun in Rochester was continued at home for a month, but rectal medication with epinephrin solution was finally abandoned owing to frequent occurrence of rather severe rectal tenesmus occurring about an hour after the injection. The tenesmus could be prevented by great dilution of the drug, but the larger amount of fluid was found difficult to retain. Ampules of the 1 :1,000 solution have been used since returning home, and the epinephrin tolerance has been found to be only 0.2 c.c. Larger doses cause uneasiness, trembling of the extremities, a sense of impending chill and a feeling of tension in the region of the removed kidney. Rectal injection of 10 grains of dried whole suprarenal gland, once a day, has been continued to the preset time. the first of December.

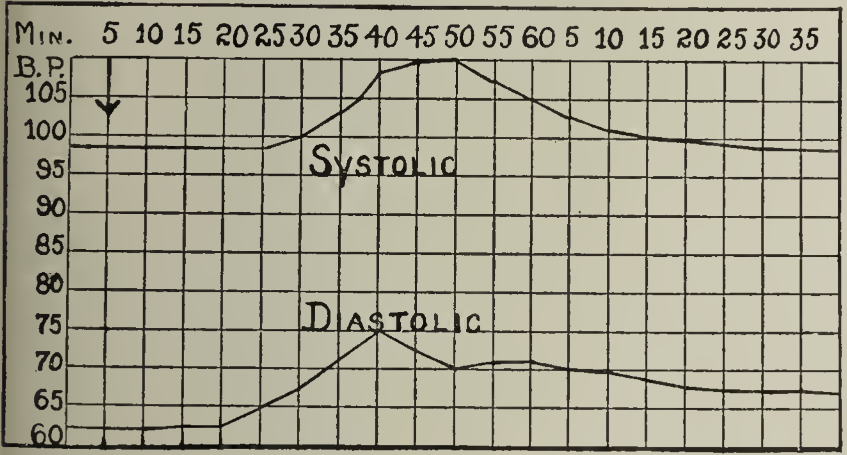

Fig. 2.—Effects on blood pressure of 2 c.c. of epinephrin solution administered by rectum. Arrow indicates time at which epinephrin was administered.

The writer's condition at the present time is as follows:

1. He still adheres to a purin free diet and has had no recurrence of gout or gouty symptoms.

2. The pigmentation has almost entirely disappeared. The casual observer would not see any departure from the natural complexion, though careful search would still reveal a few small areas of pigmentation.

3. The irritability of the alimentary tract has largely disappeared and a varied diet is now well tolerated. Constipation has almost entirely ceased, and he has slowly but steadily gained in weight. His basal metabolic rate, taken quite recently, was about normal.

4. His strength and endurance have increased, and he has followed his ordinary occupation of teacher in a medical college without difficulty. He climbs the stairs of the college building quite slowly, but aside from that suffers no disability. Light manual labor around his home is performed without discomfort.

5. The blood pressure level remains about as it was at the onset. The last reading was 92, systolic, and 64, diastolic. The marked improvement observed in spite of low pressure level would indicate a gradual adaptation of the organism to the low pressure level. The artificial supply of epinephrin no doubt aids body function, as a brief withdrawal recently was followed by some recurrence of gastro-intestinal symptoms.

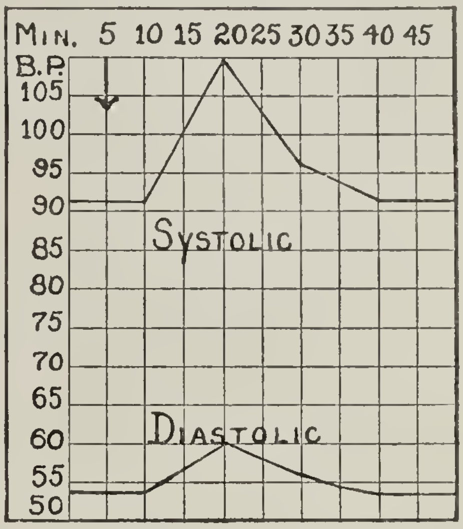

Fig. 3.—Effects on the blood pressure of 40 mg. of tyramin administered hypodermically. Arrow indicates time at which tyramin was administered.

Although the writer is the patient, he believes that observations made by a physician who is also a teacher of pharmacology will be of greater value to those who have patients with Addison's disease under their care than would usual observations.

7717 North Thirty-Ninth Street.

THE EFFECT OF LOCALIZED PNEUMOTHORAX

PRELIMINARY REPORT

Nathan Barlow, M.D., and James C. Thompson, M.D.,
New Haven, Conn.
Surgeons (Reserve), United States Public Health Service

The assignment of duty at U. S. P. H. S. Hospital No. 41 has been such that one of us has made and recorded nearly all of the initial examinations of the chest, and the other has made independent reading of stereoscopic roentgenograms. Discrepancies in the reports were studied in collaboration. The constant occurrence of certain discrepancies which were associated with certain variations in the arrangement of the roentgen-ray markings led to a study of the peculiar condition present, which was found to be identical on a small scale with that which occurs in moderate-sized partial pneumothorax, either spontaneous or produced by attempted artificial pneumothorax. These studies made it evident that small, localized pneumothoraces are very frequent in tuberculosis, that they occur rarely if ever in other pulmonary diseases, and that they have escaped recognition for the reason that they usually disappear before or during the terminal illness, and even if persistent would be destroyed in the separation of the lung from the thoracic wall. Furthermore, they can be seen only in stereoroentgenograms which are taken by means of a technic adapted to this peculiar study, and even then considerable training and experience in the study of pneumothoraces are necessary to detect many of them.

Because of their very frequency and the fact that they occur only in tuberculosis, the physical signs which they produce are seldom recognized, these signs being attributed to variations in the tuberculous process itself. The diagnosis is possible by roentgenograms, by physical examination, and in some cases by clinical symptoms and course if the technic is sufficiently refined and is adapted to their detection.

The effect of a small, localized pneumothorax is the same on a small scale and in a limited area as that of a complete pneumothorax, such as we deliberately produce for therapeutic purposes. Râles are reduced in number and altered in character, and in certain limited lesions are entirely suppressed. The other physical signs of tuberculosis are so altered as to be less suggestive of an active lesion. The absorption of toxins is lessened, and in some cases the general condition of the patient is markedly improved. The collapse of the lung beneath the pneumothorax favors the development of fibrosis in that region, so that the immediate effects are in many cases favorable.

The improvement in general condition and the absence of apparently certain physical signs of the disease are likely to deceive both physician and patient unless it is recognized that a localized pnemothorax is present, and that the signs and symptoms are merely suppressed. In some cases of tuberculosis, therefore, in which localized pneumothorax exists, the diagnosis is necessary to a proper treatment of the case, and there are certain cases with limited lesion in which the presence of a small pneumothorax which completely suppresses the râles and alters the other sign may even obscure the diagnosis unless the pneumothorax is recognized as such.

Special Article

THE CASE OF MIRIAM RUBIN

The case of Miriam Rubin of Waukegan, Ill., has been so widely advertised in the newspapers, has been the subject of such sensational misrepresentation and has been commercialized by certain drugless healing cults to such an extent that The Journal determined to get the actual facts, and on March 1 sent a representative to Waukegan. His report follows:

On arriving at Waukegan I called on Dr. R. H. T. Nesbitt, the attending physician, from whom I obtained the following facts: Miriam Rubin, up to the time of this illness, had been attending school regularly in the second grade. She was a normal child, aged 8, of average size, slightly above the average in intelligence. In 1919 she suffered with influenza from which she recovered and in the spring of 1920 had a moderate case of measles from which she recovered fully. On Feb. 3 and 4, 1921, she complained of slight pain in the arms, hands and legs which did not, however, interfere with her normal movements or usual conduct. February 5, she began talking rapidly and practically continuously. The mother tried to quiet her but failed. The child chattered all day and all night according to the mother's report.

February 6, Dr. Nesbitt, who has been family physician and neighbor for many years, was called. He found the child talking rapidly, pronouncing her words distinctly, apparently quite rational and answering all questions intelligently and correctly. She did not talk about any particular subject but chattered about everything that would ordinarily interest a child. Her body was continuously moving from side to side, the arms and legs twitching spasmodically and irregularly over a wide range. The child did not complain of any pain or of any disagreeable sensation. Moving the head about in any manner did not distress her. There was no sensitiveness of the neck or of the skin over the spine or of any of the vertebrae. Moving of the arms and legs did not disturb her. She seemed docile and good natured, taking her medicine and submitting to the administration of an enema without any complaint. Her temperature was 100.6 rectally, pulse 90, respirations 30. An enema was given and a hot bath.

February 7, the condition was the same. Consultation was held with a local physician. On his advice a Chicago physician, Dr. Preble, was called.

[Dr. Preble reports that at that time the child had a temperature of 100.5 with an active delirium. The physical examination was negative, he states, and no further diagnosis than that of some unknown, unrecognizable infection could be made.—Ed.]

Dr. Nesbitt had placed the child on 10 grains of sodium bromid every four hours. On advice of the consultant 5 grains of chloral was added to each dose. The symptoms continued with practically no abatement and a graduate nurse was secured. The progress of the case, report of which follows, is taken from the nurse's record.

February 8: The patient "slept for short periods." At 12:30 a. m. the temperature was 102.2, the pulse 140, the respirations 40. Beginning with this date the patient received but one dose of the bromid chloral mixture daily. She was also given laxatives as needed to control the bowels.

February 9: The temperature was 101.4, pulse 112, respirations 40. "Patient very restless and irrational," sleeping, however, for "short periods."

February 10: Condition continued the same, patient talking irrationally all afternoon but responding intelligently when spoken to.

February 11: Patient "insists on walking to bathroom"; has "not rested all night." During the afternoon she was restless.

The record indicates that Dr. Nesbitt visited the patient twice daily, and he stated to me that she rested or slept only for very short intervals.

February 12: Temperature varied from 100.6 to 102, pulse varied from 76 to 112, but was regular. On the morning of February 12 she was visited by Dr. Abt of Chicago.

[Dr. Abt reports that in addition to the increased temperature and delirium she showed inequality of pupils with strabismus. The spinal fluid taken by him at this time proved negative on examination. His diagnosis was epidemic encephalitis.—Ed.]

February 12: At 5 p. m. Mr. Berger, a chiropractor, gave the patient a "treatment." It will be noted from the nurse's records abstracted above that the patient had not been talking continuously but had rested at short intervals. The temperature before the child was seen by the chiropractor was 101.4.

Later I saw Mr. Rubin, father of the child in his department store. Mr. Rubin stated that Dr. Abt gave a doubtful prognosis. On being asked how he came to select a chiropractor Mr. Rubin said that the Waukegan papers, several days previously, had reported the child's condition and this had been generally reported throughout the press. Mr. Rubin began to receive letters from friends and from strangers recommending various methods of treatment and various physicians and practitioners. He received a telegram from Detroit suggesting the employment of an osteopath or a chiropractor. This was followed by a letter from a person in Detroit who stated that his child had had a similar illness and had been cured by osteopathy. Several friends in Waukegan recommended a chiropractor named Berger. Mr. Berger saw Mr. Rubin and, according to the latter, said to him after seeing the child: "I know what is the matter with your child and I can cure her."

February 13: The temperature was 101, pulse 100. The nurse's record states that "the patient seems drowsy but has not slept all night." At 8 a. m. the chiropractor gave another "treatment." At 10 a. m. the patient "slept quietly for one hour," but "was more restless the following three quarters of an hour." At 5:20 p. m. the chiropractor gave another "treatment." At 8:30 p. m. the temperature was 101.6. The patient "slept one hour, but was restless all night."

February 14: At 4 a. m. the temperature was 101.2, pulse 100. The records state "more restless and talking."

February 14 to 18: The patient's condition continued practically the same. The chiropractor visited twice daily and gave treatments. Dr. Nesbitt also visited twice daily and administered medication consisting of laxatives as needed, an iodin and a magnesium oxid preparation. The patient slept at intervals for two and one-half to three hours but was continually active, at times delirious. During this period temperature average 100 to 101.8, pulse 100 to 120, the respirations 28 to 32.

February 19: "Patient complains of pain in the back."

February 20: Temperature 100, pulse 100, respiration 32. "Patient complains of pain in the back and pain in the popliteal region."

February 21: Temperature at 6 a. m., 99.6, pulse 100, respirations 32. The nurse records "has some difficulty in breathing."

[On this day she was seen by Drs. Abt and Preble in consultation. They report: "During the two weeks she has shown a continuous temperature with a maximum of 103 degrees, but now ranging between 99 and 100. Delirium still present but much less active. Emaciated and general condition bad. Right pupil larger than the left. Right eye turns in and upward. Neck slightly rigid but shows no deformity. Slight Kernig left side. Reflexes generally active. Slight fine tremor of both hands. Physical condition of chest and abdomen negative but respiratory rhythm abnormal, consisting of several rapid breaths, then a very deep inspiration which is held for several seconds and then repeated. Heart varies greatly in rate but is regular. The diagnosis is that of encephalitis unmodified by treatment and the prognosis is still uncertain."—Ed.]

February 22: Condition continued about the same.

February 23: "Patient slept all night."

The child received one chiropractic "treatment" on February 22 and one on February 23. At this time the chiropractor's treatments were discontinued. According to Dr. Nesbitt, they had had no appreciable effect on the disease and the patient complained greatly of pain in the back. Mr. Berger, the chiropractor, visited the patient on Sunday, February 27, but did not administer a "treatment."

From what I learned and observed, the condition of the patient has changed little from February 23 to this time—March 1. The temperature has varied from 99.6 to 100, the pulse from 100 to 102, fairly regular, the respirations from 28 to 30. I saw the patient March 1. She lies in bed listlessly, eyelids droop, the right eye slightly turned upward. The breathing is stertorous and somewhat labored. She is greatly emaciated. She complains of pain in the back and in the abdomen and of pain on motion of the limbs. Her lips are much swollen and there are herpes. She cannot sit up without assistance. Raising of the arms is accompanied by moaning, as is any motion of the limbs. She answers questions intelligently but listlessly. She does not smile or show interest in what is going on. She objects to any attempts at touching her back.

Dr. Nesbitt says that improvement has been gradual and that it is his belief that the condition was not in any way changed by the chiropractic "treatment" except that the child became so sore and tender over the spine that she dreaded the "treatment" and now dreads having any one touch her.

It should be noted that according to the case record and the statement of Dr. Nesbitt at no time were opiates administered.

In conclusion, the case appears to be one of epidemic encephalitis which is following a course such as has been reported by many observers. As is now generally well known, some of the cases are of the lethargic type (lethargic encephalitis)—newspaper "sleeping sickness"—while others show extreme excitation and muscular twitching—newspaper "talking sickness." The case of Miriam Rubin is obviously of the latter type.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

ACRIFLAVINE (See New and Nonofficial Remedies, 1921, page 22).

Acriflavine-Heyl.—A brand of acriflavine complying with the N. N. R. standards. In addition, acriflavine-Heyl is controlled biologically so that the maximum non-lethal dose for mice weighing 20 Gm. shall not exceed 0.0015 Gm.

Manufactured by the Heyl Laboratories, New York, under U. S. patent No. 1,005,176 (Oct. 10, 1911; expires 1928), by license of The Chemical Foundation, Inc.

To determine the maximum non-lethal dose the drug is dissolved in water in such concentration that 1 Cc. contains the quantity to be administered. A series of mice weighing 20 Gm. each are injected subcutaneously with small doses of the drug, each succeeding animal receiving an increase of $\frac{1}{10}$ mg. of drug over the preceding one. The dosage under which all of the animals survive and over which all die is the maximum non-lethal dose.

PROFLAVINE (See New and Nonofficial Remedies, 1921, page 23).

Proflavine-Heyl.—A brand of proflavine complying with the N. N. R. standards. In addition, proflavine-Heyl is controlled biologically so that the maximum non-lethal dose for mice weighing 20 Gm. must not exceed 0.006 Gm.

Manufactured by the Heyl Laboratories, New York, under U. S. patent No. 1,005,176 (Oct. 10,1911; expires 1928), by license of The Chemical Foundation, Inc.

To determine the maximum non-lethal dose the drug is dissolved in water in such concentration that 1 Cc. contains the quantity to be administered. A series of mice weighing 20 Gm. each are injected subcutaneously with small doses of the drug, each succeeding animal receiving an increase of $\frac{1}{10}$ mg. of drug over the preceding one. The dosage under which all of the animals survive and over which all die is the maximum non-lethal dose.

CALCIUM CACODYLATE (See New and Nonofficial Remedies, 1921, page 50).

Calcium Cacodylate-Ipco.—A brand of calcium cacodylate complying with the N. N. R. standards.

Manufactured by The Intra Products Co., Denver, Colo. No. U. S. patent or trademark.

DuBois' Iodoleine (See New and Nonofficial Remedies, 1921, page 153).

The following dosage form has been accepted:

DuBois' Iodoleine, Injectable, Ampoules, 2 Cc.—Each ampoule contains 2 Cc. of sterile DuBois' iodoleine equivalent to 0.6 Gm. of iodine.

TINCTURE OF DIGITALIS FAT-FREE-SQUIBB.—A biologically standardized fat-free tincture of digitalis corresponding in drug strength to the U. S. P. tincture of digitalis. Each Cc. represents digitalis sufficient to kill 1 Kg. of cat. The preparation contains about 70 per cent. of alcohol.

Actions and Uses.—The same as those of digitalis. Fat-free tincture of digitalis-Squibb was introduced at a time when the "fat" of digitalis was believed to cause gastric disturbances. At present this claim of superiority is not tenable and the preparation is sold simply as a standardized tincture of digitalis.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Digitalis is extracted with petroleum ether, the drug dried, and a tincture prepared from this according to the U. S. P. method. The preparation is biologically standardized so that each Cc. contains a minimum lethal dose for 1 Kg. of cat when injected intravenously (Am. Jour. Pharm. **9**: 360, 1910).

It is a brownish-green liquid having a characteristic alcoholic odor and a bitter taste.

Good Effect of Pneumothorax in Tuberculosis.—Perhaps a more plausible explanation of the clinical improvement, so often manifested in cases of severe bilateral tuberculosis after more or less complete artificial collapse of one lung, is to be found in a possibly excessive hyperemia of the other.—H. Sewall, *Am. Rev. Tuberc.* **4**:826, 1921.

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SATURDAY, MARCH 5, 1921

HOW MUCH FAT SHALL WE EAT?

During the war it was pointed out that sugar and fats are foods which we, as a nation, use much more freely than do most peoples. Before the shortage of foods entailed by the world-wide conflict an American consumed, on the average, 3½ ounces of fat a day; an Englishman, 3⅛; a German, 2⅓, and a Frenchman, 1½.[1] During the progress of the war the shortage of fats, which were diverted in enormous amounts from the usual channels of the food industries into the manufacture of glycerol and munitions, began to manifest itself early, particularly in the Central Empires. To persons who experienced the stringency, the importance of fats in the dietary never seemed debatable. It was repeatedly reported that in Germany the lack of fats was perhaps the cause of the greatest personal discomfort, and made the German most dissatisfied with his ration. Even when the diet was sufficient, it was said to be unsatisfactory if low in fat. The problem of how much fat should be allocated, if possible, for the uses of each person in the allied populations became the subject of consideration by international committees. The Interallied Scientific Food Commission, including Professors Armsby, Chittenden, Lusk and Mendel from this country, agreed to recommend to the respective countries concerned the adoption of 75 gm. (2⅝ ounces) of fat for the average man each day as a desirable minimum of fat to be secured for human consumption. This represents about 700 calories, or approximately one quarter of the average daily energy requirement of each person involved.[2]

Some of the physical ills which visited the underfed peoples of the war were charged to the shortage of fats in the ration. War edema serves as an illustration. Subsequent investigation has failed to justify most of these offhand conclusions.

That fat is a potent food is obvious from a consideration of its fuel value alone. A pound of fat yields two and one-fourth times as much energy as does a pound of any other nutrient utilized by man. This was the physiologic justification for the slogan: "Fats are Fuel for Fighters." A study of the dietary habits of different races at once suggests, however, that the apparent dependence of persons on fats may have psychologic or culinary motives as well as purely physiologic reasons. Thus, we are reminded that the Japanese, for example, habitually eat little fat. But it is the habit of both Europeans and Americans to use considerable fat, both on the table and in cooking. The taste of food is not so pleasing without it. Their recipes almost all call for fat in one form or another, so that when little or none is available, a change must be made in most of the methods of cooking. Virtually all food must be boiled, and is lacking in the flavor and texture to which we are accustomed. The food, no matter how nutritious it may be, will not taste good.[3] In other words, food without fat is likely to be without flavor and monotonous; and if a food is distinctly unpleasant and different from what a person is accustomed to, digestive upsets may result.

Accordingly, when those concerned with the nutritive welfare of the nation raised the query, "How much fat do we need?" the reply was that "it is impossible to say with definiteness."[4] The fact that there has been no available satisfactory information on this question is attributable to the experimental difficulties heretofore inherent in its solution. It is only in comparatively recent times that some of the essentials of an adequate diet have been discovered. Without knowledge of the importance of vitamins, for example, all earlier attempts to study the rôle of proteins, fats, carbohydrates or inorganic components of the diet by feeding them in varied proportions as isolated substances inevitably failed. A diet rich in fat might bring nutritive failure as readily as one poor in this foodstuff, the untoward outcome in either case being due to a neglected and unrecognized further factor in the food mixture. Again, the presence of fat in the diet might bring beneficial results because it was the chance carrier of vitamin A, associated with some fats more than others. Maignon[5] supposed that fats assume an important rôle in the utilization of protein, a rôle that carbohydrates are powerless to fill. His experiments were conducted by feeding mixtures of more or less isolated food materials without due consideration to the now well recognized need of accessory food factors or vitamins.

Recent controversies[6] regarding the necessity for fats in the diet fail to emphasize adequately the distinction in the significance of fats as sources of energy and as carriers of vitamin and of lipoids, regarding the rôle of which we are still largely uninformed. Directing attention to the fats themselves rather than to the other food ingredients which commonly accompany them, Osborne and Mendel[7] have succeeded in securing satisfactory growth from an early age to full adult size in experimental animals on rations extremely poor in true fats. The diets consisted of mixtures of proteins, starch and inorganic salts, vitamins A and B being supplied by small portions of alfalfa and yeast. Such mixtures are not absolutely devoid of extractable fat, but the maximum of the latter amounted at most to a small fraction of 1 per cent. of the ration. Hence Osborne and Mendel cannot avoid the conclusion that if true fats are essential for nutrition during growth, the minimum necessary must be exceedingly small.

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[1] The data are taken from The Day's Food in War and Peace, published by the U. S. Food Administration under the auspices of the Women's Committee, Council of National Defense.

[2] Commission scientifique interalliée du ravitaillement: Rapport général. Les ressources et les besoins alimentaires des pays alliés, premier rapport, Paris, October, 1918.

[3] Food Guide for War Service at Home, prepared under the direction of the United States Food Administration, New York, 1918, p. 37.

[4] Food and the War, a textbook for college classes, prepared under the direction of the United States Food Administration, Boston, Houghton Mifflin Company, 1918, p. 111.

[5] Maignon, F.: Recherches sur le rôle des graisses dans l'utilisation des albuminoïdes, Lyons, 1919.

[6] Aron, H.: Biochem. Ztschr. **92**: 211, 1918; **103**: 172, 1920. Salkowski, E.: Ibid. **94**: 205, 1919. Von Gröer, F.: Ibid. **97**: 311, 1919.

These observations, which obviously call for confirmation on other species, do not answer the question of the possible need of preformed lipoids, such as cholesterol and phosphatids. Can any or all of the latter be synthesized by the organism? Or must they be supplied as such? Hindhede,[8] whose results with young men correspond to observations on laboratory animals, has contended that fat is not required in the diet if a sufficient amount of fresh fruits and vegetables is eaten daily to supply vitamins. The striking facts here offered must not be accepted as an immediate dictum that dietary fats ought to be dispensed with, even if thousands of persons are exposed to the dangers of being too fat;[9] nor do they demonstrate that well-being is not best promoted by the inclusion of a liberal quota of fats in our daily intake. They are physiologic facts with which the study of nutrition may henceforth deal.

NEW ASPECTS OF THE PHYSIOLOGY OF URIC ACID

Not many years have elapsed since any new fact regarding uric acid or its chemical relatives was likely to attract the attention of physicians. Like ptomains, uric acid was pictured as an ever threatening source of danger; and when it had not been actually detected to occur within the living body, its presence was suspected or dreaded. Many of the fictions about uric acid in physiology have now been forgotten with the advent of a vocabulary that includes toxins and trypanosomes, spirilla and serums. Nevertheless, the biochemistry of the substances giving rise to uric acid has made notable progress in recent years. It would be an educational misfortune if the misdirected energies of the past were to lead to present-day indifference toward the physiology of nucleic acids and their derivatives.

A decade ago it was generally assumed that in the alimentary tract the nucleoproteins and nucleic acids which are a part of most human dietaries are split up by enzymatic reactions so as to liberate simple purin derivatives. The latter, in turn, were believed to be absorbed, so far as they are not destroyed by intestinal bacteria, and thereupon converted by oxidation into uric acid, the end-product of purin metabolism in man. Many indisputable facts contributed to this belief. The feeding of nucleic acid or of isolated purins normally results in an increased excretion of uric acid. The sequence nucleic acid, aminopurins, oxypurins and uric acid thus seemed to be a logical interpretation of the succession of intermediary biochemical events representing the fate of nucleic acids in the human body.

Thanks in particular to the researches of American biochemists, it has become clear that in the physiologic disintegration of the nucleic acids a series of compounds designated as nucleotids and nucleosids may arise. The former are complexes of purin, phosphoric acid and carbohydrate radicals; the latter, compounds of purins with sugar groups. There is much to suggest that the purin-sugar complexes may be absorbed as such and travel in the blood stream. In other words, the purin-fragments of the nucleic acids of the diet may in many instances be absorbed in more complex forms than was suspected only a few years ago. Accordingly, Thannhauser,[1] of the Medical Clinic in Munich, has formulated a theory of purin metabolism somewhat as follows: In the normal person the purins arising in nucleic acid metabolism probably circulate as nucleotids or nucleosids. It is the latter which are transformed in the tissues so as to liberate uric acid which, in turn, is promptly excreted. Hence we understand why the content of uric acid in the blood is ordinarily kept at a low, fairly uniform level. In the gouty, on the other hand, uric acid is equally well formed from the nucleosids; but, owing to disturbances in the excretory functions, it cannot be adequately eliminated. Faulty elimination is the most conspicuous factor in the gouty.

There is, indeed, more recent evidence that the nucleosids introduced directly into the organism by injection without alimentary intervention give rise to increments in the output of uric acid.[2] To what extent such purin complexes are the immediate precursors of uric acid in the organism is not yet clear. Nevertheless, physiology is witnessing a sort of recrudescence of Minkowski's older view that uric acid circulates in the form of some complex. He believed that the lessened excretion of uric acid in gout may be due to the existence of the purin in some abnormal chemical union, so that the resulting compound can be eliminated only with difficulty. It is significant that purin complexes have at length been demonstrated in the blood.[3] In this country, S. R. Benedict[4] has maintained for some time that uric acid exists chiefly in combination in the blood of most mammals. Recently, Davis and Benedict have actually isolated a crystalline compound of uric acid and a sugar. We may therefore confidently expect the chapter of purin metabolism to be rewritten in the near future, from the standpoint of the newer data.

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[7] Osborne, T. B., and Mendel, L. B.: Growth on Diets Poor in Fats, J. Biol. Chem. **45**: 145 (Dec.) 1920.

[8] Hindhede, M.: Molkerei Ztg. **28**: 152, 1918; abstr., Chem. Zentralbl. **2**: 745, 1918; Skandin. Arch. Physiol. **39**: 78, 1920.

[9] The Danger of Being Too Fat, editorial, J. A. M. A. **76**: 523 (Feb. 19) 1921.

[1] Thannhauser, S. J.: Ueber den chemischen Aufbau des Nukleinsäure-Moleküls und seine Veränderungen im Stoffwechsel des Menschen, Habilitationsschrift, Munich, 1917, p. 41.

[2] Thannhauser, S. J., and Bommes, A.: Ztschr. f. physiol. Chem. **91**: 336, 1914. Rother, J.: Beiträge zum Nukleinstoffwechsel-Problem: Ueber Harnsäureausscheidung nach parenteraler Zufuhr von Purin-Nukleosiden beim gesunden Menschen, ibid. **110**: 245 (Sept.) 1920.

[3] Thannhauser, S. J., and Czoniczer, G.: Experimentelle Studien über den Nucleinstoffwechsel, IX, Ueber den Nachweis und die Bestimmung von gebundenen und freien Purinen im menschlichen Blut- und Eiterserum, Ztschr. f. physiol. Chem. **110**: 307 (Sept.) 1920.

ABSORPTION THROUGH GENITO-URINARY ORGANS

The marked variation in the permeability of the different membranes and protective coverings of the body and its orifices is not adequately appreciated by many even of those who are expected to deal with them in a practical way in medicine. For example, it is only beginning to become a feature of common physiologic information that absorption of most substances proceeds with great difficulty if at all through the mucous lining of the stomach, whereas, a few centimeters beyond the pyloric sphincter, the same materials readily find their way through the duodenal lining into the blood and lymph streams. Likewise, much confusion still exists as to the possibilities of absorption of diverse substances through the sound skin, a factor on which depends the possibility of administering drugs by inunction or of poisoning by cutaneous channels. Experience and experiment have taught medicine and the industries, which are peculiarly interested in the problem of absorption through the skin, that the answer may depend on the nature of the solvent, the properties of the substance concerned, and the occurrence of abrasions or injuries to the cutaneous surfaces. Again, the effectiveness of the pulmonary membranes and the passages leading to them as localities for absorption has lately been brought into renewed prominence.

The genito-urinary passages and organs are frequently the seat of the application of potent substances for either diagnostic, therapeutic or other less justifiable reasons. A knowledge of the absorptive functions of the various regions, notably the urethra, the urinary bladder, the ureter, the pelvis of the kidney, and the vagina is obviously important, not only to determine to what extent drugs may behave efficaciously in any of these localities, but also to appreciate the degree of possibility for the transfer of potent substances through the blood stream to all parts of the body. Every one realizes how profoundly absorption from the rectum may affect the organism as a whole. To what extent the genito-urinary lining membranes may facilitate the entrance of either beneficial or baneful products is not equally well understood, although the inefficiency of the urinary bladder as an organ of absorption has been emphasized frequently.

Under the auspices of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, Macht[1] of Johns Hopkins University has investigated the behavior of the genito-urinary organs toward a special group of drugs—local anesthetics—applied directly to various surfaces within these structures. This is, of course, precisely where they are introduced in many procedures of genito-urinary practice. They are employed to facilitate minor operations, to relieve pain, to permit instrumentation, to attempt antisepsis. The outcome of Macht's studies is the demonstration, alike of scientific and practical interest, that local anesthetics like cocain and its analogues are easily absorbed through various organs of the genito-urinary tract, with the exception of the bladder. The contrast between the behavior of this organ and the adjacent urethra is as marked as the analogous dissimilarity between the stomach and adjacent duodenal membranes. Macht urges that although the absorption of cocain, for example, through the ureter and pelvis of the kidney may seem to be chiefly of academic interest, yet in view of the modern use of such drugs as the iodids and thorium in these structures, the subject may also be of some practical importance.

The demonstration of rapid systemic absorption of drugs from the vagina serves to reemphasize the often unsuspected dangers that lie in careless and unwarranted irrigations of its passages with potent solutions as well as by other means which may expose the surfaces to soluble products. The mention of mercuric chlorid, phenol and cresols will at once awaken relevant thoughts. Entirely new, so far as we are aware, is Macht's demonstration of rapid absorption through the prepuce. This is significant from the surgical standpoint, as local anesthetics are widely employed in application through the prepuce, so that careless or excessive use may actually lead to toxic symptoms in patients.

Current Comment

FUNCTION OF THE ISOLATION HOSPITAL

The value of isolation hospitals in controlling the prevalence of contagious diseases is not easily determined. Some three decades ago it was claimed that if all those sick with such diseases as typhoid fever, scarlet fever and diphtheria were early isolated, these diseases could soon be exterminated. For this reason, as well as to care for the sick of the poor, many isolation hospitals were built. However, the development of such institutions has been contemporaneous with a general improvement of living conditions. Thus, the spread of infection has been limited through sanitary control of food and water. With these points in mind,[2] Chalmers has recently reviewed the effect of hospital isolation on the prevalence of typhoid fever, scarlet fever and diphtheria in England during the last thirty years. He has selected these three diseases for intensive study because they have a fairly comparable isolation rate and their epidemiologic features are frankly different. During this period, typhoid fever has declined, scarlet fever has fluctuated quite widely and diphtheria has definitely increased. The case mortality of typhoid has remained the same; in scarlet fever it has decreased from 6 to 2 per cent., and in diphtheria it has fluctuated. It appears, therefore, to Chalmers that although strict isolation together with certain other measures has markedly reduced the cases of such diseases as smallpox, plague and typhus fever, it is hard to prove that isolation has influenced to any marked degree the prevalence of such diseases as scarlet fever, diphtheria, measles and pertussis, or that it has had any appreciable effect on the prevalence of influenza, pneumonia and poliomyelitis. What, then, are the functions of an isolation hospital? Isolation of cases early in their development, especially in smaller communities, may prevent epidemics, protect other members of the family and check outbreaks in institutions or hotels. Furthermore, it is possible in such institutions to give better medical care than in the home in many instances. Above all, however, the isolation hospital furnishes a place for the careful study of the contagious diseases. Here under careful control the problem of carriers, of methods of infection, of modes of transmission, of prophylaxis and treatment by various methods may be studied without bias or uncontrollable complications such as frequently arise in private practice. Then, too, the isolation hospital may well serve as a teaching center for medical students, public health nurses and other public health officials on whom the community must depend for the early detection of communicable disease.

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[4] Benedict, S. R.: Studies in Uric Acid Metabolism, I, On the Uric Acid in Ox and in Chicken Blood, J. Biol. Chem. **20**: 633, 1915.

[1] Macht, D. I.: On the Absorption of Local Anesthetics Through the Genito-Urinary Organs, J. Pharmacol. & Exper. Therap. **16**: 435 (Jan.) 1921.

[2] Chalmers: The Functions of the Isolation Hospital, Proc. Roy. Soc. Med., Sec. Epidemiology and State Med. **2**: 1 (Dec.) 1920.

THE STATE FAILS

A child suddenly falls ill.[1] The malady is strange; physicians who are called give the disease a name, and tell the parents that any relief which science affords is only palliative and not curative, and that body forces frequently overcome the disease. The condition is actually encephalitis, an inflammation of the brain. As with other diseases affecting the nervous system, there ensue excitation, delirium, fever and twitching of the arms and legs. The parents are anxious and wish to do everything that is humanly possible. It is not surprising, therefore, that they accept the services of a pretender to scientific knowledge. They know no anatomy or physiology; they cannot judge between the true and the false; they know only that their child is sick and that a man who is permitted by the state to practice the healing art is offering them aid. They accept. How many parents would not? The chiropractor administers his treatment. Gradual remission of the symptoms ultimately occurs. The parents are overjoyed. In the first flush of their happiness, they write glowing testimonials to the chiropractor's ability. A miracle has been worked! The sensational press is furnished with "live" material. Sunday "feature pages" carry columns of write-ups and pictures and incidentally—or is it incidental—whole pages of advertisements of practitioners of the pretending science. "One hand washes the other." Then it is discovered that the miraculous cure was not a cure, that the treatments have in fact been so painful that the child's condition is possibly worse; that the chiropractor has been relieved of attendance, and that the child resents his muscular ministrations. Does the press give the public these facts? Do the advertisements cease? Not at all. What of the parents and the child? To whom shall they look? Whose duty was it to protect them against ignorance and incompetence? "The first duty of the state," says Disraeli, "is the care of the public health." When the state permits those with no scientific knowledge, who know nothing of physiology, of anatomy, of pathology, of infection or immunity to treat disease—no matter what the method employed—the state fails in its duty.

MEDICAL FACTS AND CHIROPRACTIC FICTION

Throughout the length and breadth of the country there has recently been heralded an alleged marvelous cure of what the newspapers have been pleased to call "talking sickness." Not only have the newspapers made sensational stories out of it, but the chiropractors have used it as a basis for flaming newspaper advertisments extolling the virtues of their cult. Reading these news articles and advertisements one learns that an 8-year-old child was suffering from a "strange talking malady" that was so remarkable that "specialists from all parts of the country were interested in her case." Further, one learns that "every form of sedative had been administered without improvement," and "all the medical physicians and consulting specialists whose services were tendered" failed to bring relief. Finally, a chiropractor "pleaded for the opportunity to save the child and gained consent of the parents." In a "few moments" the chiropractor "adjusted" the "second and fifth vertebrae," and "the talking stopped"! And, continued the full page advertisements, in very large and very black type: "She Has Completely Recovered and Is as Healthy and Happy as You." So much for the fiction. It made a good newspaper story, especially for those newspapers that saw in it the opportunity to suggest to the chiropractic fraternity that, as their business had been given a magnificent boost in the news columns, it was highly desirable that they should add to this free advertising momentum an additional urge through the advertising pages. Rate card enclosed. What are the facts? Briefly these: That the child did not suffer from so-called "talking sickness"; that the alleged adjustment of the spine did not "cure" the "sickness" and, finally, that the child has not "completely recovered," but is still dangerously ill. The case was one of epidemic encephalitis, with a temperature ranging between 99 and 103 and active delirium, inequality of the pupils and strabismus. The improvement was gradual and that incident to the ordinarily observed progress of the disease. As shown by the case record, the chiropractor's "treatment" did not modify the course of the disease. The "talking" had ceased at intervals previous to his visit and continued at intervals after his

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[1] The Case of Miriam Rubin, this issue, p. 654.

"treatment." But the publicity given the case offered great opportunities for advertising and, as advertising is an important part of the chiropractic curriculum it is but natural that this cult should take advantage of it.

MR. MASON AGREES

The testimonial of the Hon. William E. Mason for that preposterous piece of quackery "Nuxated Iron" is a rather well-remembered piece of nostrum history. "Nuxated Iron," if we are to believe the testimonials, is the preparation that was responsible for Jess Willard whipping Jack Johnson and, later, for Jack Dempsey defeating Jess Willard. In the case of the Congressman-at-Large from Illinois it cured, we are told, "that horrible tired feeling." Recently the honorable gentleman was twitted by a New York newspaper for having —among other things—written the "patent medicine" testimonial. In rising to a question of personal privilege for the purpose of answering the various accusations, Mr. Mason, in discussing his testimonial, admitted that his judgment in the matter might be questioned and — according to the *Congressional Record* — he added: "I think my judgment was bad." This makes it unanimous.

Association News

GRANTS FOR RESEARCH IN MEDICINE

The trustees of the American Medical Association have made an appropriation to further meritorious research in subjects relating to scientific medicine and of practical interest to the medical profession, which otherwise might not be carried out for lack of funds at hand. Applications for grants should be sent to the Committee on Scientific Research, American Medical Association, 525 North Dearborn Street, Chicago, before April 1, 1921, when action will be taken on the applications at hand.

THE BOSTON SESSION

Tentative Announcement of Additional Social Events

The Local Committee on Arrangements announces that the following additional social features are under consideration: The Angell Memorial Hospital for Animals will be open for the inspection of Fellows and guests of the Association throughout the session. A reception at the Art Museum is being arranged from 9 to 11 o'clock on the evening of Wednesday of the week of the annual session. The Local Committee feels that this visit to the museum will be one of the most attractive features of the session. Arrangements for excursions to interesting points in Boston and vicinity are progressing satisfactorily. The Local Committee suggests that Fellows arrange to make an excursion to the Pilgrim Tercentenary at Plymouth on Saturday after the close of the Scientific Assembly.

Special Tour to Boston

The Chicago Medical Society, through the Harlan-Spears Tours, has arranged for a special train between Chicago and Boston for those who desire to use it in attending the annual session of the Association. The tour will be a "personally conducted" one and several different itineraries will be available. The rate covering all necessary expenses except meals while in Boston varies from $158.98 upward according to the Pullman accommodations and the tour selected. A deposit of $15 a person is required, this amount to apply against final payment or to be refunded in case the reservation is cancelled. Applications for space should be made to the Harlan-Spears Tours, 20 West Jackson Boulevard, Chicago.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Personal.—Dr. Robert B. Corney has resigned his position as physician at the Arkansas State Penitentiary at Cummins.

Government Bathhouse at Hot Springs.—The United States Congress has appropriated $60,000 for the completion of the government free bathhouse at Hot Springs Reservation.

State Society Meeting.—The annual meeting of the Arkansas Medical Society will be held at Hot Springs, May 3-5, under the presidency of Dr. Gustavus A. Warren, Black Rock.

Health Program for El Dorado.—Hundreds of lunch stands and other places where food is served are opening along the streets of El Dorado in anticipation of the probable stampede to the oil fields, causing great need for sanitary regulation. Dr. Charles W. Garrison, state health officer, and the city council have inaugurated a health program estimated to cost $25,000, the expense to be underwritten by the chamber of commerce until some financial arrangement can be made by the city. A full-time health officer, a sanitary inspector, and a corps of public health nurses will be employed.

CALIFORNIA

Hospital Addition Opened.—The new unit of the Glendale Sanatorium and Hospital at Los Angeles was formally opened, February 19.

Reunion of Medical Officers.—The annual reunion of the medical officers who served at the Letterman General Hospital during the World War was held at the Union League Club, San Francisco, February 17.

Physicians Plan Professional Building.—Drs. Charles D. Lockwood, Raymond B. Mixsell, Frederick A. Speik and Paul A. Ferrier have secured land and propose to erect a four-story modern office building with laboratories, surgical rooms and other special conveniences for the use of physicians exclusively.

Social Work Conference.—At the California Conference of Social Work, held in San Francisco, February 22-26, mental hygiene was the subject of general discussion. Dr. William Palmer Lucas spoke on mental hygiene and social service, Dr. Samuel Langer, on mental hygiene and preventive work, and Dr. Ray Lyman Wilbur, on "Health in Relation to Recreation and Education."

COLORADO

Physician Forfeits Permit to Prescribe Alcohol.—It is reported that the permit to prescribe alcohol of Dr. Charles Mingus, Monta Vista, has been revoked because he had twice been convicted of drinking alcohol.

DELAWARE

Personal.—Dr. Fred F. Armstrong has been appointed medical inspector of schools of Wilmington, to succeed Mr. B. H. Beeler.

FLORIDA

Better Industrial Health.—Acting on the suggestion of Dr. Ralph N. Greene, state health officer, the managers of several of the principal industries in the state have adopted new sanitary and safety measures. The health officer's suggestions were made on the basis of the results of an industrial survey recently conducted by Dr. John A. Turner of the department of hygiene and sanitation, U. S. Public Health Service, and Dr. Alva C. Hamblin of the state board of health.

GEORGIA

Personal.—Dr. Thomas D. Longino, Atlanta, has been elected vice president of the board of trustees of Grady Hospital.

Health Board Elects.—Dr. William H. Doughty, Jr., Augusta, and Dr. James H. McDuffie, Columbus, have been reelected president and vice president, respectively, of the Georgia State Board of Health.

Conference of Laboratory Directors.—State board of health laboratory directors of southern states will hold a conference at the Piedmont Hotel, Atlanta, March 18-19, to discuss laboratory problems peculiar to southern states. Directors of municipal laboratories in the South are also invited.

Georgia Leads Nation in Hydrophobia Menace.—Statistics compiled by the state board of health show that in the past year the menace of hydrophobia was greater in Georgia than in any other state in the Union. More people in Fulton County were forced to seek preventive treatment from rabies than in any other county in the state. The Atlanta Humane Society is seeking a fund of $10,000 with which to carry out a campaign to free the streets of stray dogs.

INDIANA

County Nutrition Clinics.—Nutritional clinics will be established throughout the schools in Marion County outside of Indianapolis under the auspices of the county hospitals, the Parent-Teachers' Association and the Marion County Tuberculosis Association.

Personal.—Dr. James A. Price has resigned his position as superintendent of the Irene Byron Tuberculosis Hospital, Fort Wayne, to accept the superintendency of the Memphis Hospital and lecturer at Vanderbilt University Medical School. He has been succeeded by Dr. Eric A. Crull, Fort Wayne.

Hospital News.—The Home Hospital, Anderson, has been placed in the hands of a receiver, with orders for the sale of the real estate and the equipment.——The Randolph County Hospital, Winchester, was opened for the reception of patients, February 2. The building and grounds were donated by Mrs. Hetty Vorhis and the county expended $28,000 for equipment and remodeling.——Plans for the building of additional wings to the Marion County Julietta Home have been announced by the county board of commissioners. The cost will be about $100,000.

Bill to Provide Medical Aid for Poor Children.—A bill to provide for the establishment of the James Whitcomb Riley Hospital for the treatment and care of poor children afflicted with diseases or physical defects which may be relieved by proper medical and surgical attention, has been introduced in the state legislature. Children under 16 years of age whose parents or guardians are unable to bear the expense are eligible for free treatment on the recommendation of judges of circuit and juvenile courts. The site proposed is on state land near the present Robert D. Long Hospital, a state institution, and the Indiana University School of Medicine, Indianapolis. The children's hospital is to be under the management of the trustees of Indiana University who now have charge of the institutions mentioned. The bill carries an appropriation of $250,000 for construction and $150,000 additional for two years to provide for maintenance and equipment. The counties are expected to defray expenses of children sent from their jurisdiction.

IOWA

City and County Health Officer.—Dr. Daniel C. Steelsmith, Iowa Falls, has been appointed health officer of the city and county of Dubuque.

Marriage Law.—A bill has been introduced in the state legislature forbidding clergymen or others to marry persons failing to present a certificate attesting to their mental and physical fitness for matrimony.

KANSAS

Hospital for Railway Employees.—A new hospital will be erected at Parsons, at an approximate cost of $140,000, by the Missouri, Kansas and Texas Railway.

Personal.—Dr. Benjamin F. Mallory, Arlington, recently sustained severe injuries when his automobile was struck and completely demolished by a Santa Fe train.

Change of Date of State Society Meeting.—The dates of the meeting of the Kansas Medical Society, announced to be held at Wichita, May 4-6, have been changed to April 26-28.

KENTUCKY

Personal.—Dr. Eugene C. Roemele has been appointed physician of the Frankfort Reformatory to succeed Dr. Lindsay H. Morrison, West Point.

Extension of Health Work.—Fulton County plans to spend $12,000 during 1921 for the work of the health department, substituting two full-time health officers for its former part-time official and employing a sanitary inspector and four public health nurses. Dr. James M. Hubbard, Hickman, has been appointed health officer of Fulton County, and Dr. John M. Alexander, Fulton, assistant health officer.

LOUISIANA

Malarial Surveys.—In continuation of the fight against malaria, surveys will be made of the districts around Lake Charles, Franklin and Holly Ridge during 1921. The towns to be benefited by the survey have been asked to bear 50 per cent. of the expense, and the Rockefeller Foundation will contribute an amount equal to that appropriated by the state for the work.

MARYLAND

Personal.—Dr. A. E. Boycott, professor of pathology, and Dr. Charles Choynce, director of a surgical unit at University College Hospital, London, have arrived in Baltimore to spend a week in studying conditions at the Johns Hopkins Medical School.——Dr. Donald R. Hooker, associate professor of physiology at Johns Hopkins University, will relinquish his work of teaching in order to devote his entire time to research.——Dr. G. Garzon Cossas, Vera Cruz, Mexico, is in Baltimore for the purpose of studying local health and hygiene methods, as a representative of the Mexican Department of Hygiene.

Gifts to Johns Hopkins University.—At the Founders' Day Celebration of the Johns Hopkins University, February 22, announcement was made that the trustees of the university would supplement the fund of $215,000 raised by the Alumni Association for a memorial dormitory building at Homewood, so that the total cost of the building might be provided for. Dr. Goodnow also announced that an anonymous donor, who had provided a grant of several thousands of dollars for the art and medical departments, had signified his desire to continue the annual grant indefinitely, and that under the will of Dr. James Schouler, the university would receive $14,500, which, added to a previous gift, would bring the benefaction to $25,000, to be added to the endowment fund.——By the will of William Bennet Paca, the bulk of his estate, valued at about $100,000, has been left to the Johns Hopkins University. However, litigation has been commenced by a nephew of the deceased.

MASSACHUSETTS

Personal.—Dr. Frederick E. Jones has been appointed health commissioner of Quincy, to succeed Edward A. Dean.——Dr. George D. McGauran has been appointed consulting physician on the staff of the Anna Jaques Hospital.

Narcotic Act Violation.—It is reported that Dr. Henry C. B. Snow, Buzzards Bay, was recently fined $50 in the United States District Court when he pleaded guilty to an indictment charging him with violation of the Harrison Narcotic Law.

Boston City Hospital Extensions.—The mayor of Boston has requested the city council for two loan orders for improvements to the City Hospital. An order for $150,000 is requested for the purpose of erecting a Thorndike Memorial Building, $200,000 being available by the will of the donor. Another bill is for $629,000 for the erection of a building for the outpatient department.

MICHIGAN

Donation to Blodgett Home.—Mrs. John W. Blodgett and Mrs. D. A. Blodgett have each offered to donate $5,000 to the D. A. Blodgett Home, Grand Rapids, provided that the Blodgett Home association raises an equal sum.

Personal.—Dr. Joseph H. Hathaway has been appointed medical inspector of schools of Highland Park.——Dr. Horace C. Mudge, Port Huron, has resigned his positon as physician at the county infirmary, after forty-eight years of continuous service.

Health Course at University.—The health service department of the University of Michigan has announced that a two-hour course in health will be included in the curriculum next fall. Registration in the course will be required of all freshmen at the university.

Arrangements for State Society Meeting.—Plans for the annual session of the state medical society, to be held in Bay City, May 24-26, were formulated at a meeting of the Bay County Medical Society, Bay City, February 14. At this meeting addresses were delivered by Dr. W. J. Deacon of the state department of health, and Dr. Frederick C. Warnshuis, Grand Rapids, secretary of the state medical society.

Marriage Law Proposed.—A bill has been introduced in the state legislature requiring all persons applying for marriage licenses to present a licensed physician's detailed report of the physical condition of each applicant. All persons afflicted with venereal diseases, epilepsy, or "open" tuberculosis are barred by the proposed bill from contracting marriage. No license may be issued until ten days after application has been made.

MISSOURI

Personal.—The Boone County Medical Association gave a banquet, February 15, in honor of the eightieth birthday of Dr. Andrew W. McAlester, Columbia, former dean of the school of medicine of the University of Missouri.

NEW YORK

Laboratory Supply Station Established.—The State Department of Health has established a laboratory supply station at Carthage, to supply the needs of Jefferson, Lewis and St. Lawrence counties. Dr. Frederick G. Metzger, Carthage, has been placed in charge.

Brooklyn Physicians Want Drug Commission Abolished.—Passage of the Lord bill abolishing the narcotic drug commission, was urged by several Brooklyn physicians, who protested against the rulings of the commission. The governor has recommended that the commission be abolished.

Typhoid Claims Allowed.—The village of Herkimer has agreed to the payment of $5,000 in settlement of claims of $37,500, filed against the village following the typhoid fever epidemic in 1918. It was charged that the cause of the epidemic was traceable to the water supply of the village.

Personal.—Dr. Loren Percy Ranson has been appointed medical officer of the police and fire departments of Syracuse.——Dr. Walter G. Frey, president of the Queens County Medical Society, and his son, Dr. Walter G. Frey, Jr., both of Long Island City, were seriously injured recently in an automobile accident.

Postgraduate Course in Public Health.—The Albany Medical College announces the continuation of its postgraduate course in infectious diseases and public health for practicing physicians and especially for health officers. This course is given jointly by the Albany Medical College and the New York State Department of Health. Registration is limited to graduates in medicine. The course consists of informal conferences and practical demonstrations with special consideration given to the recent advancement in diagnosis and treatment of pneumonia and tuberculosis, the essential features of infection and immunity, diagnostic laboratory tests and the prophylactic and therapeutic use of vaccines and serums. The organization and work of industrial medical departments will also be considered. Personal clinical instruction will be given to groups of four physicians. Special work in venereal diseases will be arranged for classes of two. The course extends from March 3 to June 17, one day a week being devoted to instruction.

New York City

Cartwright Prize.—The Cartwright Prize Lecture of Columbia University was delivered at a meeting of the New York Academy of Medicine, February 17, by Dr. Abraham L. Garbat on "The Typhoid Carrier."

Harvey Lecture.—Dr. S. B. Wolbach, associate professor of pathology and bacteriology in the Harvard University Medical School, will deliver the eighth of the current series of Harvey Society Lectures at the New York Academy of Medicine, March 12, on the subject of "Typhus Fever and Rickettsia."

Personal.—Dr. Percy R. Turnure has received from the French government the Cross of the Legion of Honor for "eminent services to France during the World War."——Dr. Frederick S. Westmoreland, who has been connected with the bureau of hospitals of the New York City Health Department for fifteen years, has resigned.

Three Hospitals Merge for Rehabilitation of Industrial Workers.—"Reconstruction Hospital," the first of its kind in the country, will be devoted exclusively to the rehabilitation of workers suffering from industrial injuries or occupational diseases by the application of medical methods developed in war work. Park Hospital, the De Milt Dispensary, and the Clinic for Functional Reeducation, have been merged into this institution. The property and equipment of the three old institutions have been turned over to the new hospital and $500,000, in addition, will be spent to extend the present facilities. The Institute for the Crippled and Disabled will also be affiliated with the work. Dr. W. Gilman Thompson has been selected as the head of the new organization. The medical staff includes Drs. Joseph A. Blake, John A. Hartwell, Victor G. Heiser, Irving S. Haynes, Charlton Wallace, Charles L. Dana, Henry Sage Dunning, Jacob D. Kernan, and Robert G. Reese. The activities of the hospital will include not only hospital therapeutics, but scientific research, vocational training, and provisions for reemployment.

OHIO

Personal.—Dr. Frank S. Pomeroy, Chardon, was the guest of honor at the banquet of the Geauga County Medical Association, the occasion marking the completion of his forty-second year in the practice of medicine in the county.

Naval Surgeon in Aeroplane Accident.—Dr. Kent C. Melhorn, Kenton, surgeon, U. S. Navy, while attempting to cross the mountains in answer to an emergency call in Haiti, where he is on duty, was badly injured when the engine of the aeroplane failed at an altitude of 1,500 feet. The aviator volplaned to 500 feet when the plane crashed to earth.

OREGON

Personal.—Dr. Frederick D. Stricker, Grants Pass, has been elected secretary of the state board of health, to succeed Dr. David N. Roberg, resigned.

Extends Eugenic Law to Women.—The state legislature, February 19, passed a bill requiring that women as well as men seeking marriage licenses shall be examined as to their mental and physical fitness.

Growth of Health League.—The Oregon League for the Conservation of Public Health, organized simultaneously with the league in the state of Washington, now has a membership of more than 1,200. The league has undertaken an intensive campaign to disseminate information regarding public health matters throughout the state.

PENNSYLVANIA

Dispensaries Closed for Want of Funds.—Dr. Albert P. Francine, director of the division of tuberculosis of the state department of health, referring to the action of the bureau in closing a number of dispensaries throughout the state, attributed the move to the inadequacy of the department budget. A number of community organizations have arranged to furnish rent-free quarters, and the state will provide a physician, nurses, and supplies.

Tuberculosis Society Reorganized.—At its annual meeting, January 19, the Pennsylvania Tuberculosis Society put into effect its revised constitution and by-laws which make the organization thoroughly representative of all sections of the state, in contradistinction to the local character that it formerly had. Permanent tuberculosis organizations from nearly all counties have already become affiliated. The new officers are: Dr. James M. Anders, president; Dr. White and Dr. William D. Robinson, vice presidents, and Dr. Ward Brinton, secretary.

Philadelphia

Address by Visiting Physician.—At the meeting of the section on general medicine of the College of Physicians of Philadelphia held at Thompson Hall, February 28, Dr. Henry A. Christian, Boston, spoke on the "Right and Wrong Uses of Diuretics."

Health Council Reports Big Gains.—The Philadelphia Health Council and Tuberculosis Committee has reported results attained in open-air school classes with 297 undernourished children, who are being fortified against tuberculosis. Both boys and girls have gained, on an average, 1.7 pounds in weight during the last three months at a rate greater than is normally expected. Children who are simply predisposed to tuberculosis are given a pint of milk each day by the health council, while those who are tuberculous have a pint added each day by the board of education. Milk is given in the middle of the morning, and of the afternoon, with a rest period following. Nourishing soups, custards and creamed vegetables are served at noon.

TEXAS

Personal.—At the annual meeting of the board of directors of the Texas Public Health Association held recently at Austin, Dr. Zachary T. Scott, Austin, was elected president.——Dr. Holman Taylor was elected president of the Tarrant County Tuberculosis Society at a recent meeting of the board.

Health Week.—By proclamation of the governor the week beginning March 13, has been set aside as Health Week. At the close of this campaign, which is to be conducted by the state health officer, all cities and towns will be inspected and rated according to their sanitary condition. This rating will be filed with the state board of health.

VIRGINIA

Personal.—Dr. Coleman B. Sansome has been appointed health officer of Newport News, to succeed Dr. William F. Cooper, resigned. This appointment of a full-time health officer is the initial step in the reorganization of the city health department.——Dr. J. Garnett Nelson, Richmond, has been elected president of the Richmond Tuberculosis Association.

WASHINGTON

Hospital News.—The Shelton General Hospital, with a capacity of fifty beds, has been completed. The hospital was erected at a cost of $50,000, from funds contributed by citizens of Mason County.——It has been announced that one of the several hospitals for crippled children, to be erected by the order of the Mystic Shrine, will be located in Spokane.

WISCONSIN

Pamphlet on Communicable Disease Control.—The method of controlling communicable diseases employed in Shorewood, a Milwaukee suburb, has been outlined in a pamphlet issued by a state board of health. The important innovation in the Shorewood plan is the isolation of patients and placarding of homes on suspicion of contagious disease, pending positive diagnosis.

GENERAL

Urologic Journal Transferred.—The *Journal of Urology* has become the property of the American Urological Association. It will continue to be published in Baltimore under the editorial supervision of Dr. Hugh Hampton Young, assisted by an executive editorial committee and by a number of collaborators, including the former associate editors. The *Journal* will be published monthly, providing sufficient material is submitted.

Hygiene Congress Abandoned.—The International Congress of Hygiene, which was to have been held in Geneva in May, has been abandoned, for the reason that the low value of the currency of many countries and the high value of the Swiss franc make it impossible for many countries to send delegates. Fully 600 delegates from all parts of the world had been expected to attend. It was proposed by Great Britain and the United States, that they be permitted to subsidize delegates of nations with abnormally low exchange, but these delegates, regarding it as a form of alms giving, refused the offer.

Postgraduate Scholarships.—The New York Post-Graduate Medical School and Hospital announces that there will be available this year six scholarships under the terms of the Oliver-Rea Endowment. The scholarships are awarded to practicing physicians of the United States and provide for the expenses of tuition at the New York Post-Graduate Medical School. According to the wishes of the donor, physicians in Pennsylvania will receive preference in the award. Applications may be sent to the president of the New York Post-Graduate Medical School and Hospital, Twentieth Street and Second Avenue, New York.

Convention of American Congress on Internal Medicine.—The fifth annual convention of the American Congress on Internal Medicine was held in Baltimore, February 21-26, the sessions being devoted to demonstrations and clinics and to inspection trips through the hospitals of Baltimore. The degree of fellow of the American College of Physicians was conferred on seventy members of the congress during the convention. The following officers were elected: Dr. Sydney Miller, Baltimore, president; Drs. Ellsworth Smith, St. Louis, and James Rae Arneill, Denver, vice presidents; Dr. Clement R. Jones, Pittsburgh, treasurer; and Dr. Frank Smithies, Chicago, secretary-general. Dr. J. M. Anders of Philadelphia was elected president of the American College of Physicians.

International Eugenics Congress.—The Second International Eugenics Congress, to be held in New York, September 22-28, will consider the results of research in questions of race improvement. The preliminary announcement indicates, in brief, the matter to be presented in the sectional meetings: (1) The results of research in the domain of pure genetics in animals in relation to studies in human heredity. (2) Factors which influence the human family, and their control; also the differential mortality of eugenically superior and inferior stocks and the influence on such mortality of factors such as war and epidemic and endemic diseases. (3) Human racial difference, with sharp distinction between racial characteristics and the unnatural associations often created by political and national boundaries; racial differences in disease and psychology, and the history of race migrations and their influence on the fate of nations. (4) Eugenics in relation to the state, to society, and to education. Inquiries relative to the congress should be addressed to Dr. C. C. Little, secretary-general, American Museum of Natural History, Seventy-Seventh Street and Central Park, West, New York.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's, Allegheny, Mercy and Western Pennsylvania hospitals, Home for the Friendless, Pittsburgh, Pittsburgh Free Dispensary, Westmoreland Hospital, Greensburg, Pa., Mount Pleasant Memorial Hospital, Westmoreland, Pa.; Braddock (Pa.) General Hospital, Homestead (Pa.) Hospital, each $200,000, and Lying-In Hospital, New York, $600,000 by the will of Henry Clay Frick.

J. C. Blair Memorial Hospital, Huntingdon, Pa., $10,000, by the will of William Thompson.

Carney, Boston City, Massachusetts General, Frost Massachusetts Homeopathic, Children's, and St. Elizabeth's hospitals, Boston; Massachusetts Charitable Eye and Ear Infirmary, and Industrial School for Crippled and Deformed Children, equal shares of the bulk of the estate of Joseph Thompson, Boston.

Stetson Hospital, Philadelphia, $1,500, by the will of Elena T. Hults, Philadelphia.

Protestant Episcopal and Pennsylvania hospitals, each $500,000, Pennsylvania Society to Protect Children from Cruelty, $300,000; and Gynecean Hospital and Preston Retreat each $150,000 by the will of Helen F. Massey, Philadelphia.

Visiting Nurses' Association, New York and Brooklyn Board of Charities, each $168,000; Brooklyn Children's Aid Society, $41,000, Brooklyn Society for the Prevention of Cruelty to Children and St. Christopher's Hospital for Babies, each $30,000; Brooklyn Hospital, $17,000, by the will of Alfred Treadwell White.

LATIN AMERICA

New Hospital in Uruguay.—The public assistance authorities have purchased a spacious lot in the suburbs of Montevideo to build a public hospital of 500 beds. The first appropriation for the work amounts to $140,000.

School for Trachomatous in Argentine.—A school for children infected with trachoma has just been opened at Tucumán. This school is an outcome of a suggestion made at the scientific congress held in that city in 1916. It is expected that other schools of a similar character will be organized in other Argentine cities where trachoma prevails.

Chilean Radium Deposit.—According to newspaper reports radium has been discovered in the saltpeter region of Chile. The matter attracted so much attention in France that several prominent radiologists, including Mme. Curie, have requested the government of Chile to create a radium laboratory, and an appropriation for this purpose has been granted by the government.

New Medical School in Pernambuco.—The Faculdade de Medicina was recently inaugurated at Recife in the state of Pernambuco in northeastern Brazil. Dr. Armando Gayoso delivered the principal address of the occasion. The state of Pernambuco has recently concluded arrangements with the federal government in respect to the public health service according to the plan called Prophylaxia Rural, and a station has already been organized at Villa Ribeirão.

Foundation of the Cuban Medical Association.—In the last issue of *Vida Nueva*, Dr. Francisco M. Fernández, the editor of the *Archivos de Oftalmología* and acting editor of the *Crónica Médico-Quirúrgica*, urges the foundation of a Cuban medical association, which will unite in a single organization the different medical associations which now exist in that country, so that Cuba wll have a society much along the same lines of those existing in the United States, Argentine, Colombia and Mexico. Its need is much felt in that country.

Personal.—Dr. Ricardo Aguilar, the editor of the *Revista Médico-Quirúrgica* of Teguciaglpa, Honduras, has been appointed professor of physics in the School of Medicine of Honduras.——Dr. A. Neiva has returned to Rio de Janeiro after his official trip to North America and Japan to study matters connected with the public health service.——Dr. C. Azevedo has also returned to Rio from a trip to Europe.——Professor Paz Soldán of Lima, founder and editor of the *Reforma Médica* has been visiting medical institutions at Rio on his return from his official participation in the recent international sanitary conference at Montevideo.

Trachoma at El Salvador.—In the last issue of the *Archivos del Hospital Rosales* Dr. Luis O. Arévalo of San Salvador comments on the prevalence of trachoma at El Salvador in recent years. Among 4,513 individuals examined at random in the National Guard, penitentiaries and public schools, only one was found infected with trachoma, although many suspicious cases were found which later proved to be follicular conjunctivitis. During the last eight years twenty-two trachoma patients have been treated at the Hospital Rosales, the number of patients having increased in the last three years. Trachoma was apparently introduced in Salvador by Syrian or Turkish immigrants. In an examination made by Drs. Arévalo, Bailey and Peralta of eighty-four Syrians at San Salvador, four were found infected by trachoma and one suspected case. Dr. Arévalo has, in addition, treated eight cases, three of them in a single family. Dr. Arévalo acknowledges the assistance he received in this work from Dr. Charles A. Bailey of the Rockefeller Foundation and thinks that the work accomplished by the foundation in combating hookworm disease and malaria in El Salvador should stimulate the government to continue to conduct a similar campaign against trachoma. He recommends the enforcement of immigration laws on the exclusion of trachoma patients, the training of examining physicians in the diagnosis of this disease, the compulsory reporting of trachoma, and public lectures on this subject.

FOREIGN

Spanish Journal Discontinues Publication.—*Plus Ultra,* the luxuriously printed and illustrated Madrid journal, has discontinued after a three years' existence. The editor states that this action is due to the cost of paper and labor.

Carozzi Head of Department in Labor Bureau.—Prof. L. Carozzi, who has long been connected with the clinic for occupational diseases at Milan, has been appointed chief of the department for hygiene in the International Labor Bureau at Geneva.

Emil Fischer Foundation at Berlin.—The late Prof. Emil Fischer bequeathed 750,000 marks to the Prussian Academy of Sciences, the income of which is to be used to aid young German chemists doing research work in organic, inorganic or physical chemistry.

Sir G. Sims Woodhead Resigns Editorship.—The publishers of the *Journal of Pathology and Bacteriology,* London, announce the retirement of Sir G. Sims Woodhead from the active direction of the *Journal,* a position he has held since he founded the publication in 1893. The new editor is Dr. James Ritchie. He will be assisted by Drs. A. E. Boycott and H. R. Dean.

Necropsies Obligatory in the Hospitals of Italy.—The *Gazette des sciences médicales* of Bordeaux relates, with envious comment, that the right of postmortem examination has been conferred on the directors of university clinics and chiefs of hospital services throughout Italy. In case of opposition, the scientific necessity for verifying the causes of death will overcome the interdiction.

Parkin Prize.—The Royal College of Physicians of Edinburgh announces the Parkin Prize of £100, open to competitors of all nations, for the best essay "On the Effect of Volcanic Action in the Production of Epidemic Diseases in the Animal and in the Vegetable Creation, and in the Production of Hurricanes and Abnormal Atmospheric Vicissitudes." Particulars regarding the conditions of the contest may be secured from the secretary, Dr. J. S. Fowler, Edinburgh.

Greek Congress of Hygiene and Demography.—As already mentioned, the First Pan-Hellenic Congress for Hygiene and Demography is to convene at Athens in April. The exposition in connection therewith is to be open for two months, from April 25 to June 25. The *Grèce médicale* of recent date gives the full details for exhibitors. The committee in charge includes Prof. G. Phocas, president, and Dr. P. Rondopoulos, rue Nikiforou 14, Athens, Greece, secretary-general. Great preparations are said to be under way for this first convention of the kind in that country.

Prize for Work on Cancer.—The Mörsel Foundation offers a prize of 10,000 marks for the best work on the etiology, diagnosis or treatment of cancer, representing important progress. A second prize of half the amount will be given for the second best work. Competition is open till Oct. 1, 1922. Competing articles are to be sent to the director of the Institute for Experimental Cancer Research at Heidelberg. The competing works must be in German and must have been published between Jan. 1, 1921, and Oct. 1, 1922, or be ready for publication when presented.

Japanese Government Disinfection Office.—The brush industry, which flourished in Osaka during the war, is now in a serious condition owing to the campaign against infected shaving brushes in various parts of the world. The department of agriculture and commerce of the Japanese government plans to open in April a national disinfection office, probably in Kobe, where all imported bristles and other animal hair for the manufacture of brushes will be disinfected. Those who use materials that have not been given a certificate of disinfection will be punished by a fine.

Malaria Sanatorium at Rome.—The Asilo Antimalarico Communale was recently inaugurated at Rome to provide a home and schooling for the children of families living in the malaria infested marshes around Rome. The institution was founded on the initiative of Professor Marchiafava, one of the leaders in the campaign against malaria, and the municipality has placed a tablet on the building with a tribute to his years of devoted services as physician and hygienist, and above all as originator of the plan by which Rome has been kept free from malaria for so many years.

International Congress for History of Medicine.—The date July 1 to 5, 1921, has been selected for the international congress of medical history, which will convene at Paris in the halls of the Faculté medecine. There are to be three sections, medicine, pharmacy and veterinary art, and the program includes a number of trips through museums, excursion to the ancient château of Saint-Germain-en-Laye, etc. There is to be a historical exposition in connection, and the committee in charge is appealing to physicians for the temporary loan of articles of historic interest, instruments, medals, prints, books, etc., for the exposition. The secretary of the congress is Dr. Laignel-Lavastine, 12 place de Laborde, Paris.

The Fellowship of Medicine and the Post-Graduate Medical Association.—At a meeting of the general council of this British organization, Dec. 10, 1920, the following resolutions were adopted and referred to the newly appointed executive committee:

(1) That the executive committee be requested to consider the advisability and practicability of appointing a general organizer of postgraduate medicine with full powers to take such action as he thinks fit in order to promote the facilities for postgraduate education in the United Kingdom for practitioners registered in this country and for visitors from Dominions and foreign countries. And that the government be approached with a view to obtaining an annual grant. (2) That the executive committee be requested to report at an early date on the possibility of providing a hospital solely for postgraduate study and the possibility of obtaining a grant in aid. (3) That it is desirable to obtain as early as possible suitable accommodation for postgraduates attending courses of instruction.

American Gifts for European Science.—The *Deutsche medizinische Wochenschrift* records that Dr. Lange of Chicago has sent to Professor Paltauf of Vienna 7,000,000 crowns collected in America. Also that another sum of $10,000 has been forwarded from America to aid the university professors. It was sent to Professor Pirquet for distribution. The Rockefeller Foundation has also appropriated $60,000 for assistance to the Vienna clinics. This sum is said to be equivalent to 40,000,000 crowns at the present rate of exchange. The salaries of the regular university professors at Vienna were increased materially last year, being 45,000 crowns, increasing by 4,000 crowns every fourth year to a maximum of 70,000. The *Münchener medizinische Wochenschrift* likewise reports that Dr. A. Stein, chief of the Lenox Hill (formerly the German) hospital, has recently sent a large sum collected in Ameica to Frankfort-on-the-Main to be applied for scientific purposes.

International Urologic Society.—The *Presse médicale* states that the first meeting of this new society is to be held at Paris, July 5-7, 1921. The three subjects appointed for discussion are nephritis with uremia; remote results of treatment of traumatism of the urethra, and pyelography. The first subject is to be introduced by Dr. Hogge of Liége, Dr. Horder of London, Dr. Foster of New York and Dr. Teissier of Lyons; the second subject by Dr. Kidd of London, Dr. Gardini of Bologna, and Dr. Pasteau of Paris. The subject of pyelography will be introduced by Drs. Waters and Young of Baltimore, Dr. Lazio of Milan and Dr. Papin of Paris. The honorary president is Dr. Watson of Boston; president, Dr. Hurry Fenwick of London; vice presidents, Drs. Alessandrini of Rome, and Keyes of New York. Dr. Desnos of Paris is the secretary general and Dr. Pasteau, the treasurer general. The congress bureau consists of Drs. Legueu of Paris, Verhoogen of Brussels and Brongersma of Amsterdam.

Deaths in Other Countries

Dr. H. Brunner, chief of the asylum at Diessenhofen, Switzerland, author of various works on the periodicity of vital phenomena.——**Dr. R. Moyano Cruz** of Puento Genil, Spain.——**Dr. Octacilio de Camará,** senator of Brazil from the federal district.

Government Services

Medical Officers, United States Navy, Relieved from Active Duty

CALIFORNIA
San Francisco—Duncan, H. B.

CONNECTICUT
Hampton—Potter, A. L.

NEW JERSEY
Elizabeth—Myers, S. Z.

OREGON
Portland—Whiteside, G. S.

VIRGINIA
Roanoke—Butler, W. W. S.

New Duty for Medical Officers

The Secretary of the Interior has requested of the Secretary of War, the Secretary of the Navy and the Secretary of the Treasury that examination of civilian employees under the retirement act of May 22, 1920, shall be made, whenever practicable, by medical officers of the Army, Navy and Public Health Service. Such medical officers, however, will not be required to leave their station for the purpose of making examinations.

Reduction Affects Medical Corps

The reduction of the Army to 175,000 by the recent act passed by both houses of Congress will affect the size of the Medical Corps, in contradistinction to the other branches of the military establishment. The Medical Corps is allowed 6.5 officers per thousand enlisted men in the entire Army, so under the proposed limitation, the total number of officers will not exceed 1,138. The number of medical officers now in the service is about 1,200, but, according to an announcement from the Surgeon-General's Office none will be discharged, as the reduction will be made through natural losses. It was declared that this law would not interfere with the appointment of members of the medical profession in private life as interns in Army hospitals. Just as soon as vacancies occur applications will be considered. At the present time about fifty interns are taking courses, and their terms will expire in July, 1922. These vacancies will be promptly filled by the Surgeon-General. Interns successfully passing courses are appointed first lieutenants in the Army immediately on graduation.

Officers to Have Postgraduate Study

The Army Reorganization Act contains a clause permitting the detail of not to exceed 2 per cent. of the commissioned officers of the Regular Army in any fiscal year as students in technical, professional and other educational institutions, or as students, observers, or investigators at industrial plants, hospitals and other places best suited to enable such officers to acquire special knowledge or experience. Under the provisions of the act, the Army Medical Department can recommend annually that 2 per cent. of its commissioned personnel be detailed to the leading medical schools and institutions of the country. The course of study will not exceed one year. In this connection the Surgeon-General has made a change in the curriculum of the Army Medical School to the end that medical officers who graduate therefrom, and subsequently desire to take a course in public health be credited with one year of work, thus enabling them to graduate with the degree of Dr.P.H. in one year, instead of the two years' resident study usually required for these diplomas.

Army Medical Schools and Reserve Corps Officers

The Medical Department of the Army conducts two schools, the Army Medical School at Washington, D. C., and the Medical Field Service School at Carlisle, Pennsylvania. The latter has but recently been established and has not yet been opened to classes. The educational training plans of the Surgeon-General contemplate a four months' course at Carlisle for all recent appointees in the Medical, Dental and Veterinary Corps of the Army. The training at the Field Service School is chiefly military in order to fit the recent appointee for his medicomilitary duties. This is followed, in the case of medical officers, by a course of approximately six months at the Army Medical School where the officer receives a postgraduate professional course of instruction in subjects important from a military standpoint, such as preventive medicine, epidemiology, bacteriology, parasitology, serology, nutritional, sanitary and clinical chemistry, psychology, surgery, roentgenology and ophthalmology. The clinical subjects are taught in connection with the Walter Reed Hospital. Similar courses are being planned for dental and veterinary officers. The Carlisle school will eventually be opened to reserve officers and to the R. O. T. C. (Reserve Officers' Training Corps), medical, dental and veterinary units of which are already being organized in some of the Class A schools. The extent to which the facilities of this school can be offered to the reserve officers depends upon the general training policy of the War Department and the Congressional appropriation. Reserve officers will not be considered eligible for admission to the Army Medical School at Washington until they have had a course of training at the Carlisle school. For some time to come, at least a year, it is announced the limited space and appointments at the Army Medical School at Washington will not suffice for the training of reserve officers.

Foreign Letters

PARIS

(*From Our Regular Correspondent*)

Feb. 4, 1921.

Number of Doctor Diplomas Issued

Information in regard to the number of doctor diplomas in medicine issued by the various medical colleges of France during the school year 1919-1921 has just been published:

Schools	State Diplomas	University Diplomas	Subtotals
Algiers	47	..	47
Beirut	57	..	57
Bordeaux	237	4	241
Lille	47	..	47
Lyons	343	5	348
Montpellier	232	12	244
Nancy	33	..	33
Paris	547	29	576
Strasbourg	3	..	3
Toulouse	109	2	111
Totals	1,655	52	
Grand total			1,707

The grand total is the highest that has ever been reached, being nearly 461 more than the maximal figure attained so far (1,246 for the school year 1898-1899). The seventy-two candidates who passed the state examination (the *staatsexamen* under the German régime) are not included in the preceding table. The thirty-one who presented doctor theses under the German régime are also omitted.

Election of Professor Béhal to the Academy of Sciences

The Academy of Sciences recently elected a member for the section of chemistry, to fill the vacancy caused by the death of Prof. Armand Gautier. The choice fell upon Monsieur Béhal, who is professor of toxicology in the Ecole de pharmacie de Paris, and a member of the Academy of Medicine. Béhal is the author of numerous works on creosote, camphor, etc. During the war, he was in charge of the Office national des produits chimiques et pharmaceutiques.

Vital Statistics for the First Half of 1920

The bureau of statistics has just published the vital statistics for France, including births, deaths, marriages and divorces, for the first half of 1920. For the first time since the war the statistical report gives the conditions in the ten departments that were invaded. It also takes account of the three departments in Alsace-Lorraine (Bas-Rhin, Haut-Rhin and Moselle). For the ninety French departments (eighty-seven before the war, with the three comprising Alsace-Lorraine added), the statistics for the first half of 1920 were:

Population (census of 1911)	41,476,272
Births	424,668
Deaths	356,722
Marriages	333,241
Divorces	12,262

This report is the best that has appeared for many years. The excess of births over deaths amounts to 67,946, a better figure than has been reached for a long time. A comparison with the first six months of 1919 can be made only with reference to seventy-seven departments, for at that time no exact account was taken of the ten invaded departments, or of the three departments in Alsace-Lorraine. For the seventy-seven departments the records of 1919 showed an excess of 192,052 deaths over births (360,743 deaths and 168,691 births), whereas in 1920 the report shows an excess of births over deaths of 36,236 (336,642 births and 300,406 deaths). Thus, with the decrease in the deaths and increase in the births, the improvement is considerable.

The International Organization of Intellectual Work

The intellectual interests of humanity are represented by a large number of highly specialized associations. These associations have established certain services and certain institutions, with Brussels as their center. But their scope has remained limited. Their ideal plans do not get beyond the stage of mere projects or outlines of plans of action. The associations do not seem to know to whom to present their desiderata. The congress of international associations that was held in Brussels last September took up this situation of affairs and sought means whereby a veritable international organization of intellectual work could be assured, as the need of such an organization is being felt more and more. It was the sentiment of the congress that this new organization ought to be affiliated with the League of Nations and be supported by it. Consequently the following resolution was drawn up:

> *Resolved,* That the League of Nations should establish, within itself, an international organization for the promotion of intellectual work analogous to the organizations that it has created for manual labor, public health and economic interests. This organization, inspired with the great needs of intellectual work, should enjoy a large measure of autonomy. Its purpose would be to aid in the rapid development of science, and education in general, by coordinating the activities of the three groups of organizations; namely, the national intellectual institutions of the various countries, the international associations that pursue certain definite educational and scientific ends (now existing or created in the future), and the international foundations or institutes, existing or to be created, such as scientific bureaus, an international university, an international institute of bibliography, an international library, an international museum, international laboratories, an international patent office and bureau of copyrights, bureau of standards, etc. With this end in view, it would seem desirable that the League of Nations summon, at the earliest possible moment, an international conference whose duty it shall be to draw up the statutes of such an organization and also formulate, in regard to the problems of international reconstruction, definite conclusions and make the necessary recommendations of a scientific character.

A resolution was also passed to the effect that the international organizations already affiliated under one head by the union of the international associations, with headquarters at Brussels, be consolidated and developed by the new organization, the older organizations serving as a nucleus for the new.

Law to Repress Enticement to Abortion and to the Use of Measures to Prevent Conception

Up to the present time, our penal code has contained only laws against criminal abortion and has provided no penalties for enticement to abortion. Now, however, that abortion and birth control propaganda have reached a stage that is dangerous to the public welfare, a new law has been drafted, which extends the scope of the old law and provides penalties for enticement to abortion and also for the spread of information in regard to methods of birth control. The new law provides penalties for enticement to the crime of abortion, even though such enticement did not result in abortion, either, by speeches delivered in public places or public meetings, by the sale or offering for sale, though not public (or by bringing to public notice by means of posters or literature distributed along the public highway or in public places), or by distribution in the homes, delivery in wrappers or in envelops closed or unclosed, by mail or by any distributing or transporting agent, of books, or any written or printed matter whatsoever, announcements, placards, drawings, sketches or pictures, whether through the mediation of medical offices, or so-called medical offices, or otherwise. The law also provides a penalty for the sale or offering for sale, or the distribution in any manner whatsoever, of remedies, substances, instruments or anything whatsoever which the person in question knows is intended as an aid in committing the crime of abortion, even though abortion shall not have been either committed or attempted, and although these remedies, substances, instruments or articles of whatsoever description destined to be used as a means of bringing on abortion may be in reality useless for the realization of such a purpose. Further, it is also considered as a misdemeanor to support any propaganda by which, through the use of any of the means just described, a person may describe or divulge or offer to reveal any procedure designed to prevent pregnancy or to facilitate the use of such procedure. Enticement to abortion is punishable by imprisonment for from six months to three years and a fine of from 100 to 3,000 francs. Offered aid to prevent conception is punishable by a term of imprisonment of from one to six months and a fine of from 100 to 5,000 francs.

The Second International Congress of the History of Medicine

The second International Congress of the History of Medicine will be held from July 1-5, 1921, in the halls of the University of Paris, under the chairmanship of Professors Jeanselme and Ménétrier. It will consist of three sections: medicine, pharmacy and veterinary medicine. At this congress there will be given a retrospective exposition of the progress of medicine, and a historical medical museum will be inaugurated. Information in regard to the congress may be secured from Dr. Laignel-Lavastine, general secretary of the congress, 12 *bis,* Place de Laborde, Paris, 8-me.

LONDON

(From Our Regular Correspondent)

Feb. 7, 1921.

Indictment of the Ministry of Pensions

In spite of the crushing burden of the war, the government, notwithstanding its protestations, has been guilty of gross extravagance in many directions. It is apparently actuated by the motive that when the taxpayer has given so much for the cost of the war it does not matter much if he is fleeced a bit more for the extravagance used to purchase popularity or, rather, to buy off unpopularity. But the country—slowly, as usual—is awakening to the evil. Sir John Collie, who was formerly director of medical services, in an address to a lay audience on "Some Medical Problems," said that until recently the public conscience tolerated a surprisingly chaotic condition in the administration of the public medical services. Preventive medicine had never really had a chance in Britain of showing what it could do in the battle with disease. The lamentable conflict on control, and the absence of cooperation and of coordination between the different departments of state and the various allied organizations had hitherto crippled the usefulness of state medicine. It was not prematurely that a ministry of health was established. In spite of all that had been said against it, he believed that it would go far. But an enormous amount of wasteful expenditure was incurred at the ministry of pensions. At this crucial stage of the financial history of the country, we should carefully scrutinize the present methods to determine whether better results might not be obtained by less expensive machinery. He referred to the boarding and reboarding of pensioners before the medical boards. No man was examined unless three physicians were present constituting a "board." The three physicians were supervised by a president of the board, by directors, deputy directors and the like. There was also an enormous clerical staff, expensively housed in premises scattered throughout the United Kingdom; and last, but not least, there were a number of higher officials drawing considerable salaries. Sir John Collie drew a comparison between this elaborate procedure and the simple one of insurance companies confronted with similar problems. For them one physician was enough. Many men now in full employment in the public services were still drawing pensions for some trifling injury, such as a scar, of the existence of which they were reminded in damp weather. Such cases should be commuted by lump sums.

Anthrax from Shaving Brushes: New Official Warning

The ministry of health has again called attention to the danger of anthrax from a new shaving brush of which the antecedents are unknown. Many deaths have resulted from the use of such brushes, and there are still many dangerous brushes on the market in the hands of retailers. They have been imported from Japan. This importation has been prohibited, but brushes in the hands of retailers have not been recovered. It is suggested that health officers should communicate with all retail pharmacists and other dealers in their districts and warn them of the dangers of Japanese brushes which may still be in stock. If the owners refuse to have the brushes destroyed, they are to be securely wrapped up and returned to the wholesalers with an explanation. A new method of disinfection declared to be reliable has been made public by the ministry of health. The brush should be thoroughly washed with soap and water containing a little washing soda, and then allowed to stand for half an hour in warm water containing a little soda. It is then placed in a warm solution of formaldehyd (one part of 40 per cent. solution of formaldehyd and sixteen parts of water) for half an hour, after which it is allowed to dry. But it is declared that complete sterilization of the brushes is impracticable. This method will free the exposed parts of the hair from infection, but does not affect spores embedded in the handle of the brush. The subjoined statistics on treatment, based on 800 cases, are given by the medical inspector of factories.

Treatment	Cases	Deaths	Mortality Per Cent.
Serum only	200	8	4
Excision only (of the part first affected)	397	44	11.1
Excision and serum	174	25	14.4
No special treatment	29	14	48.3

Thus, serum alone gave the best results. It will be noted that excision and serum gave worse results than either separately. Of this anomaly no explanation is given. Possibly it is due to the fact that this treatment was adopted in the worst cases.

The Passing of the Indian Medical Service from the Hands of Europeans

The Indian Medical Service, which has a great record both for administrative and for scientific work, appears to be slowly but surely passing from the British physicians into those of Indians. From 1855 to 1913, only 109 Indians took commissions; yet in 1913 the list was headed by three Indians. During the war many temporary commissions were given to Indians, and the London schools had ever increasing numbers on their lists. Now there is great difficulty in obtaining British candidates for the service in spite of increased pay, pension and better conditions. The fear of the future is the deterrent. The average Britisher objects to the possibility of being junior officer under Indians. But if Indians show the capacity for higher posts, as undoubtedly many of them do, they cannot be prevented from occupying them. Indeed, recent legislation has conferred on Indians increased powers of self-government, which ultimately must diminish the extent to which India is ruled and administered by the white man. But no broad-minded person can regret that.

MEXICO CITY

(From Our Regular Correspondent)

Feb. 6, 1921.

Health Activities

The federal department of public health has decided that leprosy and ophthalmia neonatorum be included among reportable diseases. This measure is intended, so far as leprosy is concerned, to determine approximately the spread of this disease and to be a preliminary step toward the possible establishment of a national leprosarium. As regards gonorrheal conjunctivitis, the purpose of the board of health is to inspect every case to determine whether or not the proper treatment has been carried out. Experience has proved that in spite of the recommendations of medical congresses and the fact that oculists have asserted most vigorously the need of early treatment in this disease, there are still some persons who consider that ophthalmia neonatorum is due to the action of the outside "air" and go to see a physician only when the child's eyes have been destroyed wholly or partially from a functional standpoint. In former years some of our sanitarians were not quite convinced of the infectiousness of leprosy, but nowadays it is considered a fact that the segregation of lepers brings about a marked decrease in the number of cases, as has been observed in the Scandinavian countries during the last fifty years and in the Philippines since American control. The department of public health has therefore under consideration the establishment of prophylactic measures in our country.

According to the official report of the department, not a single case of yellow fever was reported last week in the whole of Mexico.

As some cases of yellow fever have been reported in the province of Escuintla, Guatemala, Mexican authorities have ordered a six-day quarantine of people coming to Mexico from the infected region, unless they have a certificate showing that they have been vaccinated with Noguchi's antileptospira vaccine.

Venereal Diseases

The Society of Prophylaxis Against Venereal Diseases held its annual meeting a few days ago. A report was presented on its activities, which consisted chiefly in the operation of a free evening dispensary for the treatment of indigent persons infected with syphilis and other venereal diseases. New officers were elected: president, Dr. Genaro Escalona, a professor of the school of medicine and member of the Academy of Medicine; vice president, Lic. Roberto Esteva Ruiz, a well known lawyer and writer; and as one of the two secretaries, Dr. Ernesto González Tejeda. The secretariat has been installed at the National School of Medicine, Avenue del Brazil, No. 33.

Progress of a Scientific Society

The Mexican Society of Biology, constituted largely by students of this subject, is extending its activities. An instance of this may be found in its journal, the *Revista Mexicana de Biología*. Besides its other merits, the *Revista* is very strict so far as its advertising is concerned. The manager of the publication is Dr. Eliseo Ramírez, 3/a, calle de Donules, No. 79, Mexico City.

Personal

Dr. Alberto Madrid is the new minister from Guatemala, and he will also become a professor at the school of medicine.——There have arrived from the United States, Drs. Alfredo Caturegli, who has just been appointed Mexican minister to France, and Manuel Aveleyra, who was in the United States on a business trip.——Dr. Eutimio López Vallejo has become director of the school of veterinary medicine.——Dr. Pedro Pérez Grovas has become director of the school of diagnostic of the department of health, and Dr. José Torres Torija, director of the medicolegal service of the federal district.—— Drs. Miguel R. Soberón and Luis Garduño Soto, who have served for a long time at the clinic and nursing school supported by the Société des Femmes de France, have been decorated by the French government.

BUDAPEST

(From Our Regular Correspondent)

Jan. 25, 1921.

Increase in Lunacy

Dr. Popovici, chairman of the Transylvania Roumania lunatic asylum committee of the country council, in a recent address gave some statistics which, although they were selected arbitrarily, may be taken as showing that there has been a 100 per cent. increase of patients suffering from lunacy during the last ten years in Transylvania. He expressed the opinion that drink and unwholesome and insufficient food were accountable for a greater proportion of the cases of insanity in Transylvania than in Roumania as a whole, and that drink, insufficient food and hereditary influence, respectively, were accountable in Transylvania during the quinquennial period of 1914-1919 for 19.1 per cent. and 25.8 per cent. of the admissions. He considered that, in view of the large proportion of cases due to the last-mentioned cause, something should be done to prevent insane patients having children. As regards the food question, this is already much improved, wheat flour instead of maize flour being distributed among the workmen and poor classes of the province.

Compulsory Vaccination in Bosnia and Herzegovina

An interesting decision was given last month in the court of Larajevo, capital of Bosnia, with regard to vaccination, a decision that gains in significance not only from the fact that it was given in a country (Jugoslavia) where democracy in very much in vogue, but also from the reasons that guided the justices in arriving at it. The case in which it was given was an appeal from the Larajevo courts concerning a man named Ulitsanovics, who refused to be vaccinated during a sporadic outbreak of smallpox on the ground that the operation, compulsorily enforced in accordance with the provisions of the law, was an infringement of his personal liberty—the argument so often put forward by antivaccinationists. He also referred to the fact that in England, the most democratic country of the world, nobody can be forced to undergo vaccination. The justices of Larajevo decided against Ulitsanovics, and the appeal to the higher court confirmed the judgment. The judge, in giving the decision in the latter court, said that society based on the rule that each one was a law into himself would soon be confronted with anarchy and want of order. Real liberty for all could not exist under the operation of a principle which recognizes the right of each individual person to use his own will in respect to his person or his property, regardless of the injury that may be done to others. It is the acknowledged power of a local community to protect itself against an epidemic threatening the safety of all, and to exercise that right in particular circumstances and in reference to particular persons.

Poisons in Accident and Suicide

The data for 1920 published by the state statistician of Great Roumania present some interesting figures with regard to the accidental and suicidal poisonings during that year. The total of deaths due to accident or negligence was 6,384; of these the deaths of 146 males and 83 females were due to poison; 1,311 males and 329 females committed suicide, of whom 261 males and 67 females chose poison as the means of ending their lives. Thirty-four deaths are returned as due to anesthetics, chloroform being responsible for nineteen, or nearly two thirds; of the others, the ethyl chlorid mixtures caused one; chloroform and ether, one; ether, three and nitrous oxid, two, while in the others the nature of the anesthetic was not stated. Of the poisons taken by accident, opium with its derivatives is by far the most common, and is credited with thirty-one deaths. Phenol (carbolic acid) is still, strange to say, the favorite draft of suicides. Except the ease of obtaining it, there is little to explain its position in this respect. Oxalic acid, probably for a similar reason, is in great demand for suicidal purposes, having been effective in twenty-four cases, while only three accidental deaths are due to its use. Hydrochloric acid caused eleven suicidal and two accidental deaths. Potassium hydroxid caused thirty-seven suicidal and seven accidental deaths. Phosphorus matches and hanging with a cord are also much in vogue, but the statistics do not give particular data about these methods of suicide. There is no separate mention made of poisoning by wood alcohol, a substance responsible for many deaths in Roumania in recent years, but I suppose, if any such have occurred, they are included in the six accidental deaths returned as due to "alcoholic spirits."

BERLIN

(From Our Regular Correspondent)

Feb. 3, 1921.

Effect of Restricted Diet on Health

The view of alienists that in many cases the chronic misuse of alcohol is the sole cause of mental disease was confirmed with all the certainty of an experiment by the restricted diet forced on Germany during the war. According to the result of an inquiry set on foot in 1918 by the Prussian medical authorities, during the year 1917, only twenty-eight cases of delirium tremens in men and seven in women were admitted to the public asylums for the insane, as compared with 665 and forty-six, respectively, in 1913. The cases of delirium in men showed, then, in 1917 a decrease of 95 per cent., and in women a decrease of 84 per cent. Among the 8,565 soldiers with mental disease admitted to the public asylums for the insane in 1917, there were only two with delirium tremens. The total number of cases of mental disturbance in men due to the abuse of alcohol, admitted to the hospitals in 1913, was 4,224; in 1917, the number had fallen to 781, a decrease of 81 per cent. The number of alcoholics among the 8,565 soldiers with mental disease was 121, or 1.4 per cent., as compared with 3.5 per cent. among the male civilian population. In the private asylums the decrease in the number of deliriants in 1917 was 94 per cent. for the men and 64 per cent. for the women. Among alcoholics as a whole, the decrease, as affecting the men, was 70 per cent., and among the women, 56 per cent. The statistics in regard to the decrease in the number and the amount of sick benefits allowed by the Prussian health insurance associations tell the same story. The special homes for inebriates render the same kind of a report and state that in 1917 there were only 10 per cent. as many applicants for admission as there were in 1913.

Physicians' Strike

In several cities, during the last two years, owing to workmen's strikes, physicians have felt compelled also to proclaim a strike, partly because the exercise of their profession was almost impossible, owing to the fact that electric and gas plants, and sometimes even the city waterworks, were shut down; and partly because it was hoped that a strike of physicians might compel the workmen to resume work. In most instances the physicians achieved their purpose. That was the case two years ago in Bremen, where the burghers, in order to work against a general strike of the workmen, also ceased from their activities, to a great extent. Not only general practitioners but also hospitals refused medical assistance even in obstetric cases and under other circumstances in which the lives of persons were threatened. In the case of patients who before the strike were undergoing treatment, treatment was discontinued, and operations were not undertaken even though postponement endangered the life of the individual. Those of the hospital patients who could leave were dismissed, as it was impossible to secure water and provisions. By such measures as these, the labor strike, which had lasted eleven days, was brought to an end in just a few days.

In Stuttgart the strike of the physicians did not go to such lengths as it did in Bremen. If the life of a person was endangered, assistance was not refused. The patients who were being treated when the strike was declared continued to be treated. In urgent cases operations were performed and patients were even admitted to hospitals. The patients who were already in the hospitals were allowed to remain if it was deemed necessary. Even with this milder type of strike the physicians accomplished their purpose at the end of five days. Likewise in Brunswick the same result was accomplished within the same length of time. Here, too, medical assistance was given only in case of dire need. In Berlin, in spite of the trying conditions that have arisen owing to the repeated workmen's strikes, not the least of which was the shutting down of the electric and gas plants, there has been no strike of the physicians as yet. To be sure, the physicians have on several occasions threatened to strike. In regard to the important question as to how a strike of physicians is to be viewed from a legal standpoint, Dr. Ebermayer, president of the senate of the supreme court, has expressed himself to the effect that we must distinguish between a workmen's strike that follows a pacific course and one that is accompanied by violence and bloodshed. In the latter case, physicians are morally bound to render aid to injured persons, especially in critical cases in which life is at stake; but he is inclined to doubt that a physician is under legal obligations to render assistance in such cases. A private practitioner is carrying on a trade or profession, and no one can compel him to exercise his trade in general or in any particular case, even though by his refusal to do so in any individual case harm should arise for certain persons. Even though a physician were under contract to perform certain services, he would not be compelled to exercise his profession if by doing so he would expose himself to the danger of suffering injury to life or limb in the presence of violent uprisings. As for a peaceful strike, the physician can usually, here as well, refuse to render medical assistance. But if he has begun to treat a patient before the outbreak of a strike, he is under legal obligations to continue such treatment. He can, however, refuse to accept new patients. This legal obligation obtains more particularly for physicians who are under contract to serve a krankenkasse (sick benefits fund), a hospital or the state. In such cases they are under obligation not only to continue to treat patients whose treatment was already begun, but also to carry out the terms of their contract.

Death of Wilhelm Waldeyer

January 23 saw the passing of one of the most famous anatomists of modern times—Wilhelm Waldeyer. Four years ago, on his eightieth birthday, he was granted a patent of nobility and received the name von Waldeyer-Hartz. Waldeyer attained the advanced age of 84, and up to a few weeks before his death was in full possession of his mental faculties. Last year, he published a volume of personal reminiscences, which give evidence of the active life he led. He had laid a broad foundation on which to build his future career. From 1856 to 1858 he studied, in Göttingen, mathematics and the natural sciences. Later he took up medicine, mainly owing to the influence of Henle, whose excellent lectures on anatomy he had attended in Göttingen. Henle soon recognized his pupil's genius and succeeded in awakening in him a permanent interest in anatomy, so that Waldeyer's first position, which he held until 1861, was in the Anatomic Institute in Greifswald. From 1864 to 1865, he studied certain physiologic problems in Breslau and became, soon thereafter, an instructor in anatomy and physiology at the university of Breslau. He did not stop at that, but included pathologic anatomy within the circle of his endeavor, in order not to lose the connection with medicine as a whole; and in 1867 he had the satisfaction of being appointed to a chair of pathologic anatomy in the University of Breslau. As the result of his investigations in this field, he published some of his most important works; namely, on cancer and the central nervous system. In dealing with the question of cancer, he furnished an important contribution on the development of carcinomas, in which he conceived of a cancerous tumor as a neoplasm arising from the glandular epithelium. In his "Investigations in the Realm of the Anatomy of the Central Nervous System" he declared that the so-called neuron possesses anatomic, genetic, functional and trophic nerve unity.

In 1872, Waldeyer accepted a position on the faculty of the University of Strasbourg, as director of the Anatomic Institute. In 1883, he was given a chair of anatomy in the University of Berlin and continued as a professor of this university until 1910. After resigning from this position he devoted himself exclusively to science, serving the while as permanent secretary of the Academy of Sciences, which post he did not give up until 1919.

Every one who had the pleasure of knowing Waldeyer personally was charmed by his many-sided knowledge and the wide range of his interests. Therein lay the strength of his talent as a teacher. He made a deep impression on his hearers, and, with never-ending patience, he was able to awaken in beginners a taste for anatomy, which is not just to everybody's liking. Especially his lectures on topographic anatomy were ideal, and his demonstrations on intestinal ruptures always attracted a great many students. In this field he did good service, especially in preparing surgeons for their future tasks.

Waldeyer has published a large number of scientific works. In the seventies he devoted himself chiefly to embryology and microscopic anatomy. His most important investigations deal with the ovaries, the teeth and the hair. Other investigations deal with the eye, the position of the pelvic organs, the course of the blood vessels in the abdomen, and the detailed anatomy of the brain and spinal column. The latter studies, especially those that were made on the gibbon and the gorilla, constitute a part of the work that he did as a member of the Internationale Vereinigung für Hirnforschung (Brain Commission). This commission was composed of anatomists from the various countries, and from time to time they exchanged, with each other, the results of their investigations. Waldeyer was the leading spirit of the commission. In fact, after the death of Virchow he took upon himself more and more the rôle of the Nestor of German scientific medicine. His ability as an organizer, his great energy and his harmonious personality made him adapted, as are but few, to become the leader of great scientific undertakings. He also succeeded Virchow as the editor of Virchow's Jahresberichten (Reports). Other studies, not of a strictly scientific nature, he published in the Transactions of the Academy of Sciences; for example, an essay on instruction in anatomy in Berlin, and his esthetic and anthropologic discussion on the skull of Frederick the Great, in which he betrays so much acumen. Anthropologic questions always had great interest for him. He also took part in the discussion that arose in regard to Schiller's skull. His last work, "Reminiscences," contains many allusions to his manifold interests and his various forms of activity.

Marriages

Jesse Franklin Gamble, captain, M. C., U. S. Army, to Miss Leah M. Abadie, both of Houston, Texas, at Des Moines, Iowa, January 11.

Stewart Emmart Rauch, Bethlehem, Pa., to Miss Viola Moore Bergey of Allentown, Pa., January 11.

Arthur Edward S. Casey, Philadelphia, to Miss Elizabeth Helen Conway of New York, February 4.

Charles Brown Crawford, Washington, D. C., to Miss Joyce Ince of Toronto, Ont., January 22.

Marion Nicholas York to Miss Essie Octavia Tillery, both of Little Rock, Ark., February 12.

James Joseph King to Mrs. Virginia Pernet Lawrence, both of New York, February 19.

Da Costa Walker to Miss Toka Ann Stewart, both of Hot Springs, Ark., February 6.

Harold Irving Freeman to Miss Sophie Bene Baruch, both of New York, February 12.

Jonas Walter Wolf, Yonkers, N. Y., to Miss Marie Horwitz of New York, recently.

Leo Louis Hardt, Rochester, Minn., to Miss Ruth Sharer of Chicago, February 12.

John P. Lindsey to Miss Ida Belle Queener, both of Pruden, Tenn., February 10.

Louis Faulkner to Miss Mildred Frink, both of Chicago, January 29.

Deaths

James Franklin Stevens ⊕ Lincoln, Neb.; Chicago Medical College, 1884; died, February 23, aged 61. He was at one time dean and professor of principles and practice of medicine, and at the time of his death professor of introductory medicine in the University of Nebraska College of Medicine; physician to St. Elizabeth's Hospital, Lincoln.

Walter Reed Iszard, Brooklyn; Hahnemann Medical College and Hospital of Philadelphia, 1902; aged 39; genito-urinary surgeon to the Cumberland Street and Prospect Heights hospitals, and physician to the Peck Memorial Hospital and Methodist Episcopal Home for the Aged, Brooklyn; died, February 18.

Henry Stow Garlick ⊕ Laredo, Texas; Medical College of Ohio, Cincinnati, 1895; University of Pennsylvania, Philadelphia, 1896; aged 45; formerly otologist and laryngologist to Presbyterian and Speers Memorial hospitals and Episcopal Hospital for Children, Cincinnati; died, February 9, from pneumonia.

Eudora Meade Draper Faxon, Boston; College of Physicians and Surgeons, Boston, 1892; Tufts College Medical School, Boston, 1894; aged 78; a member of the Massachusetts Medical Society and New England Society of Psychiatry; died, February 11.

George Bowers Snyder, Chicago; Jefferson Medical College, 1876; aged 67; surgeon to the Union Pacific Railway Company for twenty-five years; and a practitioner of Hays, Kan., for forty-two years; died, February 22, from chronic interstitial nephritis.

Reinhold Kanzler, Ogden, Utah; Northwestern University Medical School, Chicago, 1910; aged 38; lieutenant, M. C., U. S. Army, and discharged, Dec. 17, 1918; a member of the Utah State Medical Association; died February 17, from septicemia.

Samuel Ruff Skillern, Ardmore, Pa.; University of Pennsylvania, 1854; aged 87; a member of the Medical Society of the State of Pennsylvania; contract surgeon during the Civil War; died, February 17, from chronic interstitial nephritis.

Mark Russell McAlpin, Leesville, La.; Tulane University, New Orleans, 1887; aged 64; secretary of the Vernon Parish Medical Society; health officer of Leesville and Vernon Parish, and for four terms coroner; died, January 31, from heart disease.

John H. Forrest, Marion, Ind.; Bennett College of Eclectic Medicine, Chicago, 1880; aged 62; a member of the first city council and for many years a member of the board of education and board of health of Marion; died, February 6.

Barzillai Bean Foster ⊕ Portland, Maine; Medical School of Maine, Brunswick and Portland, 1870; aged 72; at one time president of the Maine Medical Association; a practitioner of Portland for half a century; died, February 17.

Hugh Philip MacAniff ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; aged 50; also a druggist; a member of the staff of the Northwestern General Hospital, Philadelphia; died, January 29, from pneumonia.

Isaac N. Enloe, Jefferson City, Mo.; Missouri Medical College, St. Louis, 1883; aged 60; a member of the Missouri State Medical Association; president of the local school board for fourteen years; died, February 15.

Charles H. Lemon ⊕ Milwaukee; Rush Medical College, 1891; aged 57; chief surgeon for the Milwaukee Electric Company for twenty-five years; also a clergyman; died, February 22, from cerebral hemorrhage.

John Howard Davis, East Liverpool, Ohio; Cleveland University of Medicine and Surgery, 1895; aged 48; a member of the Ohio State Medical Association; died, February 10, from cerebral hemorrhage.

Joshua M. S. Heath, Bellaire, Ohio; Western Pennsylvania Medical College, Pittsburgh, 1900; aged 50; a member of the Ohio State Medical Association; died, February 15, from cerebral hemorrhage.

Theodore Franklin Pharr, Concord, N. C.; Bellevue Hospital Medical College, 1875; aged 69; a member of the Medical Society of the State of North Carolina; died in Charlotte, N. C., February 12.

Cyrus C. Harvey, Dundee, N. Y.; University of Buffalo, 1877; aged 72; a member of the Medical Society of the State of New York; a member of the Dundee board of education; died, February 9.

John Elmer Allaben ⊕ Rockford, Ill.; University of Michigan, Ann Arbor, 1883; aged 62; surgeon to St. Anthony's Hospital, Rockford; died, February 9, from chronic interstitial nephritis.

George Gary Whitaker, Fulton, N. Y.; Albany (N. Y.) Medical College, 1865; aged 78; at one time city physician and health officer of Fulton; also a druggist; died, February 7.

William B. Putnam, Hoosick Falls, N. Y.; Homeopathic Hospital College, Cleveland, 1879; aged 65; died in Troy, N. Y., February 15, from heart disease.

Daniel Winfield Wheelwright, Woodward, Iowa, Rush Medical College, 1886; aged 59; a member of the Iowa State Medical Society; died, February 6.

Thomas Harwell Craig, Johnson's Grove, Tenn.; Memphis (Tenn.) Hospital Medical College, 1891; aged 55; died, February 8, following an operation.

Alfred Thomas Chisolm, Greensboro, Ga.; Leonard Medical School, Raleigh, N. C., 1908; a colored practitioner; died, January 30, from pneumonia.

Nathan Moody Dewees, Palacios, Texas; Eclectic Medical College, Cincinnati, 1892; aged 59; died, February 3, from carcinoma of the stomach.

James S. Lewis, Grand Ridge, Ill.; Cleveland Medical College, 1878; aged 74; a veteran of the Civil War; died, February 10, from pneumonia.

Charles Edwin Swasey, Lynbrook, N. Y.; College of Physicians and Surgeons in the City of New York, 1875; aged 73; died, February 8.

Michael B. Brennerman, Saxton, Pa.; Jefferson Medical College, 1870; aged 82; a veteran of the Civil War; died, January 28.

William Saphus Block, Port Byron, Ill.; University of Vermont, Burlington, 1886; aged 70; also a druggist; died, February 12.

Isaac E. Roberts, Philadelphia; University of Pennsylvania, Philadelphia, 1867; aged 80; died, February 15, from arteriosclerosis.

George V. Ess, Massillon, Ohio, Starling Medical College, Columbus, 1892; aged 65; died, February 7, from carcinoma.

Pierre Von der Smith ⊕ Denver; Baltimore Medical College, 1888; aged 69; died, February 14, from pneumonia.

Francis L. Sanderson, Ramer, Ala.; University of Alabama, Mobile, 1901; aged 47; died, February 11.

Leo Ratner, New York; University of the City of New York, 1892; aged 59; died, February 18.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Fraud on the Public and on the Profession

MORE MISBRANDED NOSTRUMS

White's Wonder Worker.—George W. Smith, who traded as the W. W. W. Medicine Co., Pickering, Mo., shipped in January, 1917, a quantity of "White's Wonder Worker" which the federal authorities declared was misbranded. When analyzed in the Bureau of Chemistry, the preparation was found to contain 8.2 per cent. of alcohol, with Epsom salts, ginger, quassia and caramel. It was falsely and fraudulently represented as an effective remedy for malaria, rheumatism, syphilis, all kidney and liver complaints, female disease and a number of other things. It was further misbranded in that the label represented that the product was a purely herbal extract, when, as a matter of fact it contained Epsom salts. Furthermore, it was labeled as containing 20 per cent. of alcohol when it actually contained only 8.2 per cent. of alcohol. In March, 1920, Smith pleaded guilty and was fined $20 and costs.—[*Notice of Judgment No. 8012; issued Jan. 5, 1921.*]

Kar-Ru and Gon-Nol.—The Kar-Ru Chemical Co., Tacoma, Wash., shipped in January, 1917, a quantity of "Kar-Ru" and "Gon-Nol" which were misbranded. Kar-Ru, when analyzed by the Bureau of Chemistry, was found to consist substantially of a mixture of sugar (sucrose), starch and charcoal. The proportions and weights of the different ingredients were variable. Kar-Ru was falsely and fraudulently represented as an effective remedy for rheumatism, kidney, liver, bladder and stomach troubles for mental and physical debility, blood diseases and irregular menstruation.

"Gon-Nol" was found by the Bureau of Chemistry to consist substantially of sugar (sucrose), starch and charcoal, the ingredients also in varying proportions and weights. It was fraudulently represented as an effective remedy for gonorrhea. The case came on for trial in July, 1918, before the court and a jury and the jury returned a verdict of guilty. The company then filed a motion in arrest of judgment which was denied by the court in October, 1918, and in December, 1918, the trial court entered judgment that the company should pay a fine of $100 on each count. In June, 1919, the company filed its petition for a writ of error and in September, 1919, argument was had on this writ before the Circuit Court of Appeals. In May, 1920, the matter came up for final disposition and the judgment and conviction by the lower court was affirmed. Later the company filed a petition for a rehearing before the Circuit Court of Appeals and in July, 1920, the petition was denied by the court.—[*Notice of Judgment No. 8021; issued Jan. 5, 1921.*]

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The Constitutional Remedy for Rheumatism and Kindred Diseases

KAR-RU penetrates the nerve centers and blood carriers, produces a reaction of the vital forces and a proper digestion and assimilation of natural elements, and aids the organs of the body to perform their functions. By reason of its deep action KAR-RU eradicates the **root** of disease, restores health, and fortifies the system against toxic germs. It is effective in **Kidney, Liver, Bladder, Stomach, and Catarrhal Troubles, Mental and Physical Debility, Neuritis, Eczema, Blood Diseases, Irregular Menstruation, and the most Acute and Chronic Rheumatic Afflictions.**

Prepared by the KAR-RU CHEMICAL CO., Tacoma, Wash.
PRICE $5.00

O-Zo-Nol.—The Ozonol Chemical Co., Odessa, Mo., shipped in March, 1918, a quantity of "O-Zo-Nol" which was misbranded. The Bureau of Chemistry reported that analysis showed it to consist of an ointment composed essentially of small amounts of camphor, menthol, boric acid, beta-napthol and zinc oxid in a petrolatum base. It was falsely and fraudulently represented as an effective cure for eczema and all eruptions and diseases of the skin, nasal catarrh, sore throat, erysipelas, croup, piles and earache. In June, 1920, the company confessed judgment through its counsel and was fined $10 and costs.—[*Notice of Judgment No. 8028; issued Jan. 5, 1921.*]

G. S. Remedy.—A quantity of this product was shipped in August, 1919, to Cairo, Ill., having been consigned by L. M. Gross, Little Rock, Ark. Analysis of a sample by the Bureau of Chemistry showed "G. S. Remedy" to consist of an alcoholic solution containing unidentified vegetable extractives and a small amount of potassium iodid. It was falsely and fraudulently represented as an effective remedy in pellagra, rheumatism, indigestion, malaria, stomach, liver, kidney and bladder diseases and syphilis. In January, 1920, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8049; issued Jan. 5, 1921.*]

RHEUMATISM

G. S. is guraranteed for one bottle to benefit any case of Pellagra, Rheumatism, Constipation, Blood, Liver or Kidney diseases. Many thousands claim one bottle has entirely relieved them. My guarantee is good to you. At druggists or agents, or post paid $1.00 per bottle, or 6 for $5.00. Write for testimonials and mention this paper. Take Gross' Liver Pills, 25c.

L. M. Gross, Box 17, Little Rock, Ark

Gon-Nor.—The Occidental Medicine Co., Arecibo, P. R., shipped in November, 1918, a quantity of "Gon-Nor" which was declared misbranded. When analyzed by the Bureau of Chemistry the product was found to consist essentially of a watery solution containing acetates and sulphates of zinc and lead and extractives of catechu and wild cherry bark. It was falsely and fraudulently represented as an effective astringent in acute and chronic gonorrhea, urethritis, etc. In May, 1920, J. M. Blanco & Co., Inc., claimant, consented to a decree and judgment of condemnation and forfeiture was entered and the court ordered that the product be delivered to the claimant on payment of costs and the filing of a bond.—[*Notice of Judgment No. 8042; issued Jan. 5, 1921.*]

Methyloids.—A quantity of a product labeled in part "Methyloids Frederick Stearns & Co., Detroit, Mich.," was sold in September, 1919, at Ponce, P. R. The government charged that the product was misbranded. A sample analyzed by the Bureau of Chemistry was found to consist of capsules containing methylene blue, santal oil, copaiba balsam, a fixed oil with combined sulphur and oil of cinnamon. It was falsely and fraudulently represented as a successful treatment for gonorrhea and its complications. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8054; issued Jan. 4, 1921.*]

B-I-F Combination and B-I-F Capsules.—A quantity of "B-I-F Combination" and "B-I-F Capsules" was shipped in October, 1919, from Maryland to Pennsylvania having been consigned by the Hollander-Koshland Co., Baltimore, Md. When analyzed by the federal chemists, B-I-F Combination was found to consist of two preparations, an injection and an emulsion. The injection consisted essentially of a dilute watery solution of zinc sulphate, carbolic acid and glycerin while the emulsion consisted essentially of an alkaline mixture of copaiba and oils of santal and peppermint. The B-I-F Capsules contained copaiba and oils of santal, turpentine and cinnamon. These products were both declared misbranded because they were fraudulently represented as an effective remedy for gonorrhea, gleet and disorders of a similar nature and origin. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8077; issued Jan. 4, 1921.*]

BRSCO.—In February, 1919, the Brsco Medicine Co., Nowata, Okla., shipped a quantity of "BRSCO." Analysis by the Bureau of Chemistry showed the stuff to consist essentially of a mixture of white mineral oil, turpentine, creosote with a watery solution containing gum acacia, sugar and a small amount of hypophosphites and alcohol. It was falsely and fraudulently represented as a treatment for tuberculosis, bronchitis, Spanish influenza, hay fever, asthma and ordinary coughs and colds. In September, 1919, a decree of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8091; issued Jan. 4, 1921.*]

Sulpho-Saline Still Natural Mineral Water.—The Excelsior Springs Mineral Water & Bottling Company, Excelsior Springs, Mo., shipped in November, 1918, a quantity of "Sulpho-Saline Still Natural Mineral Water" which was misbranded. It was falsely and fraudulently represented as an effective cure for stomach troubles, headaches, jaundice and vertigo "when in truth and in fact, it was not." In May, 1920, the corporation confessed judgment through its counsel and was fined $10 and costs.—[*Notice of Judgment No. 8057; issued Jan. 4, 1921.*]

Correspondence

"ADMINISTRATION OF CARBON DIOXID AFTER ANESTHESIA AND OPERATION"

To the Editor:—In The Journal, Feb. 12, 1921, p. 437, Reimann, Bloom and Reimann, reporting an investigation on the administration of carbon dioxid after anesthesia, say that "the apparatus and technic used were the same as that described by Henderson, Haggard and Coburn" (The Journal, March 20, 1920, p. 783). This, however, is not correct, for the apparatus which is illustrated in Figure 1 of the paper of Reimann, Bloom and Reimann shows nothing more quantitative than a wash bottle through which the gas was bubbled. This arrangement is liable to be quite ineffective if used cautiously, and dangerous if used vigorously. With such apparatus one can never know what the patient is getting. Carbon dioxid is a powerful drug, and the control of dosage is of primary importance.

In our work, on the contrary, we used a device which, although simple in appearance, is the result of many years of experimentation and study in the Yale Physiological Laboratory. Our apparatus provides for accurate dosimetry—an essential both for efficiency and safety in this treatment.

It is noteworthy that Reimann, Bloom and Reimann found invariably (as we did) that carbon dioxid inhalation during the half hour after the termination of anesthesia markedly increases the volume of air breathed. Yet they express the opinion that "the administration of carbon dioxid did not materially hasten the recovery from the anesthetic." It would be interesting to know by what avenue Reimann, Bloom and Reimann believe ether to be eliminated from the body! Surely the sense of smell is sufficient to show that ether is ventilated out through the lungs; and it needs but little observation of postanesthetic conditions to see that in patients in whom the breathing remains subnormal, the elimination of ether is slow, and recovery is retarded.

They state that in their cases carbon dioxid exerted no constant effect in raising blood pressure, although they fail to give figures for the normal before anesthesia. In this observation they differ not only from us but from all other investigators. The blood pressure raising influence of carbon dioxid is one of the commonplaces of physiology. Evidently the amount of carbon dioxid which they administered was sufficient only to increase breathing, but not enough to increase the carbon dioxid in the blood to a blood pressure raising extent.

The explanation of their results is clearly that they confined their observations to patients who (as they admit) "were returned from the operating room in good condition with good color, warm skin, and a respiratory rate fairly regular." Evidently these patients had not suffered to any appreciable degree that depression of vitality which comes on usually only when anesthesia and operation are prolonged beyond an hour; then the skin loses its pinkness and arterial pressure falls (Bryant and Henderson, The Journal, July 3, 1915, p. 1). But it is to the relief of such depression that the carbon dioxid therapy is particularly applicable. The effects which Reimann, Bloom and Reimann report are those always obtained by small administrations of carbon dioxid to healthy persons who need no restoration.

The statements of Reimann, Bloom and Reimann regarding the blood alkali are of an essentially *a priori* character. They think that low blood alkali after anesthesia and operation is due to the formation of acids—the acidotic process—in which carbon dioxid inhalations are contraindicated. In fact, however, Henderson and Haggard have proved (*J. Biol. Chem.* **33**:345 [Feb.] 1918; **39**:163 [Aug.] 1919; **43**:3 [Aug.] 1920) that such is not its origin, but on the contrary that after anesthesia the blood alkali is simply withdrawn from use by lack of carbon dioxid. A restoration of the body's store of carbon dioxid is needed to recall the alkali to use.

The same general considerations apply to the application to this topic of the paper of Carter, quoted by Reimann, Bloom and Reimann in support of their objections to carbon dioxid therapy.

It is easy to answer such objections. But in science truth is not necessarily reached merely by argument. There are symptoms, signs and warnings in the carbon dioxid therapy which are to be grasped only by experience or demonstration. All that we ask is fair trial of our procedure and opportunities for demonstration. Otherwise the introduction and development of what we believe to be a measure of great value may be delayed for years.

Yandell Henderson, Ph.D.,
Howard W. Haggard, M.D.,
New Haven, Conn.
Raymond C. Coburn, M.D.,
New York.

THE NAMING OF ANIMAL PARASITES

To the Editor:—Cannot there be devised a way to simplify the naming of animal parasites? It might be possible to keep oneself fairly well informed regarding them were each, when discovered, given its correct zoological name, and this name only used by all subsequent writers. As things now are, a parasite is given a name, this is revised by one or more later investigators, and then each revision is corrected by authorities or writers until a formidable list of names makes one who is not an expert zoologist feel helpless. Teachers are confused, students bewildered.

These remarks have been precipitated at this time by my recent attempt to give a brief account of the *Distomata*, or flukes (I notice that the word "fluke" does not appear in the index of the latest edition of Castellani and Chalmers'

Tropical Medicine). Mention of this splendid book recalls that it contains a number of instances of renaming parasites that do not add to the clearness of medical literature; the trypanosomes for instance. When those authors designate the trypanosomes of warm-blooded animals as *Trypocastellanelleae*, one genus as *Castellanella* Chalmers, 1918, and one species as *Castellanella castellanii*, one may be pardoned for wondering what is the limit to the gentle art (or pastime) of naming parasites. Further, one finds in Dobell's monograph on "The Amoebae Living in Man" a list of thirty-three names of the ameba causing dysentery (I dodge naming it here). He uses five pages in showing why one of these names is correct. Others, of course, can fill more pages to prove that he is wrong. When I was a student I learned that the broad tapeworm was *Bothriocephalus latus*, a revised name given in 1819, and a little later in my course that it was *Dibothriocephalus latus*, the original name given in 1748. Both are now in current literature, and in a recent article a writer prefers the 1858 vintage of *Diphyllobothrium latum*. Which shall it be? The foregoing are but a few of the many instances of multiple naming that could be cited.

Possibly I should be ashamed of not knowing, and being willing to teach, all the multitudinous names of all the parasites. But I am not. Instead, I am rebellious because there are now in use so many to perplex teacher and pupil. Students should not be compelled to spend so much time in learning the names—original, revised, corrected, amended, honorary—of parasites, that they have none left in which to learn how these parasites get into the human body and what they do to it after they arrive.

What can be done? Why not establish an international clearing house, a small committee of zoologists, whose first duty would be to choose *one* name for each known parasite. Although no writer could be forced to use them, I believe there would be practically universal acceptance of such names, for the advantage of this simplification must be apparent to every person. Secondly, when a new parasite was discovered its finder could submit his description (or a sample) and his proposed name to this committee before publication. In this way the parasite would be properly classified and the possessor of a permanent name when presented to the profession; the present pernicious naming and especially renaming would be avoided. Priority of discovery would be assured, just as at present. And exactly the same method could be employed with bacteria, spirillae, etc. Let some of the efforts of our learned men be toward simplifying instead of complicating medical literature.

This idea may be Utopian; if any one has a different suggestion, let us hear it. I am one of many who would be glad to have The Journal support some plan for bettering present conditions.

A. G. Ellis, M.D., Bangkok, Siam.

"NECROPSIES AND MEDICAL PROGRESS"

To the Editor:—Referring to Dr. Ashhurst's letter and your editorial (The Journal, February 19), on the subject of necropsy records in the hospitals, I take the liberty of addressing you concerning some of the Chicago hospital records on account of a slight inaccuracy in your data. In the year 1920 at the Cook County Hospital there were 3,267 deaths, after subtracting stillbirths. Of this number 875 were coroner's cases; in the remainder there were performed 304 additional necropsies. These figures are taken from the pathologist's report. Therefore, 12.7 per cent. of the bodies of patients dying in the Cook County Hospital were examined postmortem by permission. The total necropsy percentage for the year equaled 36.5 per cent.

Kellogg Speed, M.D., Chicago.

RELATION OF THYROID TO MENSTRUATION

To the Editor:—The following statement by Dr. William Engelbach appears in the last issue of *Medical Clinics of North America*. In a clinic on "Endocrine Amenorrhea," he says:

> The hypothyroid girl menstruates at a much earlier age than the normal. The speaker has noted that in a series of cretins in which there was a complete insufficiency of the thyroid gland, adolescence occurred from the age of 9 to 11 years. . . . The thyroid secretion is an inhibitory hormone to the gonads. When this substance is withdrawn, more or less completely in the hypothyroid, menses occur as described above. Whereas, when an excessive thyroid secretion is present in the body, the inhibition is so great as not only to delay the age of occurrence of the first period, but to suppress the normal menstrual act and produce the short, scanty and irregular painful period present in hyperthyroidism.

Yet Osborne, in the *New York Medical Journal*, September, 1918, makes the following statement, with which many other authorities seem to agree:

> Menstruation cannot possibly occur without the activity of the thyroid. Too much thyroid secretion may cause profuse or too frequent menstruation. . . . In female cretins, the genital organs may develop, but they do not function.

Is it not strange that two such contradictory statements should be made in these times about the one endocrine gland concerning which we pride ourselves that we have a fairly complete understanding?

One of these views must be incorrect. Will you kindly give me the latest commonly accepted view regarding the relation of the thyroid to menstrual disorders? I am sure this would interest many.

S. A. Levinsohn, M.D., Brooklyn.

[A copy of the foregoing communication was sent to each of the authors mentioned. Dr. William Engelbach, St. Louis, replies:]

I can readily agree that the views in literature on this subject differ materially. In fact, this is true of the hormonic functions of the ductless glands other than the thyroid. Much more difference of opinion prevails regarding the interaction of the glands of internal secretion on one another than on the functions of organs of other systems. Much more literature could be quoted stating that the thyroid secretion is an accelerating, rather than an inhibitory hormone to the ovaries and the act of menstruation. Possibly it is the existence of this prevailing idea that produces the requoting of this stimulating effect of the thyroid secretion on the development and function of the gonads.

It has occurred to us that those cases of hypothyroidism associated with infantile genitalia, as quoted by Dr. Osborne, might possibly have been polyglandular cases in which other glands were involved. This deduction is made from observations on polyglandular disorders, consisting of insufficiency, for instance, of the thyroid, pituitary and gonads, in which this anatomic aplasia of the genital tract is present.

Some additional references to the deduction that the thyroid hormone is an inhibitory one to the ovaries are made from clinical observations in which it has been noted that: (1) cretins have an unusually early adolescence and an early overdevelopment of both the primary and secondary sex organs, and a profuse and prolonged menstrual flow, without dysmenorrhea; (2) hyperthyroid girls have the opposite development of the secondary sexual characteristics, a late adolescence, and a tendency to scanty, imperfect menses, associated with dysmenorrhea; (3) the hypothyroid woman has her menopause very late in life (after the age of 45), and usually gives a history of rather profuse, prolonged menses, free from discomforting local or constitutional symptoms, antedating the menopause; (4) thyroid therapy in both the early and the late hypothyroid has a marked tendency to decrease the amount of flow and shorten its duration; (5) the youthful or early adult hyperthyroid, following operation in which the thyroid secretion is greatly diminished, has a tendency to return to the normal with regard to the amount, duration and painfulness of the menses; (6) in a few cases in which the thyroid gland was removed entirely, which had been accompanied by metrorrhagia, this metrorrhagia was entirely relieved by thyroid medication.

[Dr. Oliver T. Osborne, New Haven, Conn., writes:]

I myself have never known a decidedly hypothyroid young girl to menstruate, and certainly in such cases I have never seen precocious menstruation. Of course it may be possible for a hypothyroid girl to menstruate when there are disturbances and abnormalities of other endocrine glands, but I reassert the clinical fact as I find it that hypothyroidism at any age interferes with or actually inhibits menstruation. It frequently occurs that the adult woman has amenorrhea with other symptoms of hypothyroidism, such as dry skin, increase in deposits of fat, sleepiness and slow pulse, all of which conditions are improved or cured by the administration of thyroid extract; and as soon as the menstruation becomes regular and sufficient, the other hypothyroid symptoms disappear. Sometimes the coincident administration of iodin is necessary; at other times iodin alone to stimulate the thyroid gland is sufficient to start menstruation and cause the symptoms of hypothyroidism to disappear. On the other hand, hyperthyroidism often causes profuse and too frequent menstruation.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

IMPOSSIBILITY OF RACE IDENTIFICATION BY BLOOD TESTS

To the Editor:—Will you kindly furnish me with references to recent work on the identification of race by the precipitin blood method, with especial reference to the quantitative results possible in mixed races. I wish to find out, for example, how little negro blood reaction has been or can be shown in mixed races. D. M. L., Charleston, W. Va.

To the Editor:—A patient of mine has asked me two questions which I should like to have your help in answering if possible: 1. She has heard rumors to the effect that there is a strain of colored blood in her veins, and she has asked me whether there is any way of determining by means of a blood test whether or not this is true. 2. She also wants to know whether in case there is a slight strain of colored blood, there is a possibility of its resulting in the birth of a colored child in case she should be married. As she is contemplating matrimony, she is naturally very much exercised by this. I would appreciate very much your answering these questions if you can or, if not, your informing me where I can look the matter up in order to give her a satisfactory answer to these two questions.

S. J. Repplier, M.D., Philadelphia.

Answer.—1. There is no way at present known to determine by blood test whether or not a person has negro blood. It is not possible to distinguish between human races by precipitin tests. Whether the study of races from the point of view of iso-agglutination, as urged by Hirschfeld, would yield results of practical value in the identification of race mixture in a person is, of course, highly doubtful. Those interested should consult the article by Hektoen, "The Precipitin Test for Blood," The Journal, May 4, 1918, p. 1273.

2. If negro blood is present in either parent, a child may have negro features in greater or less degree.

SODIUM LACTATE IN DIABETES—STATUS OF COMPLEMENT FIXATION TEST IN TUBERCULOSIS

To the Editor:—1. In The Journal, Feb. 12, 1921, p. 484, is a statement concerning the use of sodium lactate in diabetes. I don't quite understand how it is oxidized into sodium bicarbonate, thus becoming effective as an antidote to acetone poisoning. 2. Some years ago, I read some papers concerning the complement fixation test as a method in studying immunity in tuberculosis. What is the present status or value of this test? Samuel Ginsburg, M.D., Buffalo.

Answer.—1. Salts of certain carboxylic acids, such as sodium acetate, citrate, lactate or malate, are oxidized in the body to carbonates, or as they finally exist in the main in the blood stream, to bicarbonates (somewhat similarly to the manner in which glucose is "burned" in the body to carbon dioxid and water). Some of the carbon dioxid finds its exit through the lungs, leaving the associated base, generally sodium or potassium, with the weak acid, carbonic acid. Thus, just as if sodium bicarbonate had been administered, the urine of a normal person may be made alkaline with sodium citrate or lactate.

2. The complement fixation test in tuberculosis must be considered as still in the experimental stage. Some writers are extremely enthusiastic, while others are rather doubtful as to the value of the test. As compared with the Wassermann test for syphilis, it cannot be considered even fairly efficient. Following is a list of references from the Quarterly Cumulative Index:

Stivelman, B. P.: Tuberculosis Complement Fixation Test, Report of Seven Hundred Cases, *J. Lab. & Clin. Med.* **5**: 453 (April) 1920.
Watkins, W. W., and Boynton, C. N.: Complement Fixation Reaction in Tuberculosis, Reporting Six Thousand Five Hundred Reactions, The Journal, Oct. 2, 1920, p. 933.
Upham, R., and Blaivas, A. J.: Value of Complement Fixation Test in Tuberculosis, *J. Lab. & Clin. Med.* **5**: 784 (Sept.) 1920.
Moursund, W. H.: Serodiagnosis of Tuberculosis, *J. Infect. Dis.* **26**: 85 (Jan.) 1920.
Von Wedel, H. O.: Serodiagnosis of Tuberculosis, *J. Immunol.* **5**: 159 (March) 1920.
Letulle, R.: The Calmette-Massol Technic in Serology, *Presse méd.* **28**: 588 (Aug. 25) 1920; abstr. The Journal, Oct. 9, 1920, p. 1029.
Buddy, E. P.: Clinical Value of Complement Fixation Test for Tuberculosis, *J. Missouri M. A.* **17**: 145 (April) 1920.
Rogers, J. B.: Complement Fixation in Tuberculosis and a Comparison of the Wassermann and Hecht-Weinberg, Gradwohl Systems, *J. Infect. Dis.* **27**: 101 (Aug.) 1920.
Punch, A. L.: Complement Fixation Test in Pulmonary Tuberculosis: Its Use as a Means of Diagnosis, *Lancet* **2**: 647 (Sept. 25) 1920.
Pritchard, J. S., and Roderick, C. E.: Complement Fixation Test for Tuberculosis, The Journal, Dec. 20, 1919, p. 1879.
Stoel, H. F., and Neuman, L.: Complement Fixation Test in Diagnosis of Tuberculosis, The Journal, April 12, 1919, p. 1043.
Young, H. C., and Givler, J. P.: Comparison of Certain Antigens Used in Complement Fixation Tests in Pulmonary Tuberculosis, *Am. Rev. Tuberc.* **3**: 476 (Oct.) 1919.
Lewis, P. A.: Complement Fixation Reaction as Applied to Tuberculosis, *Am. Rev. Tuberc.* **3**: 129 (May) 1919.
Wang, C. Y., and Crocket, J.: Diagnosis of Tuberculosis, Complement Deviation, *Brit. M. J.* **2**: 7 (July 5) 1919.

PRIMARY NEOPLASMS OF THE PLEURA

To the Editor:—Can any of your departments furnish me with references to the literature relating to primary carcinoma of the pleura? We have searched the current literature and can find none. We would appreciate any help you can give.

E. A. Wood, M.D., and A. L. Walter, M.D., Sedalia, Mo.

Answer.—DuBray, E. S., and Rosson, F. B.: Primary Mesothelioma of the Pleura, *Arch. Int. Med.* **26**: 715 (Dec.) 1920.
Vallee, A.: Case of Endothelioma of Pleura with Multiple Metastasis, *Canad. M. A. J.* **10**: 268 (March) 1920.
Roman, R.: Primary Sarcoma of Pleura, *Hygiea* **81**: 174 (Feb. 28) 1919; abstr. The Journal, May 3, 1919, p. 1338.
Packard, M.: Primary Malignant Neoplasms of Lung and Pleura, *New York State J. M.* **18**: 472 (Dec.) 1918.
Wieringa, J. H.: Cancer of Pleura, *Nederlandsch Tijdschr. v. Geneesk.* **1**: 717 (March 10) 1917.
Keilty, R. A.: Primary Endothelioma of Pleura, *Am. J. M. Sc.* **153**: 888 (June) 1917.
McDonnell, P. J., and Maxwell, E. S.: Endothelioma of the Pleura, The Journal, Jan. 17, 1920, p. 168.
Kornitzer, E.: Myoma of the Pleura, *Berlin. klin. Wchnschr.* **56**: 1039 (Nov. 3) 1919; abstr. The Journal, March 13, 1920, p. 771.
Von Meyenburg, H.: Carcinomatous Lymphangitis in Pleura and Lung, *Cor.-Bl. f. schweiz. Aerzte.* **49**: 1668 (Oct. 30) 1919; abstr. The Journal, Dec. 20, 1919, p. 1906.
Bernstein, H. S.: Malignant Disease of Pleura, *Albany M. Ann.*, February, 1913; abstr. The Journal, March 1, 1913, p. 694.
Guyot, J., and Parcelier, A.: Primary Tumors of Pleura and Lung, *Rev. de chir.*, May, 1912; abstr. The Journal, July 6, 1912, p. 73.
Fraenkel, A.: Tumors in Lungs and Pleura, *Deutsch. med. Wchnschr.*, March 23, 1911; abstr. The Journal, April 29, 1911, p. 1303.

DOSAGE OF ANTITYPHOID VACCINE AS NONSPECIFIC PROTEIN

To the Editor:—We of the rank and file owe The Journal a debt of gratitude for the excellent series on biologic therapy. The articles on foreign protein therapy were particularly welcome, but I felt rather disappointed to find in none of these any expression of opinion on dosages of the proteins employed in the various conditions; probably many of your readers have remarked the omission and would appreciate a few words on this important phase of the subject.

Carl Schumann, M.D., Utica, N. Y.

Answer.—The dosage of nonspecific proteins depends entirely on the substance used. Frequently if antityphoid vaccine or a particular brand of antityphoid vaccine is used, a dose of 50,000,000 is sufficient to give a chill; but in some cases 75,000,000 may be required. It is probably safe to start with a dosage of 10,000,000 and then work up or down according to the response. The method is not to be considered a safe one in the hands of the inexperienced.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

Idaho: Boise, April 5. Director, Mr. Paul Davis, Boise.

Minnesota: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Mexico: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

Rhode Island: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

West Virginia: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

Arkansas Eclectic November Examination

Dr. Claude E. Laws, secretary, Arkansas Eclectic Board of Medical Examiners, reports the written examination held at Little Rock, Nov. 9-10, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Number Licensed
American Medical College	(1893)	1
Eclectic Med. Univ., Kansas City	(1906) 1, (1919) 1, (1920) 3	1
Kansas City College of Medicine and Surgery	(1920) 2	2

Iowa November Reciprocity Examination

Dr. Guilford H. Sumner, secretary, Iowa State Board of Medical Examiners, reports eleven candidates licensed by reciprocity at the meeting held at Iowa City, Nov. 9, 1920. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery	(1917)	Illinois
Hahnemann Medical College and Hospital, Chicago	(1917)	Illinois
Northwestern University	(1916)	Illinois
Rush Medical College	(1915)	Illinois
University of Illinois	(1918)	Illinois
Marion-Sims-Beaumont Medical College	(1903)	Missouri
St. Louis University School of Medicine	(1919)	Missouri
John A. Creighton Medical College	(1918) (1919)	Nebraska
University of Nebraska College of Medicine	(1916)	Nebraska
Jefferson Medical College	(1914)	California

Nebraska November Examination

Mr. H. H. Antles, secretary, Department of Public Welfare of the Nebraska State Department of Health, reports the oral and written examination held at Lincoln, Nov. 10-12, 1920. The examination covered 10 subjects and included 75 questions. An average of 70 per cent. was required to pass. Three candidates were examined, all of whom passed. Twenty-two candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Chicago	(1903)	84.5
John A. Creighton Medical College	(1920)	97.5
Temple University	(1920)	82.2

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Colorado	(1897)	Kansas
Bennett Medical College	(1915)	Illinois
Chicago College of Medicine and Surgery	(1917)	Wyoming
Hahnemann Medical College, Chicago	(1910)	Texas
Hering Medical College	(1904)	Kansas
Loyola University	(1918)	Illinois
Northwestern University	(1920)	Illinois
University of Kansas School of Medicine	(1918)	Kansas
University of Louisville	(1905) (1907)	Kansas
Harvard University	(1918)	Mass.
Barnes Medical College	(1898)	Missouri
Ensworth Medical College	(1908)	Kansas
University Medical College of Kansas City	(1910) (1899)	Iowa Missouri
Eclectic Medical College of the City of New York	(1906)	Iowa
University of Cincinnati	(1919)	Ohio
Jefferson Medical College	(1914)	Penna.
Chattanooga Medical College	(1903) Georgia, (1907)	Oklahoma
Meharry Medical College	(1913) Kansas, (1918)	Tennessee

Nevada November Examination

Dr. Simeon L. Lee, secretary, Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 1, 1920. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. Nine candidates, including one osteopath, were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons of San Francisco	(1918)	81.3
University of Louisville	(1907)	82.9
University of Maryland	(1918)	86.6
Kansas City University of Physicians and Surgeons	(1919)	81.8
St. Louis College of Physicians and Surgeons	(1920)	78.1
Columbia University	(1898)	85.7
University of Toronto	(1911)	89

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco	(1914)	California
University of California	(1917) (1918)	California
Harvey Medical College	(1903)	Illinois
University Medical College of Kansas City	(1903)	Nebraska
Washington University	(1919)	Utah
University and Bellevue Hospital Medical College	(1901)	Oklahoma
University of the South Medical Department	(1905)	Penna.

New Mexico October Examination

Dr. R. E. McBride, secretary, New Mexico State Board of Medical Examiners, reports that 12 candidates were licensed on diploma, and 1 candidate was licensed by reciprocity, at the meeting held at Santa Fe, Oct. 11-12, 1920. The following colleges were represented:

LICENSED ON DIPLOMA

College	Year Grad.
Northwestern University	(1897)
College of Physicians and Surgeons, Chicago	(1901)
Tulane University	(1908)
Tufts College Medical School	(1901)
St. Louis College of Physicians and Surgeons	(1892)
Washington University Medical School, St. Louis	(1903)
University of Buffalo	(1902)
Columbia University	(1903), (1918)
Vanderbilt University	(1916)
University of Virginia	(1911)
McGill University	(1885)

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Louisville Medical College	(1904)	Arkansas

South Carolina November Examination

Dr. A. Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the oral, written and practical examination held at Columbia, Nov. 9-11, 1920. The examination covered 17 subjects and included 85 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 9 passed and 5, including 1 osteopath and 1 chiropractor, failed. Eight candidates were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
George Washington University	(1917)	82.6
Emory University	(1920)	86
University of Georgia	(1906)	75.2
University of Maryland	(1920)	93, 96.1
Harvard University	(1918)	91.9
New York Medical College and Hospital for Women	(1911)	84.8
University of Oklahoma	(1920)	80.3
Jefferson Medical College	(1918)	87.9
FAILED		
Boston University	(1920)	75.9
Meharry Medical College	(1907)	53
University of Nashville	(1909)	81.3

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1912)	Georgia
Atlanta Medical College	(1914, 2)	Georgia
Emory University	(1916) (1917)	Georgia
St. Louis University School of Medicine	(1918)	Missouri
University of Pennsylvania	(1914)	Penna.
Medical College of Virginia	(1919)	N. Carolina

Book Notices

Malaria at Home and Abroad. By S. P. James, M.D., D.P.H., Adviser on Malaria to the Ministry of Health, England. Cloth. Price, $5.50. Pp. 234, with 105 illustrations. New York: William Wood & Co., 1920.

This book is "intended to be an elementary guide to medical men and administrators who may have to deal with malaria at home or abroad during peace or war." It contains a well organized account of the more practical present day methods of recognition, treatment and prevention of malaria in countries where the disease is prevalent, as well as in areas in which sporadic outbreaks occur. The first two chapters deal with the description and life history of the malarial parasite and the factors relating to the manner of infection and spread of the disease. The source of malarial infection is always a human being with sexually differentiated forms of the parasite in the peripheral blood, and these sexual forms, through the medium of the mosquito alone, are capable of spreading the disease. Persons suffering with an attack of fever, and "healthy malaria carriers" are the chief sources of danger, though circumstances relating to the actual parasites (gametocytes) are important. Among the recognized factors discussed in the spread and maintenance of malaria in a community are the species of mosquitoes; their habits; their peculiarities of resistance to temperature, humidity and seasonal variations; susceptibility and relative immunity of individuals, and the social and economic conditions. The methods of study and identification of the parasite in the human and intermediate hosts and the life history of the mosquito are considered in some detail, a thorough knowledge of these factors being necessary to establish a diagnosis of the type of infection and the prevention of further spread. In order to emphasize the necessity and value of field work in the study of the mode of origin, spread and plan of prevention of malaria, the author gives the details of malarial surveys in England and in the tropics, and shows the important bearing of the returned soldiers to development of small outbreaks in several communities. Four chapters are given to the symptomatology, pathology and diagnosis of malaria. The general clinical course is carefully outlined, and complications, such as pernicious malaria and blackwater fever, are included. In discussing treatment, emphasis is laid on the fact that while quinin is effective in the treatment of the attack, its use does not insure the complete eradication of the parasites. The time of administration of the drug is important, quinin being effective only in the stage of sporulation of the parasites. Given by mouth, the effect of the drug begins in less than half an hour after administration and is active for not more than six hours, factors to be kept in mind in combating the infection. The last two chapters deal with the "prevention" and "eradication" of malaria, discussing quinin prophylaxis, segregation of the healthy, elimination of malaria-carrying mosquitoes, protection from bites of mosquitoes, and rules for huts, wards and houses in malaria-infected communities. The book is an excellent summary of the present day knowledge of malaria. It is written in an interesting fashion, is well illustrated, and should prove of value to all interested in the study of malaria, its recognition and its prevention.

Anatomie des menschlichen Gehirns und Rückenmarks auf myelogenetischer Grundlage. Von Paul Flechsig. Paper. Price, $7. Pp. 121, with 33 illustrations. Leipsic: Georg Thieme, 1920.

With this, the first of three volumes on the anatomy of the human brain and cord on a myelogenetic basis, Flechsig redeems a promise made in 1896 in "Gehirn und Seele." In this volume Flechsig makes a general survey of his material, and again emphasizes the importance of myelogenesis as a method of research of the anatomy of the brain. He expresses the hope that by the representation he may prove the futility of the assertion of some authors that myelogenetic differentiation is useless in anatomy because of the inexactness of the pictures. The second volume, it is said, will deal with the microscopic studies of fiber formation up to the period of birth, and the third volume with fiber formation from the time of birth until the macroscopic consummation of the projection system, association system in the cortex and white matter of the cerebrum. The first volume consists of two parts, the first of which is devoted to a consideration of myelogenesis as a method of investigation, myelogenic cortical fields, and myelogenesis and pathology, and the second to a survey of the material, with illustrations and a chronological bibliography. Flechsig points out the existence of projection centers which occupy only a small part of the hemispheres and the larger area of association centers and embryonic intermediate centers. In the light of cyto-architectural studies of the brain, which have rendered some of Flechsig's views untenable, the present publication will be viewed with great interest. The illustrations are beautiful reproductions of wonderfully stained material from a number of fetuses, children, one adult brain and the brains of three dogs.

Phenomena of Materialisation. A Contribution to the Investigation of Mediumistic Teleplastics. By Baron von Schrenck Notzing. Translated by E. E. Fournier d'Albe, D.Sc. Cloth. Price, $15 net. Pp. 340, with 225 illustrations. New York: E. P. Dutton & Co., 1920.

Medical men will naturally look with alarm and amazement at this formidable volume with its hundreds of illustrations, setting forth doctrines subversive of approved scientific ideas. Yet it is written by a medical man who asks for no consideration beyond the principles of science, and is translated by one versed in scientific literature. The story relates to a medium who produces bits of tissue and strange faces and forms under conditions apparently precluding fraud. On this basis is elaborated a theory of "ectoplasm," which is the alleged substance out of which these apparitions are supposed to be formed. The volume represents the culmination of years of investigation, but to the critical mind is only an elaborate example of the false conclusions following from a single false step. There is much evidence that the medium is a ruminant who swallows bits of gauze and brings them up again, while the rest of the phenomena are doubtless equally unrelated to any necessity for changing the suppositions of science. The volume will take its place as a remarkable example of the conclusions arrived at by scientifically trained men, yet in no different a manner than the crudest kind of prepossession. What is amazing is that a work of this kind should appear under such serious auspices with such ambitious intent in the twentieth century.

Hygiene of Communicable Diseases. A Handbook for Sanitarians, Medical Officers of the Army and Navy, and General Practitioners. By Francis M. Munson, M.D., Lecturer on Hygiene, School of Medicine, Georgetown University. Cloth. Price, $5.50 net. Pp. 793, with illustrations. New York: Paul B. Hoeber, 1920.

Current information in regard to the epidemiology and management of communicable diseases is here presented in concise form. The object seems to be to furnish a reliable guide to medical officers and sanitarians engaged in practical work. In general, the directions and teachings are reliable and clearly set forth; in the chapters on infection and immunity, however, occur statements that are open to criticism, e. g., that normal opsonins are nonspecific and that the opsonins of immune serum cannot act without complement—erroneous statements taken from other books; the cause of influenza is given without any qualifications whatever as *B. influenzae;* and the description of hospitals for communicable diseases leaves much to be desired. Nevertheless, the book may be recommended as a useful guide in everyday practical matters.

Physiological Chemistry. A Text-Book and Manual for Students. By Albert P. Mathews, Ph.D., Professor of Biochemistry, The University of Cincinnati. Third edition. Cloth. Price, $6. Pp. 1154, with 109 illustrations. New York: William Wood and Company, 1920.

An extended review of the first edition of this comprehensive book was published in The Journal in 1915. Since that time great advances have been made in biochemistry, particularly in precise analytic methods for the examination of the blood and cerebrospinal fluid. Our knowledge of the vitamins, too, while still lamentably imperfect, has been yearly broadened during the last half decade. In this edition these subjects have received the attention they deserve. The chemistry of the carbohydrates, fats and proteins and the physical chemistry of the cell are discussed very fully, since a thorough knowledge of these subjects is essential to a comprehension of physiology and pathology. Physicians desiring a reference work on physiologic chemistry embodying the latest information sufficiently condensed for practical purposes will find this book valuable.

Medicolegal

Privilege for Patient, Not Physician—Communications of Parents

(Cromeenes v. Sovereign Camp of Woodmen of the World (Mo.), 224 S. W. R. 15)

The Springfield (Mo.) Court of Appeals reverses a judgment obtained by the plaintiff, as beneficiary in a certificate of insurance issued by the defendant, on account of erroneous rulings with regard to privileged communications. It became a vital question in the case whether or not the insured had had gonorrhea or syphilis. In his application for the insurance, he had waived for himself and beneficiaries the privileges and benefits of the law disqualifying any physician from testifying concerning any information obtained by him in his professional capacity. Nevertheless, there was a ruling on the competency of a physician to testify, based on the theory that he could claim the information as privileged under the statute, as well as the patient. But the court holds that there was error in that regard, and that the evidence of the physician as to the information gained while treating the insured was, in view of the waiver in the application, competent, and the physician could not claim the privilege when waived by the patient.

The court holds also that if the insured told a physician, when treating his baby's eyes, that he had had gonorrhea, there was no reason for excluding such evidence. That was not information that came to the physician in his professional capacity while treating the insured. So far as the court was advised, that proffered evidence was no more within the statute than had the insured made the statement that he had had gonorrhea, to a lay witness. But as to the competency of offered evidence tending to show that the baby was suffering from gonorrheal affection, the court thinks that the bar of the statute prevailed. The privilege inures to the patient. The baby was certainly the patient, and as to whether it was suffering from a gonorrheal affection or infection should remain within the veil of secrecy authorized by the statute.

Improper Questions About Intention to Quit Case

(Marshall v. Brown (Mo.), 224 S. W. R. 13)

The Springfield (Mo.) Court of Appeals says that this action was brought by a physician for services rendered to one Rowe, who lived on the defendant's place, about 10 miles from the plaintiff's office. The plaintiff found Rowe in a serious condition, suffering from blood poisoning, and also found that another physician had been in the case. He told Rowe on the first treatment that unless he could secure him in a fee he could not continue the treatment, but would donate that visit. Rowe had some money, and told him to come on; that he thought he could get help so that the fee would be secured. The action against defendant Brown was based on a contract made between him and the plaintiff. The point of dispute was only as to what the defendant was to pay in the event that Rowe got well. The plaintiff testified that the defendant agreed to pay the full amount of his bill if Rowe recovered, but, should Rowe die, only one-half of his fee for services. The defendant testified that the special contract was that he would pay the plaintiff one half of his bill if Rowe died, and that in the event that Rowe lived he would then pay the full amount out of any wages coming from him to Rowe. Rowe got well, quit working for the defendant, and left. On the trial of the case, the plaintiff was asked, on cross-examination, whether Rowe was not badly in need of medical attention when the plaintiff first visited him, and could not have lived very long in that condition without medical attention. After several other questions along that line, as to the plaintiff's having asked Rowe how much money he had, and as to the people raising funds for Rowe, the plaintiff was asked to tell the jury whether or not, with the conditions as he found them, he had intended to quit the case if the defendant had not made any such promise as he did. That was objected to for the reason that this was an action on a contract and it could not be changed by some prior intention, and for the further reason that the plaintiff had given the facts in the case, and stated that he had made the different visits because it was promised from the start that this man would pay this bill, or it would be secured. The objection was overruled, and the question was asked: "After you made those treatments and received pay for it, and the man was still desperately sick, I will ask whether or not you would have left him in that condition without medical attention and refused to treat him further?" which was answered, "Yes, sir; because that's what he agreed to do at the beginning, and another doctor was in the case." The trial resulted in a verdict and judgment for the defendant, which judgment is reversed, on account of error in the cross-examination. The questions calling for the intention of the plaintiff as to whether or not he would have quit treating Rowe before this contract was made with the defendant were incompetent for any purpose. He had a right to quit the case by giving the proper notice. The questions were clearly for the purpose of discrediting and prejudicing the plaintiff in the eyes of the jury. Such testimony might not amount to reversible error in a case wherein the determination of the issue did not depend solely on the testimony of the plaintiff and the defendant. Whether the plaintiff had intended to quit the case, as the law provided that he might do, by exercising the proper care, in no way tended to prove whether he had the contract with the defendant that he was testifying to.

One Physician Not Allowed to Testify to Confidence in Another

(Sate v. Bramlett (S. C.), 103 S. E. R. 755)

The Supreme Court of South Carolina holds that, in this homicide case in which one of the defenses was insanity, there was no error, when one physician had testified as an expert, in excluding the testimony of another physician as to his confidence in the first one. Justice Hydrick, voicing the opinion of the majority of the court on that point, says that the second physician testified, without objection, that the first one was one of the best alienists in the country. He was then asked as to his confidence in him. The answer was properly excluded. It was for the jury to decide what confidence or weight his testimony should have, without regard to the second physician's opinion as to the weight it should have or the weight he would give it, in the absence of any attack on the first physician's testimony. On the other hand, Justice Fraser says that he knows of no reason why the first physician's reputation as an expert in mental diseases might not be sustained in the same way that his reputation for veracity could have been sustained by other witnesses, had his testimony depended primarily on his veracity. The first physician did not live near the place of trial, and was unknown to the jury, while the other physician did live near the place of trial, and presumably was known by the jury.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 21.
American Association of Anatomists, Philadelphia, March 24-26.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Arizona Medical Association, Tucson, April 15-16.
Louisiana State Medical Society, New Orleans, April 19-21.
Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, Congress Hotel, Chicago, March 7-10.
South Carolina Medical Association, Columbia, April 19-20.
Tennessee State Medical Association, Nashville, April 12-14.
Western Electro-Therapeutic Association, Kansas City, Mo., April 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

February, 1921 **21**, No. 2

*Effect of Injection of Nonspecific Protein on Diphtheria Virulence Tests in Guinea-Pigs. H. A. Calhoun, Iowa City, Ia.—p. 107.

Experiments to Determine Persistence of Extraneous Bacteria in Gastro-Intestinal Tract of Guinea-Pigs as Influenced by Diet. A. G. Mitchell and P. Lewis, Philadelphia.—p. 129.

*Analysis of Two Hundred and Fifty Ward Cases of Acute Endocarditis in Children. H. P. Ledford, Boston.—p. 139.

*Studies in Spasmophilia. III. Blood Calcium and Calcium Therapy in Older Children with Thiemich's Sign. L. Von Meysenbug, Minneapolis.—p. 150.

Rumination in Children. A. Strauch, Chicago.—p. 154.

*Acute Leukemia in Infant. L. W. Smith, Boston.—p. 162.

Bromin Poisoning Through Mother's Milk. F. Van Der Bogert, Schenectady, N. Y.—p. 167.

*Study of Seventy-Three Cases of Acute Arthritis in Infants. F. E. Johnson, New York.—p. 170.

Deviation of Aortic Septum; Complete Transposition of Great Vessels, Report of Two Cases in Infants. V. C. Jacobson, Boston.—p. 177.

Resistance of Acute Disease of Respiratory Tract in Children. J. Zahorsky, St. Louis.—p. 183.

*Diagnosis and Prognosis of Tuberculosis in Infancy. C. H. Dunn and S. A. Cohen, Boston.—p. 186.

New Apparatus and Method for Puncturing Superior Longitudinal Sinus in Infants. A. B. Ratner, New York.—p. 199.

*Case of Meningitis Due to Bacillus Acidi Lactici Occurring in a Premature Infant One Month Old. R. M. Greenthal, Ann Arbor, Mich.—p. 203.

*Heart Displacement Apparently Due to Mediastinal Emphysema Following Aspiration Pneumonia. E. C. Fleischner, San Francisco.—p. 206.

Effect of Injection of Nonspecific Protein on Diphtheria Virulence.—The effect of foreign protein injection on the results of the virulence tests for diphtheria in guinea-pigs was studied by Calhoun. Two nonspecific proteins were used, typhoid vaccine and normal horse serum. Calhoun found that typhoid vaccine, administered intracardially, increases the sensitiveness of the virulence tests both by the intradermal and the subcutaneous methods. Horse serum, injected intracardially, decreases and inhibits the intracutaneous test for virulent diphtheria organisms. These observations are presented in detail and at length, but it is established that there is experimentally no sufficient basis for substituting nonspecific protein for the specific antiserum treatment of diphtheria infections and intoxications. Antitoxin in the usual dosage is more efficient in every way than horse serum, and should be used by preference when procurable. In extraordinary situations, where antitoxin absolutely cannot be obtained, horse serum in large doses should be used as a substitute. Even as small amounts of antitoxin as 6 units will protect a 250 gm. guinea-pig against the injection of virulent organisms. The value of diphtheria antitoxin in diphtheria is emphasized by the results of these experiments.

Acute Endocarditis in Children.—Ledford's analysis shows that endocarditis in childhood is largely due to rheumatic fever infection, and it may occur as the first manifestation of that infection. In 151 cases, or 60.4 per cent., there was a history of rheumatic fever; in thirty-six cases, or 14.4 per cent., there was a history of chorea. Tonsillitis was the only associated condition found in thirty cases, or 12 per cent. It was present, however, in the majority of the choreic and rheumatic cases. Eight cases, or 3.2 per cent., were associated with local sepsis, including cervical adenitis, osteomyelitis and empyema. Pneumonia was found to be the only associated condition in two cases, and both these patients recovered. In four cases, or 1.6 per cent., there was a history of influenza. These were severe cases, two proving fatal. Two cases were due to scarlet fever and both these patients recovered. Endocarditis in children nearly always affects the mitral valve. The treatment in these cases consisted largely of rest in bed. The severely ill patients were not allowed to feed themselves but were fed in order to prevent even that slight exertion. The general measures of treatment employed were those for acute infectious diseases in general. Digitalis was used very infrequently, being given only in the cases of chronic valvular lesions with failure of compensation. It was not given in cases of simple acute endocarditis. Sedatives were used when demanded. When the heart was irritable and the action rapid, and especially if there was precordial pain, an ice bag was applied over the heart. Other symptoms were treated as they arose. One hundred and six patients, or 42.4 per cent., were discharged home, without active symptoms. Sixty-seven patients, or 26.8 per cent., were discharged with slightly active symptoms. Thirty-seven patients, or 14.8 per cent., were discharged against advice with active symptoms. Forty patients, or 16 per cent., died.

Blood Calcium and Calcium Therapy.—Plasma calcium was determined by Lyman's method on five children with very low electrical irritability and on twelve children with Thiemich's sign. The average value for the first group was found to be 11.2 mg. per hundred c.c.; for the second group 10.8 mg. per 100 c.c. Calcium lactate, in 6.0 gm. daily doses, fed to two children with Thiemich's sign without resultant change in the electrical irritability. Therefore, von Meysenbug concludes that Thiemich's sign in older children is not based on lowered blood calcium and that calcium feeding in large amounts does not influence the anodal reactions of older children.

Acute Leukemia in Infants.—A case of acute leukemia occurring apparently at birth or very shortly thereafter is reported by Smith. He has not been able to discover in the literature any record of a similar case. The patient is the youngest person in whom this disease has been noted. The chief point of interest in the case is the character of the lymphocytes. These cells varied greatly in size and are practically all pathologic cells. A few comparatively normal small lymphocytes occurred. Stained by Wright's method all the larger lymphocytes are exceedingly granular in character, their cytoplasm being filled with small, slightly basic staining granules which almost conceal the cytoplasm itself. Another feature of these large pathologic lymphoid "tumor" cells is the presence of apparent pseudopods budding from the cytoplasm, becoming pinched off, and thrown into the blood stream, forming what Smith terms "pseudoplatelets." According to the history, the disease began definitely at the age of 3 weeks, while the evidence seems to suggest strongly an intra-uterine development of the condition.

Acute Arthritis in Infants.—Of the seventy-three patients studied by Johnson, only thirty-two gave a history or showed on examination when admitted any definite source of infection. Pneumonia was a possible source of infection in ten cases, naval infection in four, furunculosis in three. The ages of the patients were from less than 1 month to 36 months. The knee (27 cases), ankle (26), shoulder (24), wrist (25), hip (17), elbow (14) and metacarpophalangeal joints (12) were affected more often than any other joints and in the order named. The streptococcus was responsible in 18 cases, the pneumococcus in 14 cases, the gonococcus in 7 cases. The greatest number of joints affected in 1 case was eight, and the gonococcus was the infecting organism. The prognosis is affected materially by the age. The older the baby, the better chance he has to recover. The high mortality among young babies is due, in great part, to the difficulty of feeding.

Tuberculosis in Infancy.—This paper is based on a series of 374 cases in which a clinical diagnosis of tuberculosis was made in the wards of the infants' Hospital and on a series of 138 necropsies in which lesions of tuberculosis were found.

Bacillus Acidi-Lactici Meningitis.—Of thirty-nine cases of meningitis in the new-born and infants under 3 months of age recorded in the literature Greenthal failed to find mention of *Bacillus acidi-lactici* as causing a meningitis. The only physical signs in his case were stupor and a bulging fontanel. The history of tuberculosis in the mother was suggestive of tuberculosis meningitis in the patient. However, the gross appearance of the spinal fluid was quite different from that usually described in colon meningitis (a dark brownish purulent fluid with an offensive odor). The fluid was pure white in color, it had no odor, and on standing looked like curdled milk. The portal of entry in this case was probably through the right middle ear. No other focus was found at necropsy. The causation of meningitis by an organism such as *Bacillus acidi-lactici* can probably be explained by the fact that the patient, a premature infant, very poorly nourished, had not sufficient resistance to overcome even this ordinarily harmless saprophyte.

Heart Displacement by Mediastinal Emphysema.—Fleischner's case is interesting on account of the marked displacement of the heart which was apparently due to the rupture of some of the air vesicles of the inflamed lung allowing free air to escape into the mediastinum, from which it made its way up under the right clavicle and posteriorly over the right side. Were it not for the fact that subcutaneous emphysema manifested itself, it would have been very difficult to have excluded an intense interstitial emphysema of the left lung as the cause of the displacement, but considering the fact that the air escaped from the inflamed lung and not having been able to prove its presence in the pleural cavity, Fleischner was forced to the conclusion that the heart could only have been displaced by the presence of air in fairly large quantities in the mediastinum. A careful review of the literature failed to disclose any record of a similar observation.

Boston Medical and Surgical Journal

Feb. 10, 1921, **184**, No. 6

Industrial Question: A Proposal and Announcement. F. J. Cotton, Boston.—p. 135.
*Acute Infections of Pancreas. F. B. Sweet, Springfield, Mass.—p. 137.
Perineal Prostatectomy. J. D. Barney, Boston.—p. 140.
*Case of Ovarian Pregnancy. M. F. Fallon, Worcester.—p. 144.
*Glioma; Report of Case. H. Viets, Boston.—p. 150.

Acute Pancreatitis.—Six cases of acute pancreatitis are reported by Sweet. All the patients stressed epigastric pain; four of the six had fat necrosis; three had bloody or dirty fluid; two were jaundiced; three had leaden pallor; two only gave history of radiation of pain to right shoulder blade, although all had definite gallbladder disease with stone; all showed unmistakable gross change in pancreas; three patients operated on early made good if somewhat stormy recoveries; the three operated on late, yielded one death and two prolonged and septic illnesses with recovery only after a considerable portion of the gland substance had sloughed away.

Ovarian Pregnancy.—Fallon's patient was a multipara. She complained of abdominal pains. The pathologic examination of the specimen disclosed chorionic villi and multinucleated syncitial masses.

Glioma.—A case of glioma of the right temporal lobe is reported by Viets in which the tumor infiltrated and largely replaced the tissues of the lobe without deforming the general shape of the brain. A large cyst was formed. The tumor extended to the base of the brain and bulb where it ran in the subarachnoid space over a large part of the ventral surface of the brain and extended down the spinal cord to the conus terminalis without invasion of any part of the central nervous system except a small portion of the left cerebellum. The medulla and cord were greatly compressed by the tumor mass. The symptoms and signs of both a brain and spinal cord tumor are recorded with the report of a negative surgical exploration. Both macroscopically and microscopically the tumor showed the characteristics of a malignant glioma. The case illustrates in a striking manner the tendency of a glioma to extend along a serous surface without invasion.

Feb. 17, 1921, **184**, No. 7

*Hemorrhage from Stomach and Esophagus. F. B. Lund and J. A. Foley, Boston.—p. 163.
Lacerated Wound Into Knee Joint, Treated by Complete Closure and Immediate Active Mobilization. L. Allen, Burlington, Vt.—p. 167.
Prostatic Troubles from Practitioner's Viewpoint. R. E. Dickson, Holyoke, Mass.—p. 172.
Diagnosis of Some Chronic Shoulder Injuries. W. P. Coues, Boston. —p. 176.
Fracture Dislocation of Third Cervical Vertebra. L. O. A. Goddu, Boston.—p. 179.
*Two Cases of Benign Growths of Stomach. A. S. Merrill, Boston.—p. 181.

Hemorrhage from Stomach.—Lund cites the case of a girl, aged 14, who suddenly had a severe hemorrhage from the stomach, vomiting bright blood six times in one night. The vomiting of blood continued. In twenty-four hours, the hemoglobin was reduced to 37 per cent. Owing to the smallness of the veins, transfusion had to be attempted into the saphenous vein, and only 100 c.c. could be transfused. The patient died a few hours afterward, less than forty-eight hours after the bleeding began. The spleen weighed 695 gm.; there was cirrhosis of the liver and varicose veins surrounding the lower end of the esophagus, one of which at the cardia, had ruptured, exactly at the point where the esophageal mucous membrane abruptly changes to the cardiac type of gastric mucous membrane. In a second case reported the hemorrhage from a small ruptured vein in the esophagus was so slow as never to cause vomiting of blood until it had gone on so long as to produce a fatal anemia. The underlying cause of this condition was a carcinoma of the pancreas of very small size. The patient was 53 years of age. Two cases of bleeding gastric ulcer are also reported.

Tumors of Stomach.—Merrill reports a case of polypoid adenoma and one of fibroma of the stomach. In both cases the diagnosis was made by roentgen-ray examination. The symptoms were not decidedly gastric in nature. The growths were removed surgically.

Journal of Immunology, Baltimore

January, 1921, **6**, No. 1

*Microbal Studies of Acute Respiratory Infections with Especial Consideration of Immunologic Types. W. H. Park, A. W. Williams and C. Krumwiede, New York.—p. 1.
Id. I. Methods of Demonstrating Micro-organisms, Including "Filtrable Viruses," from Upper Respiratory Tract in "Health," in "Common Colds" and in "Influenza" with the Object of Discovering "Common Strains." A. W. Williams, M. Nevin and C. R. Gurley, New York. —p. 5.
Id. II. Serologic Relationships of Pneumococci from Upper Respiratory Tract with Special Reference to Common Colds and Influenzal Conditions. G. M. Cooper, L. Mishulow and N. E. Blanc, New York.—p. 25.
Id. III. Relationship to Upper Respiratory Infections of Streptococci Producing a Green Zone on Standard Blood Agar Plates (Smith and Brown's Alpha Type.) A. W. Williams, A. Unneberg, A. Goldman and H. Hussey, New York.—p. 53.
Id. IV. Grouping of Influenza Bacilli with Special Reference to Permanence of Type in Carrier. O. R. Povitzky and H. T. Denny, New York.—p. 65.
*Id. V. Accidental Inoculation of Influenza Bacilli on Mucous Membranes of Healthy Persons with Development of Infection in at Least One. Persistence of Type Characteristics of Bacilli. W. H. Park and G. Cooper, New York.—p. 81.
Id. VI. Serologic Study of Pfeiffer Bacillus. A. F. Coca and M. F. Kelley, New York.—p. 87.
*Id. VII. Report on Prophylactic Vaccination of 1,536 Persons Against Acute Respiratory Diseases, 1919-1920. A. I. Von Sholly and W. H. Park, New York.—p. 103.

Microbal Studies of Acute Respiratory Infections. — The chief object of all the investigations reported on by Park and his associates was to demonstrate a common "epidemic" or "outbreak" strain among the groups of microbes claimed to have caused epidemics. The results indicate that of the different groups of microorganisms isolated, all had the peculiarity that each group was an assemblage of many types. This was equally true for the pneumococcus, the influenza bacillus, the green-producing streptococci and the hemolytic streptococci. No evidence was obtained of the existence of a common filtrable organism. The question of the relationship between the bacterial types used in vaccination and the microbal strains obtained from the throats of the vaccinated remained mostly unanswered. The specific strains of organisms used in the vaccines were not found to any extent in either normals or the diseased. It is a curious fact that in all but one instance the fixed types of pneumococci, as found in eleven of all the cases examined, occurred among the unvaccinated influenza cases. This loses significance, however, in the light of the fact that in only six of the cultured influenza cases was vaccine used and in forty-two it was not used. The evidence of immunologic response to the vaccine was apparent only in the lessened incidence of pneumonia. The percentage of colds was as great among the vaccinated as among the unvaccinated. The pneumonia incidence was much less. The greater multiplicity of types of microbes believed to be capable of exciting common colds over those usually exciting pneumonia is, possibly, the explanation of the apparent uselessness of the vaccines employed in this series in preventing minor respiratory infections while apparently affording considerable protection against pneumonia.

Accidental Influenza Inoculations. — The three accidental inoculations of influenza bacilli (eighteen hour cultures on chocolate agar) noted by Park and Cooper are of interest from the fact that infection developed in one case on the fourth day; possibly, in one case on the fourteenth day and not at all in third case. All three persons, however, became persistent carriers of the bacilli, and in all cases the strains held their agglutination characteristics unchanged during the period of the tests.

Vaccination Against Respiratory Diseases.—From the examination of their statistics, Von Sholly and Park found that contrary conclusions could be drawn, depending on whichever part of the report stress is laid. Comparing the incidence of the respiratory affections among the inoculated and the uninoculated, excluding pneumonia, and considering the severity of these respiratory affections, it may be asserted that the vaccines were of little or no appreciable value. If, on the other hand, attention is focused on the figures that show a somewhat higher susceptibility to respiratory diseases among the vaccinated in their past histories; a larger group absence for respiratory disease among the not vaccinated and a longer average absence per person for attacks of "grippe" in the not inoculated group, it may be concluded that the vaccines had a beneficial influence. On the whole, balancing both sides, the evidence does not make a strong case in favor of the vaccines given as a prophylactic agent against acute respiratory diseases—pneumonia alone excepted. This work tends to confirm the conclusions of Lister and Cecil and Austin on the value of a typed pneumococcus vaccine for pneumonia.

Journal of Laboratory and Clinical Medicine, St. Louis

January, 1921, **6**, No. 4

Etiology of Acute Inflammations of Nose, Pharynx and Tonsils. S. Mudd, S. B. Grant and A. Goldman, St. Louis.—p. 175.
*Unsuccessful Result Following Transfusion with Immunized Blood in Case of Infectious Endocarditis. L. A. Levison, Toledo, Ohio.—p. 191.
*James Theory of Emotions in Relation to Suprarenal Glands. C. E. Kieley, Cincinnati.—p. 193.
*Blood Coagulation. E. C. Mason, Cincinnati.—p. 195.
Analysis of One Hundred Postmortem Examinations in Siam. A. G. Ellis, Bangkok, Siam.—p. 199.
Case of Spontaneous, Acute and Subacute Peptic Ulcers and Carcinoma of Thyroid in a Dog. F. C. Mann, Rochester.—p. 213.
*Method for Removal of Natural Amboceptor from Human Serum. R. L. Kahn, Lansing, Mich.—p. 218.
*Determination of Lactose in Milk by Colorimetric Method. R. G. Owen and R. Gregg, Detroit.—p. 220.
Simple Shaking Device. J. P. Baumberger, Stanford Univ., Calif. —p. 222.
Determination of Coagulable Protein in Serum. W. N. Berg, Washington, D. C.—p. 223.

Transfusion with Immunized Blood in Infectious Endocarditis.—Symptomatic measures were employed throughout the illness in the case cited by Levison. Injections of sodium cacodylate were without apparent effect. It was decided after the isolation of the streptococcus from the blood to prepare a vaccine from this organism, immunize a donor (Group II) and give the patient repeated blood transfusions from this immunized blood. A donor was selected in the person of a maternal uncle. He was given repeated injections of vaccine prior to the first transfusion and continued throughout at intervals of four days. Four transfusions were done by the citrate method, employing from 500 to 600 c.c. of blood at each injection. In all, 2,200 c.c. of blood were transfused within a period of five weeks. The result of the transfusions was to increase the hemoglobin content of the blood, raise the number of red cells, lower the number of leukocytes and decrease the percentage of polymorphonuclear cells. The strength of the patient was maintained by this procedure to a marked degree. However, there was no definite change in temperature curve following any of the transfusions. At no time did the temperature remain normal for the duration of even one day. The pulse rate was not reduced. Death occurred with the patient comatose and the heart in fibrillation.

Emotions in Relation to Suprarenal Glands.—The subjects for the therapeutic tests made by Kieley were both psychasthenics whose most prominent symptom was fear. The chief complaint made by one subject was fear of death. Every conceivable form of therapy had been tried without result. Finally, Kieley gave hypodermically from 1 to 2 c.c. of 1 per cent. apocodeine solution, every other day, until twenty injections were reached. The patient did not experience even the slightest temporary alleviation of her anxiety. The second subject had a history significant for psychoneurotic disease. During the influenza epidemic he was advised to drink whiskey for prophylaxis. For three months he had one or two drinks a day and dates his fears from that time. His phobia was mainly that of committing suicide. He was well satisfied with life and had no desire for death but was obsessed with a fear of self-destruction. This man was given fifteen injections of 1 per cent. apocodeine solution, ranging in dose from 1 to 2 c.c. There has never been any sense of relief from the fear. Kieley contends that these two experiments indicate that an emotion can be experienced independently of the physical changes which habitually accompany it.

Blood Coagulation.—The work done by Mason was based on the belief that protective colloids probably played a part in blood coagulation. He uses only three terms: fibrinogen, calcium and phospholipin complex. Of the three factors mentioned, it is certain that fibrinogen and calcium are present in the plasma of the circulating blood. The question arises as to whether or not the phospholipin complex is present, and if present, is it in some inactive form. Mason's plan considers that after the protective influence is removed from the phospholipin complex, coagulation is the result of the combination of the three substances in the diagram; that is, phospholipin, calcium and the precipitating portion of fibrinogen, and the final clot contains these portions. The calcium (salt) probably binds to the phosphorus in place of the protective portion, and the other bond of calcium binds the fibrinogen portion.

Method for Removal of Amboceptor from Blood Serum.—The method described by Kahn is based on the well-known affinity of sheep cells for antisheep amboceptor, and consists of adding packed sheep cells to inactivated serum in the proportion of one drop per cubic centimeter of serum, and permitting the extraction to take place for ten minutes at room temperature.

Lactose Determination by Colorimetric Method.—This method is an adaptation of Folin's latest blood sugar determination to the estimation of lactose. The reagents used are those described by Folin.

Kentucky Medical Journal, Bowling Green

January, 1921, **19**, No. 1

Recent Developments in Contagious Diseases. J. W. Bruce, Louisville. —p. 5.
Syphilis and Eye. A. O. Pfingst, Louisville.—p. 11.
Hemorrhage in Operative Treatment of Fibroid Tumors of Uterus. L. S. McMurty, Louisville.—p. 17.
Case Showing Endocrinal Disturbance. C. Pope, Louisville.—p. 21.

Laryngoscope, St. Louis

January, 1921, **31**, No. 1

Technic of Radical Frontal Sinus Operation Which has Given me Best Results. R. C. Lynch, New Orleans.—p. 1.
Education of Vestibular Sense. W. G. Ruggles, New York.—p. 6.
Three Cases of Mastoiditis with Severe Complications and Recovery. A. H. Cook, Philadelphia.—p. 12.
Hemorrhage from Ear. H. M. Hays, New York.—p. 20.
Does Removal of Adenoid Vegetations Prevent Acute Disease of Middle Ear? J. Zahorsky, St. Louis.—p. 22.
Simple, Bloodless Tonsillectomy, with Simple, Safe, Local Anesthesia. J. A. Thompson, Cincinnati.—p. 26.
Local Anesthesia in Nasal and Throat Surgery. O. Wilkinson, Washington, D. C.—p. 27.
Chronic Atrophic Catarrh or Fetid Ozena. J. S. Reynolds, Minneapolis. —p. 31.
Ear Massage with a Politzer Diagnostic Tube. I. F. Shapiro, New York.—p. 32.
Falsetto Voice in Male; Four Cured Cases. J. S. Greene, New York. —p. 33.
Boilable Tip and Connection for Politzer Bag. D. E. Godwin, Houghton, Mich.—p. 41.
Technic of Closing Sinus Tonsillaris by Suturing Pillars of Fauces with Aid of La Force's Hollow Suture Needle and Ligature Knot Fastener. B. D. LaForce, Ottumwa, Ia.—p. 42.

Medical Record, New York

Feb. 5, 1921, **99**, No. 6

Work of American Society for Control of Cancer. C. A. Powers, Denver.—p. 211.
Chronic Appendicitis, So-called. F. G. Connell, Oshkosh, Wis.—p. 214.
Concept of Roentgen-Ray Pathology. V. Osteopathy. A. J. Pacini, Washington, D. C.—p. 218.

*Case of Polycythemia Vera (Vaquez's or Osler's Disease). S. Gitlow, New York.—p. 227.
Pathologic Conditions of Organs of Reproduction in Female Causing and Simulating Gastro-enteric Disturbance. J. Katz, Brooklyn.—p. 228.

Polycythemia Vera.—Dizziness and giddiness, easy fatigability, pains of a neuralgic character over various parts of the body, and increasing ruddiness of the face were the chief symptoms in the case cited by Gitlow. With the development of all these symptoms there was an obstinate constipation, whereas formerly the patient, a woman, aged 59, had been very regular. She occasionally had colicky pains in the epigastrium, during which she always vomited bloody mucus. Her gums bled at the slightest provocation and she had occasional nose bleed. Her menstruation was normal to the menopause at 44. The only etiologic point in the history is the concurrence of the death of the husband with the onset of the symptoms. The blood was examined twice. The first count yielded 6,500,000 red cells and 105 per cent. hemoglobin (Dare). The white count was not made at this time. The second examination gave 6,740,000 red blood cells and 140 per cent. hemoglobin (Sahli). There were 14,000 white blood cells with 83 per cent. polymorphonuclears. The color index was 0.7 the first time and 0.9 the second.

Feb. 12, 1921, **99**, No. 7

*Convalescent Treatment of Heart Disease by Exercise Applied Through Natural Work and Play Methods. F. Brush, White Plains, N. Y.—p. 253.
Concept of Roentgen Ray Pathology. VI. Arthropathy. A. J. Pacini, Washington, D. C.—p. 259.
Pyuria. A. L. Wolbarst, New York.—p. 264.
Cause of Death from Nitrous Oxid-Oxygen Anesthesia. J. F. Baldwin, Columbus, Ohio.—p. 266.
Case of Unilateral Auditory Hallucinosis. H. S. Hulbert, Oak Park, Ill.—p. 267.
Case of Intestinal Intoxication (Herter's Intestinal Infantilism). S. Z. Orgel, New York.—p. 268.
Case of Acute Articular Rheumatism Complicating Acute Otitis Media. J. Popper, New York.—p. 270.

Exercise in Heart Disease.—Brush reports on an experience with 2,500 cases of valvular heart disease treated alongside of other patients in a free convalescent institution from April 1, 1915, to July 1, 1920. Records of 1,000 of these cases, in two groups representative of the earlier and later methods, are especially studied. The various gymnastic exercises are not considered as unfeasible nor unsuccessful in the convalescent treatment of heart disease. These heart patients are directed to begin at once to play croquet, short-golf, quoits, soccer practice, coasting and snow sports in season, volley ball, tether ball, short trial dancing, group games on the green, and ball play (light practice). After from one to ten days of observation and lighter routine activity, work therapy of about one and one-half hours a day is begun.

Feb. 19, 1921, **99**, No. 8

*Possible Relation of Suprarenal Cortex to Exophthalmic Goiter and to Myxedema. G. A. Friedman, New York.—p. 295.
Vaccine Therapy vs. Tonsillectomy in Systemic Disease of Tonsillar Origin. H. Hays, A. Palmer and T. S. Winslow, New York.—p. 301.
Whitman Operation as Applied to Various Types of Paralytic Deformities of Foot. A. Whitman, New York.—p. 304.
Man and Endocrines; with Stress on the Females. G. K. Dickinson, Jersey City, N. J.—p. 307.
Chronic Pulmonary Inflammation in Young Adults. F. P. Miller, Los Angeles.—p. 309.
Concept of Roentgen-Ray Pathology. VII. Craniopathy. A. J. Pacini, Washington, D. C.—p. 311.

Relation of Suprarenal Cortex to Exophthalmic Goiter.—The anatomy and physiology of the suprarenal gland is discussed by Friedman and emphasis is laid on the separate functions of the cortex and the medulla. Friedman states that there is not a single case on record in which life was possible without a cortex; but there are recorded cases which show that in some individuals the medulla was absent. The fact that the cortex and the medulla are united to form one organ in man and other higher animals, and not separated as in fish, shows that such arrangement is necessary for the harmonious working of both suprarenal portions. The chief function of the cortex seems to consist in supplying the medulla, either directly or indirectly, with its products for the elaboration of epinephrin. The second function of the cortex is probably a detoxicating one. The cortex also controls the body weight. Still another function of the cortex is the control of the blood pressure, although to a lesser degree than the medulla. It regulates the purin metabolism of the body and the physiological pigment metabolism. It probably destroys pathogenic bacteria of the body. Some of the clinical symptoms found in individuals afflicted with Addison's disease, such as emaciation, asthenia, and hyperpigmentation, manifest themselves to a lesser degree in individuals suffering from exophthalmic goiter. The symptoms have been shown to be due chiefly to various degrees of suprarenal cortical deficiency. The gain in weight and the abscence of true asthenia in myxedema must be due indirectly to hyperfunction of the cortex. The suggestion is made that hyperthyroidism and myxedema are not monoglandular disturbances.

New York Medical Journal

Feb. 12, 1921, **113**, No. 7

Surgical Aspect of Hyperthyroidism. J. B. Deaver, Philadelphia.—p. 265.
Exophthalmic Goiter. I. Bram, Philadelphia.—266.
Roentgen Ray Therapy in Hyperthyroidism. W. C. Baker, Philadelphia.—p. 273.
Hyperthyroidism in Child. M. H. Frantz, New York.—p. 275.
Goiter. H. L. Northrop, Philadelphia.—p. 277.
Successful Surgery in Cases with Endocrine Disturbances. W. Neumann, Brooklyn.—p. 280.
Thyroid Deficiency in Otolaryngology. J. C. Callison, New York.—p. 283.
Fatigue; Endocrine Weariness. J. McNulty, New York.—p. 288.
Thymic Disease. A. E. Siegel, Philadelphia.—p. 290.
Addison's Disease. J. Eidelsberg, New York.—p. 292.

Feb. 19, 1921, **113**, No. 8

Minimum Course in Psychopathology for Medical Students. E. J. Kempf, New York.—p. 309.
*Action of Various Salts on Liver After Their Introduction into Duodenum. M. Einhorn, New York.—p. 313.
Ileocolostomy and Exclusion in Dilatation of Cecum and Colon. H. Illoway, New York.—p. 321.
Thyroid Deficiency in Otolaryngology. J. G. Callison, New York.—p. 326.
Exophthalmic Goiter and Surgery. I. Bram, Philadelphia.—p. 330.
Ulcer of Cornea. H. Tuttle, Ithaca.—p. 332.
Some Toxicologic Aspects of Surgical Rubber Goods. W. I. Galland, New York.—p. 334.
Medical Student's Problem. G. H. Hyslop, New York.—p. 336.

Introducing Salts Into Duodenum.—Studies made by Einhorn are interpreted as showing definitely that the efficacy of the magnesium and sodium sulphates in liver disturbances becomes more clear. These salts seem to stimulate this organ. The aperient waters are ordinarily taken by mouth. Einhorn wonders whether they would not manifest quicker and better action when instilled directly into the duodenum.

Northwest Medicine, Seattle

February, 1921, **21**, No. 2

Bearing of Cancer Problem on Prolongaton of Human Life. J. A. Pettit, Portland, Ore.—p. 25.
Paget's Disease of Breast. J. E. Else, Portland, Ore.—p. 27.
Induction of Labor at Term. F. R. Fursey, Spokane.—p. 30.
Hydatid Mole. H. P. Kirtley, Salt Lake City.—p. 31.
Dependent Drainage in Purulent Appendicitis. A. E. Rockey, Portland, Ore.—p. 33.
Clinical Review of Stomach Symptoms. J. M. Blackford, Seattle.—p. 36.
Syphilis of Nervous System. A. A. Robinson, Ogden, Utah.—p. 39.
Incidence of Syphilis in Insane. W. N. Keller, Steilacoom, Wash.—p. 42.
*New Method for Tonsillectomy. J. A. Fulton, Astoria, Ore.—p. 44.

New Tonsillectomy Instrument. — Fulton has devised an instrument which is in the nature of a compression forcep and snare, which has proved to be very satisfactory in my hands. It is made on the principle of the forceps with handles at right angles. One blade of the forcep has a flat surface on the distal end that is intended to rest on the cheek over the external surface of the ramus of the jaw. The other blade is provided with a groove to admit and conceal a snare. The snare is controlled by a screw working on a shaft running through the blade of the instrument.

Oklahoma State Medical Ass'n Journal, Muskogee

January, 1921, **14**, No. 1

Appeal for Better Handling of Appendiceal Cases. F. H. McGregor, Mangum.—p. 1.
Acute Abdomen in Infancy and Childhood. G. A. Wall, Tulsa.—p. 3.
Convalescent Period of Puerperium. J. P. Torrey, Bartlesville.—p. 6.

Pennsylvania Medical Journal, Harrisburg

February, 1921, **24**, No. 5

Tuberculosis in Children. W. N. Bradley, Philadelphia.—p. 285.
*Acrodynia. H. J. Cartin, Johnstown.—p. 287.
Obstetrics and General Practitioner. J. W. Williams, Baltimore.—p. 290.
Effect of Influenza on Tuberculosis. C. H. Marcy, Pittsburgh.—p. 296.
Postinfluenzal Chest. A. C. Morgan, Philadelphia.—p. 299.
Acute Traumatic Surgery of Abdomen. L. J. Hammond, Philadelphia.—p. 303.
Early Diagnosis of Perforated Gastric or Duodenal Ulcer. W. L. Estes, South Bethlehem, Pa.—p. 307.
Gastro-Enterostomy: Occasional Disappointments that Follow. H. L. Foss, Danville, Pa.—p. 309.
Gastric Symptoms from Surgical Viewpoint. A. W. Hammer, Philadelphia.—p. 316.

Acrodynia.—The five cases reported by Cartin were of varying severity, presenting all, or nearly all, of the following symptoms: an eruption, papular, lying in an erythematous base; at times macular; photophobia; parathesia and irritability; burrowing of the head; chewing of fingers and hands; profuse nasal discharge; apathy; lack of appetite; leukocytosis pigmented spots; scanty urine. No treatment seemed to be of any benefit. There were no deaths, but the patients had a slow convalescence.

Southern Medical Journal, Birmingham, Ala.

February, 1921, **14**, No. 2

Importance of Knowledge of Syphilis to Internist. E. B. Bradley, Lexington, Ky.—p. 91.
*Physiologic Basis for Treatment of Chronic Constipation. H. W. Soper, St. Louis.—p. 99.
*Study of Reactions Following Transfusion of Blood. P. W. Clough and M. C. Clough, Baltimore.—p. 104.
*Administration of Digitalis to Children with Diphtheria. H. McCullough, St. Louis.—p. 110.
*Case of Formalin Urticaria. J. D. Guyot, Bucklin, Mo.—p. 115.
Health Insurance. F. R. Green, Chicago.—p. 116.
Surgical Monstrosities and Monster Growths. L. H. Landry, New Orleans, La.
*Incidence of Kidney Infections in Acute Appendicitis. R. M. Harbin, Rome, Ga.—p. 139.
Ureteral Calculi. A. J. Crowell and R. Thompson, Charlotte, N. C.—p. 144.
*Nonunion of Humerus: Repair by Means of Bone Graft. M. S. Henderson, Rochester, Minn.—p. 148.
Prenatal Supercision. Q. U. Newell, St. Louis.—p. 155.
Unrecognized Glaucoma and General's Practitioner's Responsibility in Its Diagnosis. H. Woods, Baltimore.—p. 160.
Atypical Mastoiditis Following Staphylococcemia. H. M. Taylor, Jacksonville, Fla.—p. 167.

Colon Function and Constipation.—Soper emphasizes the rôle which defects in the lower colon play in the production of chronic constipation. He considers especially that large group of patients who are unquestionably damaged by the daily use of purgatives and enemata. Many of these patients suffer from "autointoxication." Obstructive elements in the lower bowel lead to a slowing up all along the line and cause the aberrant biochemical changes concerned in the production of symptoms usually termed autointoxication, and which disappear, in a large majority of cases, after restoration of colonic function. The treatment of each group is outlined.

Reactions Following Blood Transfusion.—The common form of reaction following transfusion, the Cloughs state, is the febrile type. These reactions follow the injection of compatible blood and cannot be foreseen by preliminary blood tests. The cause of these reactions is still in dispute. The most important factor is probably the change in the platelets, associated with incipient coagulative changes in the blood. Injury to the red cells by the citrate is possibly also a factor. The hemolytic type of reaction follows the injection of incompatible blood. These reactions can always be foreseen by adequate preliminary tests. Some of the severe reactions occurring in patients with pernicious anemia who have received a large number of transfusions apparently do not fall into either category. They may occur after transfusion from donors belonging to the same blood group as the patient, and may be associated with hemolysis and hemoglobinuria. In one case reported, the serum showed feeble hemolytic activity in vitro for cells from individuals of the same blood group. This hemolytic activity must therefore, differ entirely from the ordinary isohemolytic activity, which is only exerted on cells of other groups. This observation emphasizes the importance of testing the action of the recipient's serum on the donor's cells, but it seems probable that the methods now in use will not suffice to foresee and avoid all such reactions.

Use of Digitalis in Diphtheria Contraindicated.—As the effect of diphtheria toxin on the heart is similar in many ways to the effect on the heart of digitalis, either directly or through the vagus nerve, McCullough states that the administration of digitalis to patients with diphtheria is contraindicated because there would result a summation of effects in the same heart.

Formaldehyd Urticaria.—In Guyot's case the use of liquor formaldehydi in a tooth cavity caused a violent urticaria. After removing the application and thoroughly flushing the cavity, the urticaria disappeared in six hours.

Kidney Infections with Appendicitis.—Harbin reports four cases of active kidney infections among thirty-two cases of acute appendicitis. The diagnosis was not made until at the time of operation.

Bone Grafting.—Henderson endorses the use of the massive graft taken from the flat internal surface of the tibia and applied to the fragments after their periosteum has been removed and the outer portion of the cortex until the cancellous or endosteal layer is exposed. Against this layer, which has strong bone forming properties, is placed the endosteal surface of the graft. Two or more beef bone screws are placed through the graft into each fragment, the screws going through the opposite cortex. In this manner a much larger graft than the intramedullary or inlay grafts can be used. The chief advantage is that the bone producing elements in the graft and in the fragment are in contact over a very large area. It is Henderson's belief that a large part, at least, of this graft maintains its vitality and becomes one with the fragments. His reasons for this belief are based entirely on clinical experience. Union is brought about much more rapidly than with other grafts and the roentgenogram shows early union of the graft to the fragments.

Surgery, Gynecology and Obstetrics, Chicago

February, 1921, **32**, No. 2

*Mortality and End-Results in Surgery. W. J. Mayo, Rochester, Minn.—p. 97.
*Surgical Treatment and Pathology of Gastric and Duodenal Ulcer. J. B. Deaver and S. P. Reimann, Philadelphia.—p. 103.
*Diagnosis and Treatment of Hydrocephalus Due to Occlusions of Foramina of Magendie and Luschka. W. E. Dandy, Baltimore.—p. 112.
Surgical Significance of Common Bile Duct Sphincter. G. L. McWhorter, Chicago.—p. 124.
Case of Pudendal Hernia. J. F. Grattan, New York.—p. 131.
*Varicose Veins of Female Pelvis. L. A. Emge, San Francisco.—p. 133.
*Ureteroceles: Review of Literature and Report of Four Cases. M. Lavandera, New York.—p. 139.
*Cysts and Fistulas of Thyroglossal Duct. P. K. Gilman, San Francisco.—p. 141.
Operative Technic Employed in Closure of an Extensive Vesico-Urethro-Vaginal Fistula. G. G. Ward, New York.—p. 150.
Vesico-Appendiceal Fistulas. Report of Two Cases. F. W. Rankin and E. S. Judd, Rochester, Minn.—p. 153.
Combination of Radium and Roentgen Ray in Certain Types of Carcinoma of Breast. D. Quick, New York.—p. 156.
*Caries of Costal Cartilages Following Relapsing Fever. W. M. Post, Princeton, N. J.—p. 169.
*Missed Abortion. A. J. Rongy and S. S. Arluck, New York.—p. 171.
Roentgen Ray in Diagnosis of Prostatism. H. McC. Johnson, San Antonio, Texas.—p. 179.
*Supernumerary Thumbs. J. C. O'Day, Honolulu, Hawaii.—p. 181.
*Cleft Plate Extaordinary. T. W. Brophy, Chicago.—p. 182.
Intermittent Obstruction Due to Gastroptosis. C. Davison, Chicago.—p. 184.

End Results of Abdominal Surgery.—In 1919, 10,280 operations were performed by ten surgeons working under similar conditions in St. Mary's Hospital, Rochester, Minn., with a mortality rate of 1.7 per cent. Five thousand six hundred and seventy-five of these operations were performed for conditions involving the abdominal cavity. It is of these cases that Mayo speaks. The mortality rate was: 265 operations on the ovaries and fallopian tubes for cancer of the ovaries, all types of ovarian cysts, tuberculosis of the tubes, extra-uterine pregnancy, pus tubes, infections, etc., with a mortality rate of 0.7 per cent.; 539 hysterectomies—mortality, 1.6 per cent.; 1,000 cholecystectomies—mortality, 1.6 per cent.; 139 operations for stones in the common and hepatic ducts—mortality, 8.6 per cent.; 711 operations on duodenum for acute and chronic ulcers and their complications—mortality, 0.9 per cent.; 105 resections of stomach for cancer with ten deaths. The radical operation was performed on sixty-three patients with carcinoma of the large intestine, with eleven deaths, and on seventy patients with carcinoma of the rectum and rectosigmoid with seven deaths. The two great causes of death following operation in these gastro-intestinal cases are, Mayo says, sepsis and secondary pulmonary complications. Early operation in cases of benign and malignant disease would reduce the mortality and give better end results. Mayo states that the medical profession is not in accord with regard to the necessary steps to bring this about, and it is not to be expected that the public will respect divided opinions. The surgeon is often intolerant and the internist self-sufficient. The patient, because he has a surgical complication, is arbitrarily assigned to a surgical ward; or a surgical patient, because the diagnosis is uncertain, is detained unduly in a medical ward. A very respectable minority of diseases are on the borderline. There should be hospital beds especially devoted to such borderline cases in which the indications for treatment are not clear, in order that a joint attack may be made on disease. One group of cases may be treated surgically, and another similar group medically, and direct comparison made from a noncompetitive standpoint.

Surgical Treatment of Gastric and Duodenal Ulcers.—As to the best manner of treating these ulcers by means of surgery, Deaver says, excision remains the operation of choice, but it cannot always be the chosen method, much depending on the location of the ulcer, its size, the degree of involvement of the visceral coats, extent of induration, etc. It is his practice, whenever possible, to excise the ulcer with knife or cautery. When the ulcer has not to any great extent impaired the mechanism and the motility of the stomach, simple excision without a posterior gastro-enterostomy will suffice. But from the standpoint of rationality and cure, that is to say, subsequent freedom from symptoms, gastro-enterostomy is indicated in all cases that present marked hyperacidity before operation.

Surgical Treatment of Hydrocephalus.—In previous papers Dandy has shown the absolute necessity of communication between the ventricles and the subarachnoid space, that cerebrospinal fluid is formed from the choroid plexus located in each of the four ventricles, and that in no part of the ventricular system is there any appreciable absorption. It is for these reasons that the foramina of Luschka and Magendie are necessary. They permit the fluid to pass to the absorbing area of the brain—the subarachnoid space. The normal ventricular pathway of cerebrospinal fluid is from each lateral ventricle through its foramen of Monro into the third ventricle thence through the aqueduct of Sylvius into the fourth ventricle and from there into the cisterna magna through the foramina of Magendie and Luschka. There are no other openings which allow communication between the ventricles and the subarachnoid space; all other openings which have been described are artefacts; nor has it been possible to establish artificial openings in other parts of the brain to replace these openings when they become closed, except by the operation which is proposed; here alone, the anatomic conditions are such as to favor the restoration of these openings. A group of cases is presented with occlusion of these foramina and with a hydrocephalus resulting therefrom. Undoubtedly, the disease, occurring in adult life, follows an inflammatory process which may or may not have been clinically evident. Probably, failure of the foramina to develop accounts for the hydrocephalus in many cases which are recognized soon after birth; in other infants an intra-uterine or postnatal inflammation is the cause. Although the general results of the occlusion are the same in every case, there are marked local anatomic differences due to the extent of the inflammatory process and the time of its development. There are no clinical features which permit one to make an absolute diagnosis of occlusion of the foramina of Magendie and Luschka. In every instance, both in adults and infants the diagnosis of hydrocephalus is possible; the exact site and the character of the obstruction causing the hydrocephalus can be determined by ventriculography and by the phenolsulphonephthalein test. The lesion can always be found at operation. An operative treatment is presented. Two adults have apparently been cured by this proceedure, which attacks the cause directly.

Varicose Veins of Female Pelvis.—Emge analyzes thirty-five cases of varicose veins of the female pelvis. He maintains that varicose veins of the broad ligament in general and of the ovarian circulation in particular are comparatively common occurrences in women. The symptomatology is plain enough in most uncomplicated cases to suggest their presence. The diagnosis is, in most instances, made certain by rectovaginal examination in the recumbent, alternating with the sitting position. The differential diagnosis is aided by the normal leukocyte count. Mild and early cases can be relieved permanently by conservative measures. The resection of the veins, or more so hysterectomies, is unnecessary to accomplish a cure. A high suspension of the uterus with a shortening of the uterosacral ligaments offers the best means for a permanent symptomatic cure with a possibility of a permanent anatomic regulation.

Ureteroceles.—A study of all the papers on ureteroceles from 1856 to the present day, together with the cases reported by Lavandera, seems to warrant the conclusion that ureteroceles, found at birth and at all ages, about equal in number for both sexes, rarely bilateral and frequently associated with other anomalies, are congenital malformations.

Cysts of Thyroglossal Duct.—Gilman reviews the embryology anatomy and pathology of cysts and fistulas of the thyroglossal duct and reports ten cases.

Caries of Costal Cartilages Following Relapsing Fever.—Special emphasis is placed by Post (the patient in the case) on the site of infection in his case, i. e., the posterior aspect of the costal cartilages and the low resistance of the cartilages themselves, which together account for the extensive burrowing and call for radical resection of the overlying tissues in order to give adequate drainage and prevent reinfection. He has undergone several operations, increasingly radical until, with the removal of sections of the fifth, sixth and seventh cartilages and ribs recovery now seems assured. Post says that this sequel of relapsing fever is not mentioned in textbooks. He contracted the disease in Persia.

Missed Abortion.—While diagnosis of missed abortion may not infrequently be difficult to make, Rongy and Arluck claim that close observation of the patient during the early period of pregnancy, will in the majority of cases bring out that there exists a disproportion between the size of the uterus and the history of cessation of menstruation. This with the many other signs and symptoms that usually accompany this condition must sooner or later help definitely to establish the diagnosis and once a diagnosis of missed abortion has been made, the uterus should be promptly emptied.

Supernumerary Thumbs.—O'Day's case is quite unusual inasmuch as the right hand had two distinct thumbs while the left had practically two thumbs quite completely webbed. The extensors and flexors of the right proximal thumb enabled the unusual motions of that digit, while the distal thumb was inert because of the absence of either flexor or extensor attachments.

Cleft Palate Extraordinary.—Brophy reports a case of cleft of the palate in the median line, with the premaxillary bones separated at the central suture and the palate cleft throughout the entire length. He has never before seen a similar case nor does a careful review of surgical literature furnish a single example of deformity of this character.

Texas State Journal of Medicine, Fort Worth

January, 1921, **16**, No. 9

State Medicine and Public Hygiene. G. W. Goddard, Austin.—p. 375.
Unity of Organization for Public Health Activities. C. C. Pierce, Washington, D. C.—p. 377.
Law Enforcement. O. Davis, Austin.—p. 380.
Relation of Medical Profession to Venereal Disease Control. W. A. King, San Antonio.—p. 383.
County Health Work. A. P. Harrison, Austin.—p. 384.
Necessity of Making Birth and Death Reports. M. E. Parker, Austin.—p. 387.
Disposal of City's Waste. V. M. Ehlers, Austin.—p. 390.
Discharged Soldier and Public Health. J. H. White, Washington, D. C.—p. 392.
Child Hygiene and Public Health Nursing. E. Parsons, Austin.—p. 394.
Need for a Hospital for Tuberculous Negroes in Texas. A. D. Randolph, Austin.—p. 397.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Jan. 8, 1921, **1**, No. 3132

*Lines of Advance in Surgery of Breast Cancer. W. S. Handley.—p. 37.
Subacute Bacterial Endocarditis. B. Parsons-Smith.—p. 43.
*Operation for Radical Cure of Premasseteric Fistula of Stenson's Duct. G. Chubb.—p. 45.
*Epinephrin in Resuscitation from Apparent Death. C. Walker.—p. 46.
Complement Fixation Tests in the Diagnosis of Tuberculous Infections. A. Sellers and E. N. Ramsbottom.—p. 47.
*Case of Cardiac Massage. R. B. Coleman.—p. 47.
Lethargic Encephalitis. W. Harris.—p. 47.

Surgery of Breast Cancer.—Handley again calls attention to the fact that the opinion long held that cancer spreads along the skin, is shown by pathology to be erroneous. The apparent spread of cancer along the skin is really a punctate spread to the skin at various isolated points from the infected subjacent fascial lymphatic plexus. Since this process is secondary to and later than the spread of permeation in the fascial plexus, its follows that the area of skin infected is small compared with the area of permeation in the deep fascia. The ablation of a very large area of skin is thus shown to be unnecessary, the removal of a large area of fascia, essential. Believing that operation in breast cancer is worth doing to avert the distresses of external ulceration, even though the disease subsequently returns in the internal organs, and believing also that the interests of the individual case in this matter should outweigh the desire of the surgeon for a favorable statistical record, Handley says has has not refused operation in any case when he thought he could prolong the patient's life or make her end more comfortable. Forty-eight per cent. of his patients, who could be traced have remained free from recurrence for three years in spite of the fact that in 90 per cent. of the cases of carcinoma which he sees enlarged axillary glands are present. Cutaneous recurrences have been reduced to a very low percentage. Handley has not seen any case of isolated axillary recurrence, nor of recurrence in the situation of the subclavian glands, and only one of recurrence in the remaining clavicular portion of the pectoral muscle. In some cases intrathoracic recurrence or return of the disease in the liver has taken place. In one case the first sign of return was in the femur on the side of the growth. The majority of recurrences belong to what may be called (*a*) the supraclavicular and (*b*) the intercostal types. No case of diffuse flap recurrence, the type formerly so common, was noted. Speaking of radium therapy for breast cancer, Handley says: The use of radium in breast cancer has, perhaps, never, apart from operation, resulted in the cure of the disease, and when it is applied to the surface of the skin, the maximum dose which the normal skin will tolerate is too small to deal effectively with any but immediately subcutaneous deposits. When a tube of radium is buried in the connective tissues, and at least half an inch away from the skin, a much larger dose can be given, and a 50 or even 100 mg. tube, screened with 1 mm. of platinum, can often safely be left in situ for twenty-four hours. Under these circumstances, and within a range of 1 or 2 inches, the local effectiveness of radium in destroying carcinoma cells greatly exceeds that of the hard roentgen rays which are its chief competitor. On the other hand, with the amounts of radium at present available, it is difficult or impossible to irradiate the whole of the extensive area, a circle 10 or 12 inches in radius centered in the primary growth, within which recurrence may take place. The peculiar advantage of radium when used in the most effective manner—by burying the tube in the tissues—is its intensive action. The peculiar advantage of roentgen rays is their extensive action. These considerations serve to map out broadly the respective spheres of these two methods of irradiation which can often be used effectively in combination. Roentgen rays are specially suitable for prophylactic irradiation covering a wide area, or for the treatment of multiple scattered deposits in the parietes. Radium should be chosen in preference if the recurrence is single of if the nodules are only present in one or several limited areas. Radium should certainly be preferred to roentgen rays provided that the affected area is not too large. Cases illustrating the use of radium in recurrent breast cancer are cited. Handley urges the importance of open air treatment, both for its prophylactic value against recurrence and in the more chronic varieties of inoperable cancer. In cancer, as in tubercle, the natural defenses of the body are to be found partly in the processes of inflammatory and fibrotic reaction.

Operation for Fistula of Stenson's Duct.—Chubb turns that portion of the skin containing the opening of the fistula inward after making a circumscribing incision, and sutures the edges of this flap to the edges of the divided mucous membrane of the cheek.

Epinephrin in Resuscitation from Apparent Death.—In about twenty cases of death from various causes, when all signs of life had ceased for several minutes, Walker has injected 1 or 2 minims of a 1:1,000 epinephrin chlorid solution directly into the heart muscle. A fine needle was passed through the fifth left intercostal space, just mesial to the lung resonance; the point was directed slightly inward and upward, and could be felt to enter the apex of the heart; when firmly imbedded in the muscle the injection was made. Several of these needle tracks were examined postmortem and in no case did it appear that any drawback would have ensued had the patient survived.

Massage of Heart.—The operation of gastro-enterostomy was largely completed when Coleman's patient stopped breathing. Artificial respiration was performed and breathing very soon started again, but the pulse was very weak. The operation was continued, but in a few minutes breathing stopped again, and the pulse could not be felt. Artificial respiration, strychnin, ether under the skin, hot cloths to the epigastrium were all tried without avail. The gloved hand was inserted in the abdomen through the operation incision and an attempt made to massage the heart through the diaphragm, but the heart could not be felt at all. Finally, after half an hour, during which time there had been no voluntary breathing and no pulse or audible heart sounds, direct massage of the heart was tried. After at least five minutes, the heart began to respond. Shortly after, on ceasing the massage for a brief period, a very small beat, feeling almost like a tremor, continued but only for a very short time. Pituitary extract, 1 c.c., was given, and soon after, on ceasing the artificial respiration the patient took one respiration himself, but did not continue. Again, later the heart continued to go for a brief time alone and the patient breathed again. Then he breathed twice in succession, later three times and so on till he twice breathed automatically, nine times consecutively, but did not continue. Also, the heart would not keep going for long if the massage were suspended. About a pint and a half of physiologic sodium chlorid solution was injected into a vein in the arm and more pituitary extract was given, but the breathing would not start again. The heart gradually grew weaker. It still responded to massage, but would only give one or two beats when left alone, till finally, nearly two hours after breathing first stopped, response failed and the case was given up.

Lancet London

Jan. 29, 1921, **1**, No. 5

Colectomy. W. A. Lane.—p. 207.
Legg's or Perthes' Disease. Differential Diagnosis of Affections at Hip in Children. H. B. Roderick.—p. 210.
Frequency of Latent Syphilis in Medical Department. E. H. Thaysen.—p. 213.
*Action of Quinin on Pregnant Uterus. H. W. Acton.—p. 216.
*Fatal Case of Infection with B. Enteritidis of Gaertner. J. W. McNee.—p. 218.
*Simple Procedure for Accurate Enumeration of Blood Cells and Bacteria, Without Use of a Counting Chamber. G. Dreyer.—p. 219.
Antimony in Treatment of Filariasis. G. C. Low and E. J. O'Driscoll.—p. 221.
Acute Ascending Paralysis, Occurring as Complication of Measles and Terminating in Recovery. C. R. Box.—p. 222.
Percentage and Fractional Dilutions. W. Fletcher,—p. 223.
*A Tri-Orchid. V. R. S. Ayyer.—p. 223.

Action of Quinin on Pregnant Uterus.—Quinin in certain concentrations cause contraction of both the longitudinal and circular fibers of the uterus. The effect produced, Acton says, depends on the concentration of quinin present. A concentration of 1 : 44,000 produces a tonic spasm, which, if sustained, would cause asphyxia of the fetus from constriction of the placental sinuses. This concentration could only be attained if the patient was nearly poisoned by a large dose of quinin. As soon as the diagnosis of malaria is made, which is an urgent matter in pregnancy, quinin or quinidin should be given at once as the case requires. It is better to divide the doses into 2.5 or 5 grain doses, given every two or four hours. Twenty grains a day is sufficient and ample to control any attack of malarial fever. Acton insists on the employment of general methods for the prevention of miscarriage; viz., complete rest in bed and the judicious use of opium in allaying any mental excitement. When the child is dead or the miscarriage inevitable, quinin should be given in ordinary doses and the patient treated on general obstetric lines.

Fatal Gaertner Bacillus Infection.—Because of high fever, without pulmonary or intestinal symptoms, a provisional diagnosis of trench fever was made in McNee's case. Eight days later the patient suddenly had a "fit," and bit his tongue during the convulsion. Next day another convulsion took place. Twelve convulsions occurred within a few hours, and the patient became semicomatose. On the suspicion that the case might be cerebrospinal meningitis, lumbar puncture was carried out but the fluid was clear and contained no excess of cells. Signs of pulmonary involvement now developed, and within three days the base of each lung was consolidated. The patient died seventeen days after the onset of his illness. Since this case occurred at a time when influenzal bronchopneumonia was just beginning to be prevalent, associated at times with nephritis, a diagnosis of influenza suggested itself. At the necropsy, moreover, the macroscopic lesions in the lungs appeared typical of influenzal bronchopneumonia. A film of the bronchial pus, stained by Gram's method, showed the presence of numerous small gram-negative bacilli, which at first sight seemed entirely confirmatory of the influenza hypothesis. The organism appeared to be present in almost pure culture. Later, an examination of films from the spleen pulp showed an abundance of similar small bacilli. The organism proved to be a true *B. enteritidis* of Gaertner, the differentiation being confirmed by the requisite tests.

Enumeration of Blood Cells and Bacteria.—The procedure described by Dreyer, although based on the same general principles as Wright's method, differs in that it can be used to count not only bacteria but also human blood cells, and that the standard consists of a permanent suspension containing an exactly determined number of corpuscular elements per unit volume. The corpuscular elements selected for the preparation of the standard emulsion are the red corpuscles of the blood of a hen. The method is described in detail.

Tri-Orchid.—In Ayyer's case a third testicle was found above the left normal one, with a separate globus major and minor and a separate cord. The "testicular" feel over this gland was the same in every way as that of a normal gland.

South African Medical Record, Cape Town

Jan. 8, 1921, **19**, No. 1

Experiences of General Practitioner During Twenty-Six Years in Native Territories. F. W. Walters.—p. 1.
Fundus Oculi and Arteriosclerosis. J. S. Du Toit.—p. 6.
Prevention of Carcinoma of Uterus. A. S. Wilson.—p. 9.
Training of Milwives and Control of Midwifery Service. G. A. Darling.—p. 11.
Spontaneous Evolution of Full-Time Child. E. C. Crichton.—p. 12.

Archives des Maladies de l'Appareil Digestif, Paris

December, 1920, **10**, No. 12

*Cecum and Colon Stasis. P. Duval and J.-C. Roux.—p. 705.
Duodenal Feeding with Ulcer. M. Einhorn.—p. 745.
*Neoplasms at the Cardia. A. Hanns.—p. 754.
Glossomania. Surmont.—p. 758.

Cecum and Colon Stasis.—Duval and Roux study exhaustively the conditions and the radiograms of stasis in the ascending colon and cecum, with case histories of a large number of patients. They confirm the necessity for correcting conditions when the colon is found malformed, movable or surrounded with membranes, and the writers urge that such conditions should be rectified at every operation on the appendix in children. They advise solid fixation, and warn that removal of the pericolic membrane is sure to be followed by recurrence, unless this is prevented by wrapping the bowel in a free flap of omentum. This prevents adhesions and "gun-barrel kinking" of the bowel. With simple movability of the right colon, fixation to the psoas parvus is usually all that is necessary. When there are signs of pericolitis, the free flap of omentum is indispensable after removing the pericolic membrane. They warn that postoperative medical treatment is indispensable, especially as the patients, finding themselves cured, are apt to be careless in their diet. They give details for a diet of carbohydrates with considerable butter and little putrescible protein; this should be kept up for several months.

A Neoplasm at the Cardia.—Hanns describes as an aid in the diagnosis the peculiar contortions which allowed the man of 57 to pass the food into the stomach when it was arrested by the extensive tumor at the cardia.

Archives Médicales Belges, Liége

October, 1920, **73**, No. 10

*Syphilitic Psychoses. C. Dubois.—p. 819.
*Treatment of Fractured Long Bone. Van der Elst.—p. 824.
Duration of Immunity to Influenza. A. Colard.—p. 835.

Syphilitic Psychoses.—Dubois reports two cases of acute maniacal psychosis; in one the symptoms suggested general paresis and in the other manic-depressive delirium. In both the syphilis was of less than a year's standing. The improvement and recovery under arsphenamin coincided with the improvement of the findings in the blood, confirming the syphilitic nature of the mental disease. Both the men had been given treatment, one irregularly, but the other a systematic course. Dubois adds that he encountered a similar case several years ago, before the discovery of arsphenamin, in which the cure was soon complete under intensive mercurial treatment. The medication in all these cases was borne without harm.

Treatment of Fractured Long Bone.—Van der Elst gives an illustrated description of his method of reconstructing the bone by belting it with a metal band with a hole at each end. First he applies to the bone a plate with two or three short, pointed projections below, which cling to the bone and prevent slipping. The strip of metal is then passed around the bone, the ends closed above the plate, and a screw without sharp tip is passed through the superposed holes in the ends of the strip. As the screw is turned, the closed ends of the metal strip are drawn up higher and higher, thus belting the bone tighter. As soon as consolidation is complete, the encircling metal strips are withdrawn.

Bulletin de l'Académie de Médecine, Paris

Jan. 11, 1921, **85**, No. 2

*Incomplete Valvular Stenosis of the Esophagus. J. Guisez.—p. 61.
*Fracture of Neck of Femur in the Elderly. H. Judet.—p. 63.
Importance of Amino Acids and of Saturated Acids in Metabolism. A. Blanchetière.—p. 66.
Frequency of Latent Forms of Continuous Hypersecretion. L. Pron.—p. 68.

Incomplete Valvular Stenosis of the Esophagus.—Guisez explains that many cases diagnosed as spasm of the esophagus are in reality due to a valvular obstruction. The roentgen ray may show nothing wrong, as the contrast suspension works its way into the stomach. But esophagoscopy reveals a semilunar valve partially closing the esophagus, and always found at the same spot, on a level with the opening in the diaphragm. Food is retained more or less at this point, and sets up irritation, increasing the spasm, which is only secondary. Most of these patients had been classed as requiring treatment of severe essential spasm. But this brought no relief. Treatment should soothe the irritation by restriction to fluid food, not allowing milk, as this clots above the stenosis, rinsing out the esophagus with an alkaline supplemented by measures for dilatation, and for circular electrolysis of the valve formation. In the five cases described this treatment put an end to all disturbances.

Fracture of the Neck of the Femur in the Elderly.—Judet applies a plaster cast to include the pelvis and knee and hold the leg in abduction, whether the fracture is intracapsular or extracapsular. In the four patients described the pain ceased at once after the immobilization. The cast is applied to hold the patient in the sitting posture, the knee flexed, which is convenient and comfortable, and the anatomic and functional results were excellent.

Bulletin Médical, Paris

Dec. 4, 1920, **34**, No. 57-58

Minor Signs of Syphilis. R. Sabouraud.—p. 1083.
Iridectomy to Improve Vision. A. Cantonnet.—p. 1085.

Jan. 1, 1921, **35**, No. 1

*Sacralization of Fifth Lumbar Vertebra. L. Delherm and Thoyer-Rozat.—p. 6.

The Sacralization of the Fifth Lumbar Vertebra.—A number of illustrations are given of the complete or partial fusion of the fifth lumbar vertebra with the sacrum. The roentgen rays have demonstrated the mechanical cause responsible for many rebellious cases of pain in the lumbar and sacral region and below. There are absolutely no other symptoms except the pain, and the deformity is not inevitably accompanied by pain. Seven different types are described, and the necessity emphasized for roentgen examination in every case of pain in this region.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 17, 1920, **44**, No. 39

Epidemic Hiccup. C. Achard and J. Rouillard.—p. 1534; Idem. L. Rivet.—p. 1541.
*Chronic Trophedema with Sacrum Anomalies. A. Léri and Engelhard.—p. 1538.
Study of Oscillometer Pulse Findings. Mougeot and Petit.—p. 1544.
*The Thyroid in the Tuberculous. Coulaud.—p. 1551.
*Staphylococcus Meningitis. L. Lortat-Jacob and M. Grivot.—p. 1555.
Epidemic Encephalitis: Pathologic Anatomy. Achard and Foix.—p. 1560.
*Bilateral Successive Pneumothorax. R. Burnand.—p. 1569.
*Brain Tumor. E. Lenoble, Baumier and Dujardin.—p. 1577.
Pigmentation in the Mouth. H. Roger.—p. 1580.
*Gallop Rhythm in Children. A. d'Espine.—p. 1585.
*Fluid in Fasting Stomach. G. Hayem.—p. 1590.

Chronic Trophedema.—Léri and Engelhard present three cases of chronic trophedema in one leg, explained by roentgen-ray examination as due to retrogressive changes in the sacrum, a sacral spina bifida.

The Thyroid in the Tuberculous.—Coulaud states that he has found the thyroid normal at necropsy of patients with acute tuberculosis, or it showed merely a tendency to hyperplasia. There does not seem to be anything which suggests functional thyroid inferiority in the tuberculous. In the majority of the chronic cases there seems to be a sort of struggle between sclerosis and hyperplasia. Only in the cases of cured tuberculosis was sclerosis alone found.

Staphylococcus Meningitis.—In the two cases described, the young women a few weeks after childbirth developed mastoiditis with tendency to meningitis. Both recovered under vaccine treatment. This encourages prompt vaccine therapy in diffuse staphylococcus meningitis connected with otitis, instead of waiting for signs of mastoid involvement.

Bilateral Induced Pneumothorax.—Burnand found that the compressed lung after three years of artificial pneumothorax expanded practically normally, resuming its functions. After five months of this, the other lung showed such disturbances that a pneumothorax was induced on this other side. Forlanini has reported two cases of this successive bilateral pneumothorax. In one the lung had been compressed for eight years. The conclusions from these cases are that the successively bilateral pneumothorax had better not be attempted except in very unusual circumstances. It generally entails more or less interference with breathing, and the patients do not long survive.

Brain Tumor.—The man of 50 presented symptoms which suggested lethargic encephalitis, but the lumbar puncture fluid showed a histologic reaction on the part of the meninges, with numbers of red corpuscles in the puncture fluid, but not enough to tint the fluid.

Gallop Rhythm in Children.—In d'Espine's two cases the gallop sound was heard on the left side in one and on the right side in the other; both in boys of a little over 3 with normal kidneys. In the left case the child died in ten days from a recurring rheumatismal heart disease. The other child recovered, but the gallop sound seems to be permanent with the hypertrophied heart.

Fluid in the Fasting Stomach.—In this second part of Hayem's study of this subject he enumerates the principal causes of hypersecretion and retention that may be responsible for the presence of fluid in the fasting stomach.

Gynécologie et Obstétrique, Paris

1920, **2**, No. 5

*Retinitis in the Pregnant. A. Couvelaire.—p. 305.
*Traumatism of the Genitals in Women. P. Séjournet.—p. 318.
*The Pelvis After Hip-Joint Disease. L. Cleisz.—p. 353.
*Reconstruction of Perineum. L. Imbert.—p. 364.

Retinitis in the Pregnant.—Couvelaire reports two cases in which the retinitis developed in the first half of pregnancy in previously healthy women. There was no edema or uremia. He emphasizes that in such cases, not responding promptly to medical treatment, even when there is no hyperazotemia the pregnancy should be terminated at once. Nothing but the removal of the ovum—at least in the immense majority of cases—will arrest the toxic condition and allow recuperation of the organs if this is possible. The future of women in this class is dubious; recurrence in later pregnancies is frequent, but not inevitable. When it occurs, it is liable to prove fatal. In a compilation of twenty-three cases nine of the women died during or soon after another pregnancy, and five developed blindness during a later pregnancy. In five other cases there was recurrence but the women recovered; in two in this group the pregnancy was artificially interrupted. In only five in this group of twenty-three was there no return of the retinitis, but in two of these cases there was albuminuria. These figures warn against allowing later gestation as a rule, or at least not until after complete return of health and especially of normal kidney functioning. During the new gestation, from the very first the woman should be given treatment as if for chronic kidney disease, and if there is the slightest sign of ocular disturbance, the pregnancy should be interrupted at once. It is better to have the woman examined frequently by an ophthalmologist, without waiting for symptoms of the retinitis.

Traumatism of the Genitals in Women.—Séjournet summarizes from the literature over 100 cases of trauma of sexual origin, including some cases in his service—a total of 110 cases classified by the various forms of the injury. The list includes three cases of fatal hemorrhage from the hymen on the wedding night; one of theses women was of a hemophilic family.

The Pelvis After Hip-Joint Disease.—Cleisz reports the results of study of coxalgic pelves, including both adults and children. The ilium was always found more or less atrophied, but the line of the innominate beyond is as long or longer than that of the sound side.

Flap for Correction of Perineum.—Imbert's illustrations show his effectual method for reconstructing the perineum after complete laceration from the anus to the vulva. He makes a transverse incision between the anus and vulva and cuts a flap on one side of and to the rear of the anus, commencing at the tip of the transverse incision. This flap is twisted around and sutured across to the lips of the transverse incision. This broad thick flap is well nourished, and one of the three women he has treated in this way has passed through two pregnancies since.

Paris Médical

Jan. 8, 1921, **11**, No. 2

*Thyroidectomy. P. Sebileau.—p. 33.
*Abuse of Gymnastic Exercises. Joland.—p. 37.
*Jaundice After Arsenical Treatment of Syphilis. A. Policard and J. Pinard.—p. 42. Idem. G. Milian.—p. 43.

Thyroidectomy.—Sebileau describes the anatomic and the clinical features that have to be taken into account in removing the thyroid.

Abuse of Gymnastic Exercises.—Joland raises a warning voice that children are put at gymnastic exercises too young or they are worked too hard in them, describing several cases to show the injury liable.

Jaundice After Arsenical Treatment of Syphilis.—Policard and Pinard report the case of a man of 28 who developed acute yellow atrophy of the liver, fatal in six days, several weeks after a course of neo-arsphenamin treatment for old syphilis. Necropsy showed $^{80}/_{1,000}$ mg. of arsenic in 100 gm. of liver tissue, while the normal proportion is at most $^{5}/_{1,000}$ mg.

Milian comments on this case that the jaundice did not develop until fifty days after the neo-arsphenamin had been given in three doses to a total of 1.05 gm., and he thinks that the jaundice could not possibly be attributed to the drug directly. He says that there is no known instance of a mineral or organic poison waiting for several weeks before manifesting its effects. In ten years of experience and large numbers of cases he has found that renewed treatment with the drug cured the jaundice in such cases when given at once. He has had sixty cases of the kind in the last two years, the jaundice developing several weeks after the arsenical treatment. All were rapidly cured by renewed administration of the drug. A strange poison, he adds, which lets the patients get well when it is being administered and which lets them die when there has been an interval since its administration.

Jan. 15, 1921, **11**, No. 3

*Removal of Goiter. P. Sebileau.—p. 49.
*Diagnosis of Tuberculosis in the Elderly. G. Ichok.—p. 58.
Intraspinal Treatment of Neurosyphilis. ("Rachisérumsalvarsanothérapie.") D. E. Paulian.—p. 59.

Jan. 22, 1921, **11**, No. 4

The Sources of Therapeutics. H. Vaquez.—p. 65.
An Operation for Bullet Wound of the Heart: Death from Intrapleural Hemorrhage. J. Quénu.—p. 76.

Removal of Goiter.—Sebileau gives seventeen illustrations of his technic, saying that the operation of goiterectomy by this means is extremely benign. Whatever the size of the goiter or its variety or its age, the operation is no more dangerous than the most harmless of surgical interventions. He never drains.

Fixation of Complement in Diagnosis of Tuberculosis in the Elderly.—Ichok comments on the advantages of this test for revealing pulmonary tuberculosis in the elderly when the appearance of health, or at least of resistance, prevents suspicion of the tuberculous nature of the "bronchitis." An elderly governess in a healthy and wealthy family was probably responsible for the deaths from tuberculous meningitis of three of the children in an instance related.

Presse Médicale, Paris

Jan. 15, 1921, **29**, No. 5

Reconstruction of Fractured Elbow. Lenormant and Lebrun.—p. 41.
The Schick Reaction. P. Armand-Delille and P.-L. Marie.—p. 43.
Dental Caries in the Tuberculous. P. Fargin-Fayolle.—p. 44.
*Migraine. P. Pagniez.—p. 45.

Migraine.—Pagniez refers to his own work in prophylaxis of migraine by systematic ingestion of a little peptone before each meal, as has been described in these columns. He then summarizes Didsbury's treatment, which has also been summarized here. He further quotes the work of Bouché and Hustin in curing the tendency to migraine by injections of horse serum or crotalin. The reactions to these measures modify conditions so that the tendency seems to die out. One of their patients was a woman of 31 who had had migraine for ten years accompanying each menstrual period. She was given weekly injection of 1 c.c. of horse serum for two months and later twice a month for two months. The tendency to migraine seems to be entirely conquered. They have had six cures and four with improvement in their eleven cases, and one failure. Pagniez thinks that these three types of treatment may be useful in different cases.

Jan. 19, 1921, **29**, No. 6

*Latent Mastoiditis. H. Luc.—p. 53.
*The Prognosis of Pulmonary Tuberculosis. E. Arnould.—p. 54.
*Dilution Unit in the Wassermann Test. E. Peyre.—p. 56.

Latent Mastoiditis.—Luc describes a form of mastoiditis which he says "bites without barking." The inflammation extends into the antrum but so long as the opening is free there are no symptoms, no tenderness. The only sign of this latent mastoiditis is the persistence of the discharge. In one case after seven weeks of acute otitis came a chill and high fever, and the immediate operation did not ward off the promptly fatal termination. In another case when three weeks had passed with still profuse suppuration, he warned the patient that if there was no improvement in another week he would operate. He found a vast cavity filled with pus and the lateral sinus protruded and was laved by the pus showing the menace that had been averted by the operation. He accepts four weeks as the limit; the operation not only averts threatening danger but cures the interminable otitis.

The Prognosis of Pulmonary Tuberculosis.—Arnould concludes from extensive experience and study of the literature that the prognosis of pulmonary tuberculosis is graver when it develops in a previously healthy person who had not been exposed before to repeated infections. The disease will be less grave in the children of the tuberculous, and the prognosis will be rather favorable in a large number of cases of healed tuberculosis.

Dilution Unit in the Wassermann Test.—Peyre determines the smallest amount of serum which will induce the positive reaction, calling this $^{1}/_{10}$ as the unit. He dilutes the serum with physiologic saline ($^{9}/_{1,000}$). When the reaction is positive at $^{1}/_{40}$ he calls this 4 units; at $^{1}/_{100}$, 10 units; at $^{1}/_{200}$, 20 units. By this method of dilutions it is possible to record with precision the reaction by the number of units.

Progrès Médical, Paris

Dec. 18, 1920, **35**, No. 51

*Puberty in the Abnormal. G. Paul-Boncour.—p. 551.
Review of the Clinics of the Week.—p. 554.
*Medical Syndicates. Garçon.—p. 556.
The Present Status of Biology. P. Girard.—p. 558.

Dec. 25, 1920, **35**, No. 52

Grave Forms of Malta Fever. H. Roziès.—p. 563.
Present Status of Surgical Tuberculosis. A. Broca.—p. 565.
Diagnosis of Spirochetoses. A. Sartory.—p. 566.

Puberty in the Abnormal.—Boncour comments on the necessity for noting the course of puberty as a sign of abnormal conditions in children. Precocious puberty generally coincides with sexual precocity and perversions, but over 60 per cent. of the abnormal have very late puberty. They should be classed by their physiologic rather than their chronologic age.

Medical Syndicates.—Garçon summarizes the peculiar laws in France governing the association of physicians. The "syndicates" can be only among members of a single profession, but the "associations" are free to take in others. He describes also the arguments for and against a tribunal of honor.

Revue Franç. de Gynécologie et d'Obstét., Paris

October, 1920, **15**, No. 10

*Tuberculous Adnexitis. J. Mouchotte.—p. 397.
*Technic for Ligating Umbilical Cord. A. Brisset.—p. 421.

Tuberculous Adnexitis.—Mouchotte gives an illustrated description of a case of tuberculous pyosalpinx. He removed the tuberculous tube, leaving the other tube in place although it showed slight tuberculous lesions. The woman was young and otherwise apparently healthy, and he regards this tubal tuberculosis as primary. Recent compilations show the relative rarity of tuberculous adnexitis and the difficulty of a differential diagnosis. None of the symptoms from the adnexa are characteristic. In his case there were no general signs, no fever, no pain until toward the last and only under the influence of some occasional cause. Palpation revealed a small soft tumor, slightly tender, in one of the culdesacs. The possibility of tuberculous adnexitis should be borne in mind and the blood examined for mononucleosis, the tuberculin tests applied, and perhaps inoculation of guinea-pigs with secretions from the cervix.

Ligation of Umbilical Cord.—Brisset refers to a cord containing large amounts of Wharton's gelatin. As this dries out, the ligature is liable to slip. Brisset twists four or six threads together, tying a knot in the center. One half of the cord thus formed is separated into two strands, and these two strands are tied around the cord. The ends of these strands and the other end of the cord are then tied together across the top of the cut end of the cord. By this means it is impossible for the ligating cord to slip off. The article is illustrated.

Revue de Médecine, Paris

October, 1920, **37,** No. 11

Forms of Anemia with Cancer. J. Rieux.—p. 505.
*Pituitary Polyuria. E. Schulmann and R. Desoutter.—p. 520. Con'n.
*Ulcer of Lesser Curvature. A. Monprofit and R. Thouvenin.—p. 553.

Pituitary Polyuria.—In concluding this long study of diabetes insipidus, Schulmann and Desoutter list among the direct causes traumatism, intoxications, infections and emotions, besides tumors. They state that 85 per cent. of the cases on record were in the young under 20. Cozzolino has reported a case in a babe of 2 months and Deluca in one of 3. The pituitary seems to be peculiarly unstable during childhood and at puberty, but diabetes insipidus has been encountered also in the elderly. Lancereaux has published eleven cases of hereditary transmission of diabetes insipidus, and van de Heidjen ten cases. Marañon has reported a family in which the father had acromegaly and the son diabetes insipidus and glandular insufficiency. Extract of the posterior lobe of the pituitary is unquestionably the most effectual treatment at our command to date, they reiterate. But it probably does not definitely modify the prognosis of diabetes insipidus. It reduces or abolishes completely the two most distressing features of the disease, the tormenting thirst and the indefinable malaise which prevents sleep. The harmlessness of this treatment allows it to be kept up a long time, possibly giving it by the mouth for a week or two occasionally in place of the intramuscular injections. Pituitary treatment may likewise act on other manifestations of secretory insufficiency, and it may sometimes be usefully reenforced with thyroid or suprarenal extract. They condemn any reliance on dieting or on drugs to act on the nerves.

Ulcer of the Lesser Curvature.—Monprofit and Thouvenin emphasize as early features of ulceration in this region of the stomach the marked intermittency of the symptoms and the peculiar intensity of the pain. The tender point in the epigastrium has to be sought with one finger, palpating very gently, and it is always found at the same spot, on or a little to the left of the median line, in the intervals between spasms of pain, before perigastritis has developed. The pains are mostly on the median line and quite high, and they do not radiate to the back but along the left costal arch and back of the sternum, sometimes suggesting angina pectoris. Digestion, not the contact with food, is what starts the spasm of pain, and the pains are liable to begin a half hour or hour after the end of the meal and persist until the stomach is at rest. Then there is no further pain. The pains may be relieved by sodium bicarbonate, which not only neutralizes the acidity but distends the stomach wall by the gases generated. Vomiting and change of position also relieve the pain. One patient obtained relief only in the knee-chest posture. Ulcers of the lesser curvature seemed more inclined to bleed than others, in their experience. Hematemesis as the first manifestation of a hitherto latent ulcer points almost decisively to the lesser curvature. Ulcers here are exceptionally inclined to manifest and occult hemorrhage.

Schweizerische medizinische Wochenschrift, Basel

Jan. 13, 1921, **51,** No. 2

*Diagnosis of Ulcer on Curvature of Stomach. W. Geilinger.—p. 25.
Treatment with Non-Specific Vegetable Albumin. A. S. Horovits and E. Zueblin.—p. 34.
*Heart Disease and Altitude. W. H. von Wyss.—p. 36.
Intestinal Lipoma: Two Cases. E. Forster.—p. 40.
Gastric Secretion Not Influenced by External Factors. M. Lüdin.—p. 41.

Gastric Ulcers Distant from the Pylorus.—Geilinger states that in Kummer's compilation of 862 cases of ulcer, 22.97 per cent. were in the lesser and 1.62 per cent. in the greater curvature; 58.34 per cent. were close to the pylorus. In his own seven cases there had been symptoms for six or seven years, and only one of the patients was a man. In the first years the ulcer pain came on immediately after eating. (Suggestion by the physician as to this must be guarded against.) None had pains during the night. The pain never started on the right side. There was vomiting in each case; it came on immediately after eating, with very painful spasm of the cardia. The vomit was small in amount and had no acid taste. Posterior perigastritis develops early and is probably responsible for the severity of the pains, and probably also for the mechanical hindrance to the motor functioning. There was visible bleeding in 43 per cent. The ulcers were large, hard and had bored deep into the tissues. Gastric acidity was always normal or below; this finding confirms the accumulating evidence that hypersecretion is not characteristic of any type of gastric ulcer, either as symptom or causal factor, although hyperacidity is found with about two thirds of the cancers near the pylorus. Gastro-enterostomy does not relieve these "curvatural ulcers"; circular resection was applied in six of the seven cases and the Billroth II in the other. One patient died from postoperative complications, but the results in the other cases are excellent.

Altitude and Heart Disease.—Wyss expresses surprise that more attention is not paid to the benefit from a mountain climate in many forms of heart disease. He describes those for which it is not adapted including persons with nephritis and arrhythmia, but simple valvular defects with perfect compensation may be favorably influenced by a stay in the mountains, as also mitral and aortic defects of infectious origin, but without dyspnea, dilatation or stasis. Another group in which the exercise and the training are of benefit is Lewis' "effort syndrome." Wyss ascribes great influence to the feeling of exhilaration and energy which is experienced from the grandeur of the scenery. The reserve power of the heart is greater than is generally accepted, and this can be trained in the mountains. He does not think it necessary to reach the altitude by degrees, but goes at once to the desired point, up to 2,000 meters. It is imperative however, to have the patient keep absolutely still for a time, a regular course in a reclining chair. This will then show what the heart is capable of. Chronic disturbance in conductivity, unless extreme, is not a contraindication to altitude. With paroxysmal tachycardia, the beneficial influence of the mountain climate testifies to the nervous factor in the syndrome. This general strenghthening of the nervous system and the effects of the sunlight are probably responsible for the favorable influence in some cases of exophthalmic goiter. In cardiac neuroses, it is difficult to exclude those of vasomotor origin, for which toxic factors may be responsible.

Pediatria, Naples

Jan. 1, 1921, **29,** No. 1

*Vasoconstricting Substance in Blood in Rachitis. O. Cozzolino.—p. 1.
*Intracranial Hemorrhage in the Newborn. R. Vaglio.—p. 12.
Roentgen-Ray Findings in Acute Respiratory Disease in Young Children. C. L. Rusca.—p. 19.

No Vasoconstricting Substances in Blood in Rachitis.—This is Cozzolino's conclusion from his exhaustive study of seventeen rachitic children. The number examined was larger than this, but the blood of these was investigated by its action on the frog.

Intracranial Hemorrhage in the Newborn.—Vaglio quotes the remark that the mortality is higher on the day of birth than on any other day that humanity has to meet, some estimating that fully 5 per cent. of childbirths end in the death of the child, and that another 1 per cent. die within a few days from obstetric injuries. The low vitality of the prematurely born may be due more to the trauma of the delivery than to the immaturity of the child. Intracranial hemorrhage is the principal harm that results, and this may entail symptoms from the first or not until after a few days. In either event the extravasated blood should be evacuated, and he cites a few clinicians who have done this successfully. He then reports a case from his own practice in which an apparently healthy child of healthy parents the second day after birth developed slight convulsive movements of head and eyeballs which soon spread to include various groups of muscles in trunk and limbs. Extreme collapse followed a hot bath, requiring an injection of camphorated oil and epinephrin internally. Lumbar puncture showed blood in the fluid, with corpuscles and xanthochromia. Improvement followed at once, and the child is now 6 months old, the picture of health. Hot baths and breast milk, fed with a spoon, were the main reliance. The course of the case indicated that the hemorrhage had not been large, the symptoms being due more to the high pressure in the cerebrospinal fluid. The child had presented a slight tendency to jaundice which may have been responsible for the xanthochromia.

Jan. 15, 1921, **29**, No. 2

- *The Brain in Case of Mongoloid Idiocy. O. Cozzolino.—p. 49.
- *Connection Between Congenital Anomalies and Inherited Syphilis. S. de Stefano.—p. 59.
- *Epidemic Scurvy. E. Giorgi.—p. 66.

The Brain in a Case of Mongoloid Idiocy.—Cozzolino states that of the twenty-three cases of mongoloid idiocy he has encountered, eighteen were in males and in several instances there was familial occurrence. The brain in the case described was small and asymmetrical, and showed defective development of all the pallium, the cerebral cortex or brain mantle.

Congenital Anomalies and Inherited Syphilis.—De Stefano has been investigating all the cases of congenital malformations observed at the dispensary connected with the Naples children's clinic, and tabulates them with the findings in regard to any connection with syphilis. They show an overwhelming preponderance of syphilis in the antecedents in all except spina bifida; in this only 9 of 23 cases showed signs of syphilis. The findings were negative also in the one case of hypospadia, one case of congenital cyst in the neck, and one case of exstrophy of the bladder. Signs of syphilis were manifest in 50 of the 54 cases of hydrocephalus; in 27 of the 32 cases of congenital heart disease; in 59 of the 69 with hypothyroidism; in 34 of the 46 cases of mongolism, and 15 of the 17 with pluriglandular syndromes.

Epidemic Scurvy.—Giorgi has been in charge of a foundling's asylum at Venice since 1904, and relates several instances there of epidemics of scurvy from a one-sided diet. He adds a description of an epidemic of scurvy observed in the hospital dispensary, in the hospital, and in private practice, and still prevailing. The ten children are from 6 to 14 months old. The epidemic coincided with the introduction of condensed milk, fresh milk being practically unattainable.

Policlinico, Rome

Jan. 3, 1921, **28**, No. 1

- *Determination of Gastric Digestive Juices by Michaelis' Method. R. Bosisio.—p. 3.
- *Dermatitis from Arundo Donax. P. Timpano.—p. 6.
- Case of Ludwig's Angina in a Hemophiliac. G. Feliciangeli.—p. 8.
- Caustic Action of Argirina in Urethra. G. Piccardi.—p. 10; Idem. Fasani-Volarelli.—p. 11.
- The Campaign Against Tuberculosis in France and Belgium. G. Mendes.—p. 12.

Estimation of Gastric Digestive Juices by Michaelis' Method.—Bosisio tabulates the findings of pepsin and rennet in the stomach content of thirty-five patients and in the healthy, and emphasizes the simplicity and ease of Michaelis' technic and the characteristic findings in malignant and other disease of the stomach. The pepsin unit is that contained in 1 c.c. of a 1 : 15 solution of normal gastric juice; the rennet unit that contained in 1 c.c. of a 1 : 60 solution of the same. For convenience, Bosisio used 1 c.c. of commercial pepsin in a 3 per cent. solution and 2 c.c. of a 1 : 500 solution of commercial rennet for the units.

Dermatitis from Arundo Donax.—Timpano found that the black powder on the leaves of old plants is the cause of the dermatitis, and will reproduce it in animals.

Jan. 10, 1921, **28**, No. 2

- *Biologic Tests of Echinococcus Disease. P. Luridiana.—p. 41.
- Propyl Alcohol in Surgical Therapeutics. V. Pleth.—p. 44.
- *Gastroptosis. E. Cavazza.—p. 47.
- Vaccination in Rural Districts. M. Gioseffi.—p. 50.

Biologic Tests for Echinococcus Disease.—Luridiana states that the intradermal reaction and complement fixation tests of echinococcus disease are the most reliable, but neither is always positive. It is advisable therefore to combine the two. In his ten cases, one test was sometimes positive when the other gave negative findings, and vice versa.

Gastroptosis.—Cavazza tries to fatten the patient to aid in keeping the stomach in place, and promotes the latter by appropriate posture and by the wearing of a supporting band. He has the patient lie on the right side after each meal to promote the evacuation of the stomach, and has the food taken in five small meals, ingesting as little food as possible. He gives the outline for the diet which he has found most effectual, keeping the patients in bed during the entire course of treatment. They frequently increased 5 kg. in weight during the stay in bed.

Riforma Medica, Naples

Dec. 18, 1920, **36**, No. 51

- *Fatigue as a Test of the Tuberculous. V. Pietroforte.—p. 1169.
- *Cardiovascular Symptoms of Horner's Syndrome. A. Roccavilla.—p. 1170.
- *Serum Sickness and the Hemorrhagic Diathesis. G. M. Neirotti and F. Viola.—p. 1175.
- *Implantation of Sex Glands. R. Falcone.—p. 1177.
- Diaphragmatic Hernia. E. Aievoli.—p. 1180.

Fatigue as a Test of the Tuberculous.—Pietroforte explains that when the resisting powers are low, under the influence of fatigue the organism uses up its nitrogenous reserves and finally the albumin of its own tissues. By testing the reaction to fatigue, it is possible to determine the lowering of the nitrogenous reserves, and this drain on the tissues by investigating the intermediate nitrogen metabolism in the blood and the changes in weight of the body. This has been worked out at Maragliano's clinic by Sivori, and has formed a reliable means of ascertaining the resisting powers in the tuberculous to aid in allowing exercise or self-support and in estimating the effect of treatment. For practical purposes it is sufficient to record the changes in weight. For this the patient is kept in bed in absolute repose for ten days, with a diet of from 2,200 to 2,300 calories, including from 90 to 100 gm. of protein. The diet is kept at a constant figure, and every day at the same hour the weight is recorded. By the sixth day if the weight remains stationary or has increased, the patient can get up and take a daily walk of 2 km., for a ten day period. If the weight diminishes, there is little hope of organic resistance. If it remains stationary or increases, the walk is increased to 4 km. for another five days. If the weight diminishes then, we can assume a slight margin of resistance. If it does not diminish during this time nor in another five day period, other conditions equal, we can say that the individual has a good margin of organic resistance, and is capable of responding to specific treatment which requires the active participation of the organism.

Cardiovascular Symptoms with Paralysis of the Cervical Sympathetic.—Roccavilla describes four cases of Horner's syndrome.

Protein Shock in Treatment of Hemorrhage.—Neirotti and Viola report two cases of persisting hemorrhages after a minor operation, finally arrested by the anaphylactic shock from subcutaneous injection of normal horse serum, eighteen hours after a preliminary injection of 10 c.c.

Gonad Grafts.—Falcone implanted half of the testicle of a sheep in the abdomen of four men of 53, 63, 69 and 74. The operation was done early in October, and the grafts were cast off as foreign bodies in two or three weeks in all but one case; in this case the graft seems to have grown in place. He regards the implant as a form of organotherapy. The cytolysins set at liberty exert an actual power as a secretion, and the stimulation resulting therefrom seems to be permanent to date. He says that suggestion can be excluded, the men not knowing the purpose of the implantation. The general effect was good in all and the testicles in all increased in size.

Rivista Critica de Clinica Medica, Florence

Dec. 5, 1920, **21**, No. 34

- Fatal General Poisoning from Mercuric Chlorid Tablet in the Vagina. A. Cazzaniga.—p. 397.

Archivos Españoles de Pediatría, Madrid

December, 1920, **4**, No. 12

- *Kala-Azar in Madrid. J. García del Diestro and N. González Barrio. —p. 705.
- Apportionment of Time for School Children. C. S. de los Terreros.—p. 726.

Kala-Azar in Madrid.—It is evident from the three cases described that kala-azar is endemic in Madrid. The two infants, 14 and 20 months of age, died, but a third infant of 13 months recovered under systematic treatment, first with antimony and potassium tartrate by the vein and later with intramuscular injection of another antimony preparation.

Diestro is well acquainted with the disease, having studied it in Sicily and Tunis; other cases may have escaped detection.

Brazil-Medico, Rio de Janeiro

Nov. 13, 1920, **34**, No. 46

*Splenectomy in Treatment of Cirrhosis of the Liver. O. Clark.—p. 747.
Transmission of Myxoma to Rabbits by Fleas. H. de Beaurepaire de Aragão.—p. 753.
*Mercurial Treatment of Stomach Disease. J. Godoy Tavares.—p. 754.
War Psychoneuroses. A. Lellis.—p. 756.

Splenectomy for Cirrhosis of the Liver.—This lecture from the course on clinical medicine mentions parenthetically a case of splenomegaly with anemia, leukopenia, intermittent fever and symptoms suggesting leukemia. The spleen measured 25 cm. in diameter. Notwithstanding the complete absence of signs of syphilis, Clark gave tentative mercurial treatment and the spleen promptly subsided to normal size as the other symptoms disappeared. Symptoms returned later two or three times, but they were banished anew by mercurial treatment.

Mercury in Nonsyphilitic Stomach Disease.—Godoy Tavares has been urging for some time the advantages of mercurial treatment of stomach disorder even in the absence of active syphilis and with negative Wassermann reaction. He cites here three instructive cases given mercurial treatment although there was nothing to suggest syphilis at the time. He ascribes the action of mercury to the modification of the contents of the digestive tract; it increases secretion of digestive juices and promotes motor functioning. This treatment he explains is not for organic lesions but for gastralgias of reflex or other origins. In fourteen of the thirty-four cases in which he has derived benefit from this treatment there was probably no syphilitic taint. In one of the cases he describes, the mercurial treatment for secondary syphilis put an end to pains in the stomach from which the man had suffered from childhood. In one man with a history of gastralgia for twenty years, a single injection of mercury cured the pain in one hour. A few other injections were given later and he has had no return of his gastralgia.

Nov. 27, 1920, **34**, No. 48

*Action of Temperature on Rapidity of Formation of Experimental Edema. M. Ozorio de Almeida.—p. 789.
*Medicolegal Tests of Spots of Vernix Caseosa. O. Freire and F. Favero.—p. 790.
Case of Vernet's Syndrome. P. Mongabeira Albernaz.—p. 792.

Temperature and Experimental Edema.—Experiments on frogs showed that the induced edema developed much more rapidly when the limb was placed in hot than in cold water.

Medicolegal Test for Vernix Caseosa.—The greasy spot is dissolved with xylol and is then stained with iodin, or a phenolized iodized xylol can be used. Ether or benzine are less effectual than the xylol.

Dec. 11, 1920, **34**, No. 50

Involution Psychoses. H. Roxo.—p. 821.
Leeches as Intermediate Hosts of Trematodes. C. Pinto.—p. 824.
Case of Anarthria. Teixeira Mendes and Gonçalves Guerra.—p. 825.

Dec. 18, 1920, **34**, No. 51

Present Status of Tuberculosis. O. Clark.—p. 837.
Present Status of Cancer. A. F. da Costa Junior.—p. 842.

Dec. 25, 1920, **34**, No. 52

Surgical Treatment of Strabismus. G. de Andrade.—p. 859.
*Primary Chancre on Chin. T. de Almeida.—p. 864.

Extragenital Syphilitic Chancre.—De Almeida gives an illustrated description of a case of a large ulceration on the chin, containing *Spirochaetae pallidae*. The man of 30 was in the habit of being shaved at a certain barber shop, and de Almeida examined the barber, but found no signs of syphilis. He tabulates the extragenital primary chancres that have been recorded at Rio and by Fournier and Gaucher at Paris. At Rio the total number at three separate clinics is 163, but the list includes only three in the shaving area. In the total number of extragenital primary lesions at Rio, all efforts to trace the infection to its source were unavailing in 50 per cent. of the cases. The rarity of barber's chancre is evidently due to the inability of the spirochete to stand exposure to the air and light or the action of soap. He quotes Metchnikoff to the effect that the spirochetes succumb to a temperature of 45 or 50 C. The chin chancre scabs over at first, then grows spongy and then becomes an open cavity. More than 50 per cent. of all extragenital chancres are at the mouth.

Revista Médica del Uruguay, Montevideo

December, 1920, **23**, No. 12

*Traumatism of the Spinal Cord. D. Prat.—p. 539.
*Ocular Complications in Measles. J. de Salterain.—p. 546.
*Unerupted Teeth in Upper Jaw. S. Sartori.—p. 551.

Traumatism of the Spinal Cord.—Prat reports two cases in which there was extravasation of blood in the cervical portion of the spinal cord. The diagnosis was dubious in both cases. The lumbar puncture fluid was blood stained; in the first case the head could be moved freely, and in both, radioscopy was negative. The first and only sign in one case was the semierection of the penis. The pulse showed only 22 beats to the minute. Faradic and galvanic electric tests confirmed that the spinal cord had not been totally severed, and necropsy in both confirmed that the lesion was a hematomyelia of the gray matter, about 2 cm. in extent.

Ocular Complications in Measles.—Salterain reports that in 426 children with eye disease during the recent epidemic of measles, 12.86 per cent. had recently recovered from measles. In most of the fifty-five cases the ocular affections were of the common type and rapidly subsided. But in three cases there was severe keratitis with intense photophobia ,and in these cases parenteral injection of milk cured at once the photophobia, thus allowing the children to resume their ordinary life.

Unerupted Teeth in Upper Jaw.—Sartori emphasizes the importance of looking for missing teeth if they have not been extracted. In case of doubt, radioscopy is imperative and with positive findings intervention should never be delayed. His article is illustrated.

Semana Médica, Buenos Aires

Aug. 19, 1920, **27**, No. 34

*Hernia of Large Intestine. A. G. Gallo.—p. 233.
*Phrenic Reaction in Gynecology. C. Stajano.—p. 243.
*Diagnosis of Incipient Tuberculosis. C. Citrino.—p. 248.

Hernia of the Large Intestine.—Gallo illustrates his communication with thirteen reproductions of various types of hernia, and recalls that every hernia has a complete sac. The movability of the intestine is the main factor. Adhesions that are not of fibrous nature are of ontogenous origin.

The Phrenic Reaction in Gynecology.—Stajano applies this term to reactions in the upper abdomen with disease in the female internal genital organs. He never encountered an actual subphrenic abscess but congestion and lymphangitis are common, and are liable to prove misleading. Some typical cases are related. There is spontaneous pain and tenderness along the costal arch on one or both sides, with special intensity at the inferior phrenic point, the diaphragmatic point. The pain here is increased by forced inspiration, the sharp pain simulating that from an inflamed gallbladder. There may be pain along the entire costal arch on one side, half encircling the chest, radiating to the shoulder and the inner part of the arm on the same side, in both gonococcus and puerperal cases.

Diagnosis of Tuberculosis.—Citrino concludes his study of this subject with the statement that no sign is reliable except a daily persisting temperature above normal. This is enough, he says, to establish the presence of tuberculosis when all other causes can be excluded.

Siglo Médico, Madrid

Nov. 13, 1920, **67**, No. 3492

*Paralysis Agitans and Neuropathies. G. Rodríguez Lafora.—p. 857.
Surgery of the Prostate. R. Molla.—p. 859. Conc'n in No. 3494, p. 902.

Nov. 20, 1920, **67**, No. 3493

Lethargic Encephalitis. R. del Valle y Aldabalde.—p. 877.
Hydatid Cyst in Lung. F. Rico.—p. 880.

Nov. 27, 1920, **67**, No. 3494

Epidemic Encephalitis, Chorea and Paralysis Agitans. E. Fernández Sanz.—p. 897.
Nevi and Their Treatment. Sicilia.—p. 901.
Surgery of the Prostate. R Mollá.—p. 902. Conc'n.

Dec. 4, 1920, **67**, No. 3495.

History of Cataract and Its Treatment. Márquez.—p. 917. Conc'n in No. 3499, p. 6.
Formaldehyd-Lime for Disinfection. F. Valenzuela.—p. 921. Conc'n in No. 3496, p. 943.

Paralysis Agitans and Similar Nervous Disease.—Rodriguez Lafora reviews the results of recent research confirming the degenerative processes in the lenticular nucleus and striate bodies as constant in nervous diseases with tremor and rigidity. Thomalla would group double athetosis, pseudosclerosis and progressive muscular dystonia as lenticular dystonia, apart from cases with lesions in the pyramidal tracts. Marie and Lévy have recently published a study of paralysis agitans as a sequel of lethargic encephalitis, but the lesions with this are not in the lenticular nucleus, as in true paralysis agitans, but are in the cerebral peduncles close by. It is evident therefore that the paralysis agitans symptoms can be produced by lesions in the lenticular nucleus, thalamus or red nucleus or the tracts connecting them with the cerebellum and medulla. The localized cause thus seems to be established for tremor, chorea and athetosis, which until comparatively recently were regarded as neuroses without organic basis.

Deutsche medizinische Wochenschrift, Berlin

Oct. 28, 1920, **46**, No. 44

*The Differentiation of Acid-Fast Bacteria. H. Schlossberger and W. Pfannenstiel.—p. 1213.
Syringomyelia. H. Stursberg.—p. 1214.
Seitz and Wintz Roentgen-Ray Dosage. R. Lenk.—p. 1215.
*Differentiation of Streptococcus Types. M. Beckman.—p. 1218.
*Causation of Accidental Murmur. M. v. Falkenhausen.—p. 1221.
Mercuric Chlorid plus Arsphenamin in Syphilis. Holzhäuser.—p. 1222.
The Twin Laminaria Tent. H. Kritzler.—p. 1223.
Stain for Tubercle Bacilli. H. Schulte-Tigges.—p. 1225.
Anuresis. L. Casper.—p. 1225.

Differentiation of Acid-Fast Bacteria.—Schlossberger and Pfannenstiel state, on the basis of extensive investigations on the biology of tubercle bacilli, that a sharp differentiation between genuine tubercle bacilli and other acid-fast pathogenic and nonpathogenic bacteria resembling them is possible by determining the optimal temperature for their growth and the temperature limits of their growth. Aside from the atypical Arloing strain, genuine tubercle bacilli do not grow at a higher temperature than 42 C., whereas all acid-fast cultures, with the exception of the so-called trumpet bacilli, still grow at 50 C. Genuine tubercle bacilli from cold-blooded animals stop growing at 37 C.; the strains from turtles grown by Friedmann and Piorkowski cannot, therefore, in view of their abundant growth at this temperature, be regarded as genuine tubercle bacilli from cold-blooded animals.

Differentiation of Virulent and Avirulent Types of Streptococci by the Sigwart Method.—Beckman discusses Sigwart's method and states that he was unable by this method to differentiate between virulent and avirulent streptococci.

The Causation of the Accidental Murmur Over the Pulmonary Artery.—Falkenhausen states that beyond all doubt the accidental murmurs of the heart are caused by the pulmonary artery lying abnormally near to the sternum. This is made possible by the fact that the heart lies especially close to the anterior chest wall, which condition often goes hand in hand with a median position of the heart. The mechanism of the murmur consists mainly of rubbing of the pulmonary artery (or of overlying portions of the lung against which it presses) against the anterior chest wall.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1920, **158**, No. 1-2

*By-Effects with Local Anesthesia. T. Schaps.—p. 1.
*Acute Gastric and Duodenal Hemorrhage. H. Finsterer.—p. 44.
Disability from Radial Paralysis. H. Eckhardt.—p. 137.

By-Effects with Local Anesthesia.—Schaps describes the phenomena noted with procain-epinephrin local anesthesia in 9 operations and in 8 subcutaneous test injections, also in 10 goiter operations with nerve blocking, and 11 cases of corresponding test paravertebral injections. The difference in the responses he ascribes to the differences in absorption rather than to individual susceptibility. With the paravertebral nerve blocking in the neck, there is a possibility of paralyzing the vagus and the sympathetic nerves; this usually is harmless, but it might entail serious consequences in persons inclined to vagotonia or sympatheticotonia. The vagus is also liable to be irritated by the cannula in this nerve blocking in the neck. The cases reported confirm the advisability of supplementing the nerve blocking with a ring of local injections for goiter operations. The pulse was accelerated with both local and nerve blocking anesthesia, but reached a higher figure with the latter.

Surgical Treatment of Acute Stomach and Duodenal Hemorrhage.—Finsterer reviews ninety-eight publications on this subject and analyzes his own experiences with twenty-four cases. These data have convinced him that the percentage of fatal hemorrhages from gastric or duodenal ulcer is larger than generally realized. With a large arrosion, spontaneous arrest of the hemorrhage is scarcely to be anticipated, so that the dangers of waiting surpass those of immediate intervention. He therefore operates as soon as possible, when the findings and the history of the case suggest that there is a chronic hard or boring gastric ulcer, and with duodenal ulcer. An exploratory laparotomy under local anesthesia is less dangerous in any event than uncertain waiting. If no deep ulceration is found, the assumption of a spontaneous arrest is justified. With a penetrating ulcer, resection is the best treatment, as this cures the patient at the same time that it arrests the bleeding. If no callous ulcer is found, but the history and pylorospasm suggest ulcer, he makes a wide gastro-enterostomy slanting from the lesser to the greater curvature. If he finds merely parenchymatous hemorrhage, he stops the operation and by internal treatment seeks to enhance the coagulating property of the blood. In conclusion, he warns that general anesthesia is contraindicated as peculiarly dangerous in anemia from these hemorrhages. Also that the ordinary doses of morphin and procain may have a toxic action after severe losses of blood. Little or no morphin should be given, and the solution of procain should be 0.25 per cent. instead of 0.5, and only small amounts be used, and ether only by the drop. Sixteen of his twenty-four patients were saved by his prompt intervention.

Jahrbuch für Kinderheilkunde, Berlin

1920, **93**, No. 6

Rumination in Infants. G. Stern.—p. 341.
*Duodenal Atresia or Enterospasm. C. Schaefer.—p. 347.
*Functioning of the Kidneys in Infants: Nitrogen. E. Stransky and A. Bálint.—p. 350.
*Thicker Food for Infants with Habitual Vomiting. B. Epstein.—p. 360.
*Functioning of the Kidneys in Infants: Water and Salt. E. Stransky and O. Weber.—p. 368.

Atresia or Spasm?—Schaefer reports a case in which a three months child had had the abdomen opened by another physician on assumption of megacolon. Nothing was found except spastic contraction at different points, and the operation brought no relief. Schaefer advised giving atropin, and the spasms subsided at once. In another case the child was five days old and the symptoms were those of atresia but he gave atropin before, during and after each feeding, and the condition was promptly restored to normal. The spasm returned once or twice in the following weeks but each time the atropin cured it. The enterospasm at first had been evidently in the duodenum and later it occurred in the sigmoid region. This child took the breast only when the milk flowed readily, and it had to be supplemented with buttermilk for a time.

Functioning of the Kidneys in Infants.—Stransky and Bálint report extensive research on a number of sick and healthy infants with tests of residual nitrogen and urea nitrogen in the blood by micromethods, with corresponding research on the urine. Their conclusions are that the kidney functioning in infants is like that in later life, but that extrarenal factors have an important influence on the distribution of nitrogen in the blood and urine. The extrarenal factors are particularly active in the responses to diuretics.

Habitual Vomiting in Infants.—Epstein comments on the peculiarly large air content of the infant stomach, both with breast and bottle feeding. Another feature of the infant stomach is the lack of the ability to contract the stomach concentrically around the food. This peristole seems to be a reflex function and there seems to be some parallel between the size of the air bubble and this peristolic function. For these and other reasons he gives a more solid gruel instead of the usual fluid food in case of habitual vomiting. This seems to elicit the peristole reflex, and this expels the air. Even a small amount of a more consistent food, immediately before the ordinary feeding, starts the peristolic reflex as a conditional reflex. Two or three teaspoonfuls of a thickish gruel are given five minutes before the feeding. Even breast milk can be concentrated to form the more solid food required for the purpose. In nine of the thirty-six children thus treated the vomiting ceased at once; in twenty-two the vomiting gradually subsided in the course of from three to ten days. In two of the cases no effect was apparent and atropin was given. As the vomiting stopped, the children began to thrive at once. This treatment has the special advantage for the breast fed that the breast feeding can be resumed. In conclusion he says that this peristolic functioning of the stomach is not the only factor, probably, in habitual vomiting; the diaphragm may be involved, but this treatment with *breivorfütterung* is certainly worth a trial.

Elimination of Water and Salt by Infants.—Stransky and Weber give findings from their research which demonstrate that the kidneys in infants behave like those of adults in regard to water and salt. The kidney functioning in this respect is as perfect in the youngest as in older children so that the kidneys from birth seem to be fully developed. The experiences which seem to indicate the contrary are all of extrarenal origin.

Therapeutische Halbmonatshefte, Berlin

Oct. 15, 1920, **34**, No. 20

*The Treatment of Strangulated Hernia. K. Scheele.—p. 557.
Treatment of Diseases of the Ear. III. M. Maier.—p. 560.
Vegetable Mucoids as Laxatives. W. Bauermeister.—p. 566.
Apparently Moribund Condition After Morphin. W. Schultz.—p. 571.

The Treatment of Strangulated Hernia with Especial Reference to Taxis.—Scheele says, in regard to the indications for the treatment of strangulated hernia, that in certain cases taxis may be indicated as a make-shift, if external conditions or especial causes affecting the patient require it. If two hours have elapsed since the strangulation took place, taxis should not be undertaken. If taxis cannot be accomplished easily and within a few minutes, attempts should not be persisted in. As an operation for the radical cure of the hernia must be done later, taxis cannot be regarded as a substitute for an operation. It simply makes it possible to defer the operation until a more convenient time.

Zentralblatt für Chirurgie, Leipzig

Oct. 23, 1920, **47**, No. 43

*Removal of Suprarenal Glands in Epilepsy. A. Brüning.—p. 1314.
*Ligation of Arteries in Goiter Operations. E. Kreuter.—p. 1317. Idem. W. Lobenhoffer.—p. 1319.
Gangrene of Terminal Phalanx of Finger in Panaritium. J. Kaiser.—p. 1322.
Opening of the Stomach without Loss of Blood. A. Hofmann.—p. 1323.

Extirpation of Suprarenal Glands in Treatment of Epilepsy.—Brüning, influenced by H. Fischer's theory that by the reduction of the substance of the suprarenal glands of an animal the tendency to convulsive seizures is lessened, has tried removing the left suprarenal gland in nine cases of epilepsy. He describes the technic in detail. The experiment was not successful in every particular, but an improvement was effected in all cases and in some instances amounted to a practical cure. Two of the patients were entirely freed from epileptic attacks. The cases that were unsuccessful were perhaps not carefully selected owing to lack of experience. Brüning does not wish to be understood as claiming that all cases of epilepsy can be cured in this manner. He simply regards the operation as pointing to a new method which will make it possible in a certain number of cases to relieve in a measure the main symptoms of epilepsy, the convulsions.

Ligation of All Four Arteries of the Thyroid in Goiter Operations.—Kreuter refers with satisfaction to Madlener's recent article on goiter operations, an abstract of which appeared in The Journal, Nov. 20, 1920, p. 1461. For the past year Kreuter has also ligated, more and more frequently, all four arteries, and regards this method as marking a distinct advance in the technic of goiter operations, so that now this procedure is being employed in every bilateral resection. Then again, Kreuter agrees with Hotz and others that the unilateral operation often leads to recurrences and that bilateral resection is the normal procedure. Kreuter also leaves pieces of the thyroid about the size of a walnut. If there is marked degeneration of the glandular tissue, rather more is left. His experience extends over 200 operations, yet he has never seen any disturbances on account of which the method itself could be incriminated.

Ligation of the Four Arteries of the Thyroid in Bilateral Goiter Resection.—Lobenhoffer states that ligation of all four arteries is with him the method of choice which is seldom departed from. He has performed about 500 operations in this manner. Tetany directly following the operation occurred only once. Parathyroid tablets brought improvement. In another patient, fall of the head hair occurred, but the condition was only temporary. These were the only accidents that he has any record of that indicated even a partial disturbance of function in the parathyroids or the reduced thyroid. He has recently examined fifty of his patients that were operated on over a year previously and two of them, though they felt entirely well, presented a mild disturbance of the facial nerve and two had suffered from temporary fall of the hair. Lobenhoffer, therefore, sees no great danger for the goiter stump or the parathyroids in the ligation of all four arteries in bilateral strumectomy.

Hospitalstidende, Copenhagen

Nov. 17, 1920, **63**, No. 46

*Iron in Severe Anemia. C. Sonne.—p. 713.
Case of Traumatic Ossifying Myositis, or Rider's Bone. J. Fog.—p. 719.

Iron in Severe Anemia.—Sonne gives the detailed history under five years of observation of a case of severe anemia in a woman of 38. Arsenic never seemed to influence the hemoglobin percentage, and the organic preparations of iron also failed to benefit, in marked contrast to the benefit from inorganic ferrous sulphate and reduced iron. There was pronounced achylia. The case teaches that chlorotic conditions are best treated with inorganic iron, increasing to doses larger than those in general use, even up to 10 cg. of reduced iron. This, he adds, is not only the cheapest but probably the best of all preparations of iron.

Ugeskrift for Læger, Copenhagen

Dec. 23, 1920, **82**, No. 52

Rupture of Spleen from Contusion. H. O. Wildenskov.—p. 1607.
*The Anemia of Pregnancy. H. C. Gram.—p. 1609.

The Anemia of Pregnancy.—Gram found an average of 84 per cent. hemoglobin in 40 normal nurses, while the average percentage in 3 healthy women four months pregnant was 71; in 4 at the fifth month, 67; in 9 at the sixth month, 76; in 10 at the seventh, 78; and in 32 others at the eighth to tenth month, the average was from 78 to 80. In 3 cases of eclampsia at or after term the hemoglobin percentage was normal.

Dec. 30, 1920, **82**, No. 53

*Ileus as Complicating Ventrofixation of Uterus. R. Hastrup.—p..1733.

Ileus as Consequence of Ventrofixation of the Uterus.—In Hastrup's case the ileus occurred while the patient was still in the hospital, convalescing from the ventrofixation which had been done by Olshausen's method.

Jan. 13, 1921, **83**, No. 2

*Radiotherapy of Cancer. S. Nordentoft.—p. 43.

Radiotherapy of Cancer.—Nordentoft describes a recent trip to Erlangen where Seitz and Wintz have been advancing roentgen-ray treatment of cancer until their school is taking the lead in Germany for this kind of work. He says that this has been facilitated by the fact that Erlangen is the home of the largest factory for making apparatus for this kind of work. Among the innovations are the use of two inductors, instead of one, and a simple, portable iontoquantimeter. He says in concluding his report of the technic, and its results as applied at Erlangen, that radiotherapy seems thus to have succeeded in realizing in practice what the last few years have produced in theoretical progress.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 11 CHICAGO, ILLINOIS March 12, 1921

NEWER ASPECTS OF SOME NUTRITIONAL DISORDERS *

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One of the most novel medical conceptions is that serious diseases or functional disorder may be occasioned by a mere lack of certain constituents in the dietary. Until recently we were wont to associate tissue damage or functional disturbance solely with the introduction of some harmful foreign substance—chemical or bacterial—into the body. It is not only remarkable but also creditable that a concept so revolutionary should have gained wide acceptance in so short a time, not only among the medical and scientific world, but among the public at large. The first to bring forward convincing evidence in favor of this view was Eijkman [1] who noted in the course of his experiments in Java that fowl fed on decorticated rice became paralyzed and developed symptoms resembling beriberi, which disappeared when rice polishings or their alcoholic extract were added. The subject slumbered for some fifteen years when, less than a decade ago, Hopkins [2] established it on a scientific basis by demonstrating that animals were unable to live on a dietary composed of casein, starch, lard, water and a mixture of inorganic salts, after these ingredients had been carefully purified, but that this diet could be rendered adequate merely by adding a small amount of a natural food—a few cubic centimeters of milk. It will be noted that the new path was blazed as the result of empiric observation as well as carefully planned scientific investigation, and furthermore, that as has happened so frequently in the past, alert empiricism outran and prepared the way for the more carefully planned laboratory experiment. Today the fact that there are deficiency diseases and vitamins is taught to children in the schools, is bandied about in the advertising pages of the daily papers, and is the proper concern of the up-to-date mother. This rapid diffusion of scientific knowledge, despite the interruption of the war, furnishes a striking illustration of present-day alertness in connection with topics affecting personal health and vigor.

No doubt the disorders brought about by a deficiency of the vitamins or accessory food factors have occurred for centuries. To a considerable extent, however, they must be regarded as typically modern disorders. Viewed as a group they are a consequence of our unnatural mode of life and peculiar civilization, of the growth of immense cities housing millions of people, who are dependent on perishable foodstuffs transported from a great distance. To even a greater extent they are the product of countless ingenious methods devised mainly to render food stable—drying, heating, the addition of preservatives—most of which accomplish their objects, but incidentally rob the food of one or more of its essential constituents. In a measure these nutritional disturbances are a consequence of the supreme domination of the bacterial point of view, of the ever present dread of infection and solicitude to protect ourselves against contaminated foodstuffs. This fear has led to the demand for a more or less complete sterilization of foods, and to a preference of foodstuffs whose unsullied whiteness lends them the appearance of purity—as in the case of polished rice, and highly milled flour.

The current view associates deficiencies of the various vitamins with specific disorders, for example, with beriberi or with scurvy. Now, although it is quite true that such diseases demonstrate conclusively the absolute necessity of certain constituents in our dietary, it is likewise true that clear-cut disorders should not be regarded as the most common or important result of food deficiencies. It should be realized that a lack of these essential food factors generally does not bring about typical pathologic states, but obscure alterations of nutrition, ill defined functional disabilities, which cannot be characterized or even recognized as disease. It is such incomplete, larval forms of the deficiency disorders to which physicians will have to address themselves.

Nor should the domain of the deficiency disease be restricted to the narrow confines of disturbances brought about by a lack of vitamins. In a broader sense it includes malnutrition due to an insufficiency of any food constituent which is essential to normal metabolism. The peoples of the Central Empires, for example, as the result of a great lack of meat, milk, cheese and eggs, were compelled to subsist during the war on a dietary which was deficient in phosphoric acid as well as in one or more of the vitamins.

Many observations lead to the conclusion that these disorders are not limited to man, but to a large extent affect the animals which man uses for food. It has been found in Victoria, for example, that cattle raised on certain pastures develop paralysis and other infirmities which can be cured by fertilization of the soil. In the United States in some areas it is impossible to maintain cattle in good condition until the forage is improved by mineral or animal fertilizers, which illustrates that a deficiency in plant tissues leads to nutritional disorder in animals. Recently Hart, Steenbock and Humphrey[3] have confirmed these observations by careful experiments which showed how the mere addition of calcium to the fodder of cows prevented the birth of premature, weak or dead calves. Indeed, the extensive investigations of Forbes showing that cows producing large amounts of milk, and fed common winter rations, undergo constant losses of calcium, magnesium and phosphorus from their skeletons, suggest that large numbers of milch cows are suffering from a deficiency disease. These chemical analyses recall Hanau's report[4] of almost thirty years ago, to the effect that the bones of pregnant women, who had enjoyed apparent health, frequently were the site of lesions resembling osteomalacia—an interesting observation that might be substantiated during life by means of roentgenologic examinations.

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* Read before the Harvey Society, Jan. 15, 1921.

[1] Eijkman, C.: Eine beriberiaehnliche Krankheit der Huehner, Virchows Arch. f. path. Anat. **148**: 523, 1897.

[2] Hopkins, F. G.: Feeding Experiments Illustrating the Importance of Accessory Factors in Normal Dietaries, J. Physiol. **44**: 425, 1912.

SCURVY

The most clear-cut and sharply defined deficiency disease is scurvy. In fact, it is the only nutritional disorder brought about by inadequacy of diet—whether of vitamin, of a definite chemical substance, or of calories—which is associated with characteristic pathologic alteration. For we must bear in mind that the nerve degenerations of beriberi are nòt typical or diagnostic as are the bone lesions of scurvy. The latter disorder, therefore, is preeminently qualified to serve as the prototype of this class of diseases. The clinical picture usually called to mind by the word "scurvy" is that of an individual afflicted with a severe, acute disease; either an adult with bleeding, fungous gums, hemorrhagic eruption and painful gait, or a pale, unhappy infant, with gingival hemorrhages, and tenderness or swelling of one or both lower extremities. This is the classic text-book picture, which should not, however, be regarded as the ordinary or prevalent type of scurvy, either in adult or infant. The more common form is far more subtle in its manifestations, as is true of other nutritional disorders. In the adult it is evidenced by a lack of physical or mental vigor, vague pains suggesting rheumatism, an increased susceptibility to infection—conditions often impossible to diagnose when occurring sporadically, but conclusive when scurvy pervades a large group of individuals. Such scurvy was noted during the War of the Rebellion among the Northern troops, being referred to as a "scorbutic taint," and is mentioned in the recent report of the British troops in Mesopotamia. It has been described by me in relation to infants,[5] and during the war by physicians in Vienna who had charge of child-caring institutions.[6] They noted, in addition to infants suffering from manifest scurvy, a far larger number of what may be termed "subacute" or "latent" cases with the characteristic muddy complexion, lack of appetite, stationary weight and fretful disposition. That this syndrome is truly scorbutic has been proved repeatedly by the miraculous improvement which follows the addition of an antiscorbutic to the dietary. From our knowledge that about six months of the inadequate diet is required to bring about definite clinical manifestations, it follows that there must be a mild or latent type of scurvy and that this form must comprise the majority of the cases.

I shall not weary you with a review of the symptomatology of scurvy, but rather consider briefly the tissues and bodily functions which are particularly affected when the antiscorbutic food factor is lacking in the dietary. This vitamin is probably needed for the normal functioning of all the cells of the body—if we may interpret in this sense the general loss of mental and physical vigor—however its lack is evidenced in particular directions; in a failure of the integrity of the epithelium of the blood vessels; in a disintegration of the structure of the bones; in various disturbances of the circulatory system. It may be of interest to discuss briefly these three conditions, as their occurrence must be closely associated with the function of the antiscorbutic vitamin.

The lesion of the lining of the blood vessels is one of the most characteristic signs of scurvy; it is the cause of the hemorrhage of the gums, of the petechiae in the skin, of the subperiosteal hemorrhage, the hematuria, and all the other hemorrhagic manifestations which have frequently led to the inclusion of scurvy among the group of hemorrhagic diseases. The coagulability of the blood is almost normal in this disorder, the escape of the blood from the vessels being due to a weakening of their walls, or to a lesion of the endothelial cells or their cement substance. Applying a tourniquet to the upper arm (the "capillary resistance test"), thus subjecting the vessel walls to additional strain, will generally demonstrate this weakness, causing the appearance of numerous petechiae on the forearm. A similar weakness of the vessel walls does not occur in beriberi, or in any clinical condition attributed to a lack of vitamin.

It is unnecessary to dwell on the fact that the bones are particularly vulnerable to a lack of the antiscorbutic factor. For decades attention was centered to such a degree on the bones that clinicians as well as pathologists gave little heed to manifestations occurring in other organs.

The association of circulatory disturbances with "latent" or "subacute" scurvy is of particular interest as, until recently, these symptoms have been overlooked. They furnish a clinical link between scurvy and beriberi, the deficiency disease attributed to the lack of the so-called water-soluble vitamin. Frequently one of the earliest signs is tachycardia, a heart beat of 140 or 150 in an infant. But a still more noticeable and characteristic sign is the marked instability of the pulse rate, an increase of 20, 30 or 40 beats to the minute on the least exertion or from a slight rise in temperature. This tachycardia is similar to that of exophthalmic goiter, the electrocardiogram showing merely an exaggerated T-wave. Accompanying this tachycardia there is generally a polypnea—respirations mounting to 40, 50 or 60 to the minute. These symptoms may be termed "the cardiorespiratory phenomenon" of scurvy. That it is truly scorbutic may be deduced from the fact that it yields promptly to antiscorbutic treatment. Its occurrence points to an involvement of the nervous system, and at least to a functional relationship between this vitamin and nerve tissue, thus illustrating the inaccuracy of the appellation "antineuritic vitamin" as applied to the beriberi vitamin.

Another scorbutic symptom is enlargement of the heart, especially of the right heart, a lesion which has been considered typical of beriberi. For many years this lesion was overlooked in scurvy, owing to the fact, as stated, that attention was narrowly focused on the bones, an oversight which is strikingly evident in reviewing necropsy protocols. It may be noted that Erdheim[7] of Vienna recently published a paper with the significant title of "Das Barlowherz," in which he describes thirty-one necropsies of infantile scurvy in which the heart was found enlarged in almost every instance.

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[3] Hart, E. B.; Steenbock, H., and Humphrey, G. C.: Influence of Rations Restricted to the Oat Plant on Reproduction in Cattle, Research Bull. 49, Agric. Exper. Station, Univ. Wisconsin, 1920.

[4] Hanau, A.: Ueber Knochenveraenderungen in der Schwangerschaft, Fortschr. d. Med. **10**: 237, 1892.

[5] Hess, A. F.: Subacute and Latent Scurvy: The Cardiorespiratory Syndrome, J. A. M. A. **68**: 235 (Jan. 27) 1917.

[6] Tobler, W.: Der Skorbut in Kindersalter., Ztschr. f. Kinderh. **18**: 63, 1918.

In concluding this summary of the relation of scurvy and its vitamin to the circulatory system, passing attention should be called to oliguria, the diminished secretion of urine in the course of scurvy, a symptom at once alleviated on administering an antiscorbutic. This sign is still more common in beriberi.

NATURE OF VITAMINS

As is well known, the exact chemical structure of a vitamin is as yet a mystery. This lack of knowledge has led to skepticism, even to the point of doubting the very existence of the vitamins. This attitude is strange, in view of the fact that for almost a generation we have become quite accustomed to conceding the existence of factors which we are unable to isolate chemically. We know quite as much about the chemical nature of the vitamins as we do of complement, hemolysin or immune bodies—substances which have gained general recognition and are admitted to the select company of scientifically established entities. Not only the nature of the vitamins but also their mode of action is unknown: whether they exert their effect directly on the tissues, or indirectly, as has been suggested, through a hormone action. It seems clear that man cannot manufacture them, or at most can do so to a limited extent—insignificant from the standpoint of his well-being. We are therefore entirely dependent on our food supply for these essential factors. Nor has it been shown that any other of the higher animals possesses this ability. Lower forms of animal life, such as the yeast cell, seem to be able to elaborate vitamin, and plant cells possess this faculty to a high degree. Not only are we unable to manufacture these vitamins, but it is probable that we are unable to store them to any great extent. A series of experiments planned to investigate this question, and described in detail elsewhere,[8] led to the conclusion that at least guinea-pigs are unable to store the antiscorbutic vitamin. In other words, we are leading a precarious hand-to-mouth existence in regard to food factors which are essential not only to our health but also to our lives.

ANTISCORBUTIC VEGETABLES

It is hardly an exaggeration to state that in the temperate zones the development or nondevelopment of scurvy depends largely on the potato crop. In Ireland, when the potato has failed, scurvy has developed. The same thing has been true in Norway. To a minor degree this happened in 1914 in various localities in the United States, when the potato crop was inadequate. This is attributable in part to the fact that the potato is an excellent antiscorbutic, but to a greater extent because it is consumed during the winter in amounts that exceed the combined total of all other vegetables. The great nutritional value of the potato has not been explained. Its protein is stated to be of inferior quality, and it is poor in the water-soluble and in the fat-soluble vitamins. Nevertheless, the practical dietetic experience of nations and the prolonged investigations of Hinhede prove that it is a food of exceptional value.

One of the recent advances in the study of scurvy has been a more exact appreciation of the antiscorbutic value of foods, an appraisal of vegetable and animal foodstuffs from a quantitative standpoint. This has led to some surprises; for example, that the lime, which has been time honored as the most potent of antiscorbutics, is not comparable in this respect to the lemon or the orange. We have learned also to appreciate the value of the swede and of the tomato. But of still greater importance is the realization that any categorical statement of the relative value of antiscorbutic foods must be accepted with qualifications. *Foods should not be considered as chemical entities.* A lack of understanding of this fact has led to nutritional disease in man, and to confusion in investigations on animals. For example, a vegetable such as the carrot may possess moderate or very little antiscorbutic power, depending on attendant circumstances. If it is old, it is poor in the antiscorbutic vitamin, whereas if it is young and succulent, it is far richer in this factor. We had a surprising experience some years ago when guinea-pigs developed scurvy in spite of a ration which included large amounts of carrots such as are ordinarily fed laboratory animals. Experiment readily showed that 35 gm. a day per capita of these carrots was insufficient to protect a guinea-pig, whereas the same quantity of a young carrot sufficed. Furthermore, it is not immaterial whether the vegetables are freshly plucked or whether they are stale, and it is quite possible that antiscorbutic potency depends to a certain extent on the composition of the soil; in other words, that the vegetable may in turn suffer from a vitamin deficiency disease. Such being the case, the influence attributed to climate in the causation of scurvy—for, as is well known, certain countries have always been associated with scurvy—may be due partly to the effect of the soil on the vegetation. Therefore, in rationing individuals or groups, the quality as well as the quantity of antiscorbutic foodstuffs must be considered.

ANIMAL FOODS

Similar qualifications exist in regard to animal foods. For some years there has been marked divergence of opinion as to the antiscorbutic value of milk. This is an important question, as milk constitutes the basal diet of infants during the first year of life, and constitutes frequently their sole antiscorbutic supply. The conflicting opinions of various investigators have been reconciled recently and the results of those who believed milk to be poor as well as of those who believed it rich in this vitamin have been substantiated. Its potency depends almost entirely upon the fodder of the cow. We should long ago have established this fact, fortified by our knowledge that animals are unable to synthesize the vitamins. Hart, Steenbock and Ellis,[9] Dutcher and his associates,[10] and Hess, Unger and Supplee[11] have all reported similar results. In our experiment, cows that had been for a period of three weeks on fodder which was almost completely devoid of antiscorbutic vitamin produced a milk that was almost devoid of this factor, although of normal caloric value and adequate in its fat, protein and carbohydrate content. Such results may well have far reaching dietetic significance; they raise the question whether "winter milk" supplied by stall-fed cows is a well balanced and complete food. It is quite possible that it may become part of dairy inspection to note the adequacy of the fodder as well as the sanitary conditions. Human milk no doubt also varies according to the nature of the woman's food, and in some instances is deficient in antiscorbutic vitamin, owing to eccentricities of diet or to poverty. During the winter months this may at times exert its influence on the nutrition of the child. In closing this brief consideration of the intrinsic variations of vitamin in animal tissues, I should like to suggest that the blood from which the milk is elaborated may also vary in its antiscorbutic content, and that from this standpoint it should not be regarded as a chemical entity.

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[7] Erdheim, J.: Ueber das Barlowherz, Wien. klin. Wchnschr., 1918, p. 1293.

[8] Hess, A. F.: Scurvy, Past and Present, Philadelphia, J. B. Lippincott Company, 1920.

[9] Hart, E. B.; Steenbock, H., and Ellis, N. R.: Influence of Diet on the Antiscorbutic Potency of Milk, J. Biol. Chem. **42**: 383 (July) 1920.

[10] Dutcher, R. A.; Eckles, C. H.; Dohle, C. D.; Mead, S. W., and Schaefer, O. G.: The Influence of Diet of the Cow upon the Nutritive and Antiscorbutic Properties of Cow's Milk, J. Biol. Chem. **45**: 119, 1920.

[11] Hess, A. F.; Unger, L. J., and Supplee, G. C.: Relation of Fodder to the Antiscorbutic Potency and Salt Content of Milk, J. Biol. Chem. **45**: 229, 1920.

FACTORS TENDING TO DESTROY THE VITAMIN

To understand the etiology of scorbutic malnutrition it is important to know the antiscorbutic value of natural foodstuffs; but it is equally important to appraise correctly the factors that tend to destroy the vitamin in these foodstuffs. Until recently this problem seemed very simple. The subject was summed up by the statement that foods which have been dried, heated to a high degree, or canned, lose their vitamin content and induce scurvy. The ravages of scurvy in the mercantile marine and in the navy, in the days of the sailing vessel seemed a convincing demonstration of the deleterious effect of preserved food. The matter, however, is not so simple, and recent investigations have proved the fallacy of these generalizations. In regard to the effect of heat, it has been shown that the duration of the heating process is of greater importance than the degree of temperature to which the food is subjected. For example, milk that has been heated to a temperature of 145 F. for thirty minutes has lost more of its antiscorbutic potency than milk that has been raised to 212 F. for a few minutes. This result confirms clinical experience that scurvy occurs more frequently on a diet of pasteurized than on one of boiled milk. It has been shown also that the reaction of the medium is of importance in regard to resistance to heating—that substances which are acid, such as orange juice or tomato, retain their potency in spite of subjection to high temperatures.

Our views on the effect of the dehydration of foods have swung back and forth on insufficient evidence. For centuries it was known empirically that dried vegetables possessed practically no antiscorbutic virtue; as demonstrated in many wars, incluing our War of the Rebellion. Nevertheless, in the recent World War dried vegetables were again relied on as antiscorbutics. They proved to be the greatest cause of scurvy in the Central Empires. In this country the conception that dried vegetables are the nutritional equivalent of the fresh nearly led to their extended use and general adoption for our army. But although vegetables have not yet been dried by a process which enables them to retain their antiscorbutic vitamin, we must not infer that desiccation per se destroys this factor, as dried orange juice or tomato juice retains almost all of its antiscorbutic value. Nor is this resistance dependent solely on the acid reaction of these foods, for milk dried by the Just roller process (by which it is subjected to 230 F. for a few seconds) loses little of its potency. Evidently, drying does not necessarily destroy the sensitive antiscorbutic factor.

We should also maintain an attitude of open-mindedness in regard to the effect of canning, commonly regarded as absolutely destructive of this vitamin. In general, this view is sound; but animal experiments as well as clinical tests have proved that this rule has exceptions—that tomatoes may be canned, and that milk may be both dried and canned, and yet preserve its antiscorbutic quality. Indeed, we found this to be true of dried milk which had been canned and kept for over a year at room temperature; an astonishing result, considering that such treatment involves subjection to almost all the influences commonly associated with the destruction of this vitamin—drying, heating to a temperature above the boiling point in a neutral or slightly alkaline medium, canning, and finally the deteriorating influence of age.[12] In view of these experiences, the statement of the British Medical Research Committee to the effect that foods lose their antiscorbutic vitamin after having been dried or tinned requires qualification. The stability of dried milk cannot be attributed, as we at first supposed, to its low moisture content (less than 3 per cent.), as sweetened condensed milk, containing more than three times as much water, was found also to retain the larger part of its antiscorbutic factor.

EFFECT OF OXIDATION

Such irregular and contradictory results suggested the action of some other destructive agent. We were led to believe that oxidation might be a harmful factor, and undertook experiments to investigate this question.

A Typical Test.—Four cubic centimeters of a normal solution of hydrogen peroxid was added to a liter of raw milk, which was then placed in the incubator over night. Eighty cubic centimeters per capita daily, in addition to oats and straw, was fed to a series of guinea-pigs. The animals promptly developed scurvy. Indeed, they manifested signs of this disorder as quickly as when fed milk that had been autoclaved for one hour at 115 C. Cure was accomplished by adding orange juice to the dietary. Evidently the antiscorbutic vitamin was almost completely destroyed by this small amount of hydrogen peroxid. Another experiment showed that orange juice subjected to oxygen had lost a definite degree of its potency, so that an increased quantity was required to cure scorbutic guinea-pigs.

These investigations indicate that oxidation destroys the antiscorbutic vitamin and must be considered in the etiology of scurvy.[13]

Let us in a few words reconsider the antiscorbutic value of milk from this point of view. Dried milk may retain its antiscorbutic virtue, in spite of drying, canning and aging, owing to the fact that it is well packed and hermetically sealed. It loses its potency after it is exposed to the air. When we refer to the deleterious effect of aging—a vague term—we may well be alluding to oxidation. Sweetened condensed milk, which we found to contain antiscorbutic vitamin, is zealously protected from access of air in the course of its manufacture, not for fear of oxidation or destruction of any of its food constituents, but to avoid the danger of bacterial contamination. It is probable that oxidation plays a rôle in the partial destruction of this vitamin in the pasteurization of milk; this seems the explanation of an experience referred to in 1915: the decided difference in the production of scurvy between milk which had been pasteurized in the home and that which had been pasteurized commercially. It may also account for the clinical results of Variot and others, who have repeatedly stated that they fed thousands, indeed, tens of thousands of infants on sterilized milk, and never encountered cases of scurvy; their milk was sterilized in hermetically sealed bottles. Bearing the factor of oxidation in mind may make it possible to so alter the process of manufacture or of the preservation of foods as to increase their antiscorbutic content, and render them more nearly the equivalent of the fresh food.

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[12] In this respect, however, it should be borne in mind that there is an essential difference between a food which is of an alkaline or neutral reaction in its natural state, and one which has been rendered so artificially; for instance, orange juice rapidly loses its antiscorbutic vitamin after it has been made faintly alkaline, whereas the potato, in spite of its natural alkaline medium, retains this vitamin throughout the winter.

[13] These results were referred to in a discussion of the vitamins at the meeting of the British Medical Association (Cambridge, July 1, 1920). At this session Hopkins also reported that the fat-soluble vitamin is destroyed by oxidation.

The deleterious influence of apparently unimportant processes in industrial methods warns us to proceed cautiously in the handling of foods, and not to concentrate our attention too narrowly on the bacterial dangers, for even some slight mechanical manipulation may damage and denature.

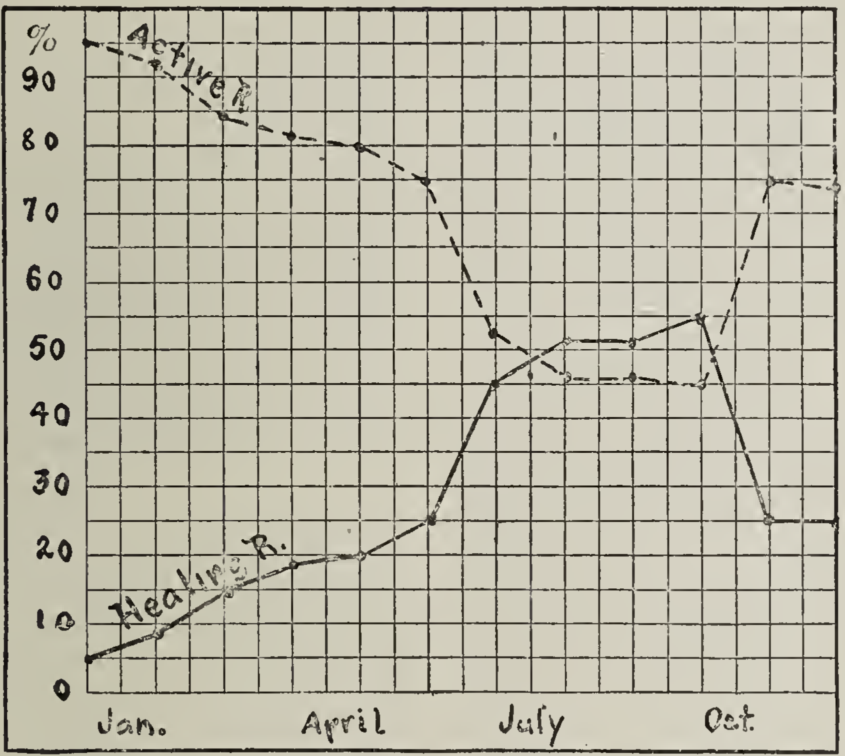

Chart 1.—Result of microscopic study of the bones of 386 consecutive necropsies on infants: marked decrease of active rickets accompanied by marked increase of healing rickets during the summer months.

RICKETS

We are all aware of a renewed interest in another nutritional disorder affecting primarily the health of children, namely, rickets. This awakening closely followed the recent activity in the study of scurvy—always regarded as a closely allied disorder—and has been further stimulated by the remarkable outbreaks of rickets and osteomalacia in the Central Empires. Today we find clinicians and laboratory investigators in England, Germany, Austria and the United States endeavoring to shed light on the etiology of this disorder, which Glisson described so vividly more than 250 years ago. Rickets is the most common nutritional disease occurring among the children of the temperate zone, fully three fourths of the infants in the great cities, such as New York, showing rachitic signs in some degree. Schmorl's pathologic studies present evidence that this percentage is still higher when we include cases of latent rickets which can be diagnosed only by the microscope. Furthermore, rickets has the distinction of being the most frequently overlooked disorder of childhood—an important omission, in view of the fact that we possess an efficient agent for its cure.

Broadly considered, there are two main theories as to the etiology of rickets: the dietetic and the hygienic. It would lead too far afield to discuss the respective merits of these theories. It is my opinion that rickets is primarily a dietetic disorder, but that hygienic factors, such as lack of sunlight, poor ventilation, crowded quarters, and infection, are important contributory influences, far more important than in the case of scurvy. That climate is not the determining etiologic factor is amply proved by the recent experiences of Europe, where rickets developed during the war in almost epidemic form. For example, Dalyell[14] reported from Vienna that, in one community which included many breast-fed infants, rickets was diagnosed in 50 per cent. of the infants at 5 months, and in 100 per cent. at 9 months of age. Davidsohn[15] has emphasized the great increase of severe cases in Berlin during the year following the armistice. This increment occurred despite the fact, shown by an analysis of some thousands of cases, that at the beginning of the war 40 per cent. of the babies were nursed for more than two months, whereas in 1918 more than 50 per cent. were nursed for a similar period.

I believe that I may safely state that today attention is centered on the rôle of the vitamins in relation to the etiology of rickets, and specifically on the fat-soluble vitamin. As the result of the investigation of Mellanby on dogs and the acceptance of his results by the Medical Research Committee of Great Britain, many regard it as an established fact that the fat-soluble vitamin is synonymous with the antirachitic vitamin. About a year ago Dr. Under and I expressed the opinion that although this vitamin may be a factor in the etiology of rickets, it is not the dominant factor in its pathogenesis.[16] The conclusion was based on a clinical study carried out in an institution for children. As this theory of etiology is the paramount one at the present time, I shall waive other aspects and discuss it in the light of my experience, which embraces a period of two and a half years, and a careful observation of about 150 cases. My opportunity for a clinical study has been exceptional, as the children were in a model institution, where the diet was prepared in a central kitchen, and all the conditions were uniform and capable of control. Furthermore, I was sure that the infants received a diet adequate in calories and in other food factors. It is only under similar conditions that studies on chronic nutritional disorders can be carried out.

Time will not allow a detailed review of these observations, which will be reported at another time. It may, however, be of interest to summarize the results of two groups of cases, one which received a "fat-soluble minimal" diet and the other a full quota of milk.[17] Among six infants who were given a diet which was generous in every respect excepting in fat-soluble vitamin, a diet comprising adequate colorific value, a full amount of the water-soluble and antiscorbutic vitamins, and an adequate salt mixture, after a period of more than six months only one showed rachitic signs by physical examination or by the roentgen ray. For, as many no doubt know, the course of this disorder can be studied by means of roentgenograms, and its development or cure thus visualized. Roentgenography, which has been employed extensively abroad, and by Phemister[18] and by Howland and Park[19] in this country, has formed part of our monthly routine examination for the last year.[20] This procedure has great value in the investigation of rickets, and no doubt will aid in elucidating some of its perplexities. As stated, one of these six infants receiving a minimal amount of fat-soluble vitamin in the dietary—only so much as was included in the equivalent of 20 ounces of a dried skimmed milk—showed signs of rickets after a long period of observation. In one case, which was observed for eighteen months, rickets existed at the onset and disappeared on this diet.

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[14] Dalyell, E. J.: The Present Position of the Vitamines in Clinical Medicine, Brit. M. J., July 31, 1920.

[15] Davidsohn, H.: Die Wirkung der Aushungerung Deutschlands auf die Berliner Kinder, Ztschr. f. Kinderh. **21**: 349, 1919.

[16] Hess, A. F., and Unger, L. J.: The Clinical Rôle of the Fat soluble Vitamin: Its Relation to Rickets, J. A. M. A. **74**: 217 (Jan. 24) 1920.

At the same time the development of rickets was followed in infants who were receiving daily from 24 to 32 ounces of raw or pasteurized milk. Surely this amount should suffice to protect against a disorder, were its occurrence dependent on the fat-soluble vitamin. Among this group, numbering twelve, who were receiving a dietary rendered adequate by the addition of orange juice, autolyzed yeast and cereal (for babies over 6 months of age), six developed rickets. That this disorder was truly rickets was proved by its rapid subsidence on the administration of cod liver oil, as shown by physical and roentgen-ray examination. The inference would seem to be that cod liver oil, which is regarded as the prototype of the fat-soluble vitamin, must differ not merely quantitatively but also qualitatively from milk fat. This view is strengthened by metabolism experiments of Schabad, Orgler[21] and others, which show that although cod liver oil almost invariably causes calcium retention in cases of rickets, the substitution of large amounts of milk in the dietary leads to a negative calcium balance. Evidently the fat-soluble vitamin, as it exists in milk, is not the antirachitic factor; neither will a large amount of milk protect against rickets, nor a small amount lead to its development.

In passing, it may be of interest to refer to an investigation of the diet of the negro mother carried out a few years ago by Dr. Unger and myself[22] in a negro district of New York. As is well known, rickets is far more frequent among negro infants in the large cities of the North than among those of any other race, occurring in marked degree in fully one third that are breast-fed. We came to the conclusion that the main defect and the chief variation in the dietary, compared to what they had been accustomed to at home in the West Indies, was a lack of fresh vegetables and fruits, and an excess of carbohydrates. Last spring and fall Dr. Gertrude McCann carried out a similar investigation in this district and came to the same conclusion. This deficiency of fresh vegetable food, accompanied by a high incidence of rickets, is worth noting.

THE EFFECT OF "SEASON"

A remarkable phenomenon noted by Kassowitz years ago, and one which has not been sufficiently emphasized, is the marked seasonal incidence of rickets; its increased occurrence and intensity in the spring, and tendency to fall to its lowest level in the late summer or autumn. In the course of two years' observations, this fact stood out both winter and summer in bold relief; in August and September, rickets almost disappeared in the institution. Not only the clinician, but also the pathologist, is well aware of this seasonal augmentation and diminution; Schmorl's[23] study of some 386 cases brings it out admirably. So definite is this occurrence that any theory which attempts to explain rickets must satisfactorily interpret this remarkable seasonal variation in its incidence. Pellagra, tetany, keratomalacia, and to a less extent beriberi, are associated with a similar variation. The marked increment of rickets in the spring was attributed by Kassowitz to prolonged indoor confinement of the infants throughout the winter, and was the basis of his "domestication" theory. It may, however, be due to a change in diet not that the infants are given different food, but that the milk in the late spring and summer, when the cows are on pasture and no longer stall-fed, differs from that of the winter. The nature of this difference is obscure. This interpretation does not exclude the beneficent effect of the improved hygienic conditions which come about in the late spring.

COD LIVER OIL

Happily, we have a drug which, if given in sufficient amount, cures rickets. Cod liver oil has been used therapeutically for almost 100 years, but even today it has not been accorded its proper place in therapy. It is recognized as a drug which benefits nutrition, but the fact that it has unequaled value in the prevention and cure of rickets is hardly realized. Some three years ago a study of the effect of cod liver oil on negro children in a district of New York showed that it was of decided value in 80 per cent. of the cases. This test was carried out during the winter and early spring. Since this time, roentgen-ray examinations month by month in a series of cases have shown objectively the benefit of this therapeutic agent. It is quite remarkable how rapid is the deposition of calcium under this treatment.

It is possible to rid New York, or any locality, of rickets by means of the use of cod liver oil. There are approximately 125,000 children in New York City between the ages of 3 and 15 months, the period of greatest susceptibility to rickets. If we estimate generously that the families of one third to one quarter of these children are unable to purchase cod liver oil, and if we agree that the development of rickets may be prevented by giving a teaspoonful three times a day, then, at the present cost, rickets could be practically abolished in this city by the expenditure of about $100,000 a year. This is merely one of many instances in which the community does not get the full benefit of our medical knowledge. A similar example exists in connection with the prevention of beriberi. As is well known, this disease is the main factor in the exceedingly high infant mortality in the Philippines, leading to a death rate in the city of Manila of 430 out of every thousand infants under 1 year of age. The preventive of beriberi is the water-soluble vitamin, which is furnished in high concentration in brewers' yeast, a by-product of the brewing industry. Yet this high mortality is allowed to continue unabated in spite of the fact that the country is under a stable, civilized government.

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[17] The "fat-soluble minimal" diet consisted of 60 gm. of dried skimmed milk, 30 gm. of sucrose, 30 c.c. of cottonseed oil, orange juice, autolyzed yeast and wheat cereal. In some cases the oil was discontinued for over six months, and an increased quantity of cereal substituted.

[18] Phemister, D. B.: The Effect of Phosphorus on Growing, Normal and Diseased Bones, J. A. M. A. **70**: 1737 (June 8) 1918.

[19] Howland, J., and Park, S. A.: Some Observations on Rickets, Arch. Pediat. **37**: 411, 1920.

[20] Hess, A. F., and Unger, L. J.: Dietaries of Infants in Relation to the Development of Rickets, Proc. Soc. Exper. Biol. & Med. **17**: 220, 1920.

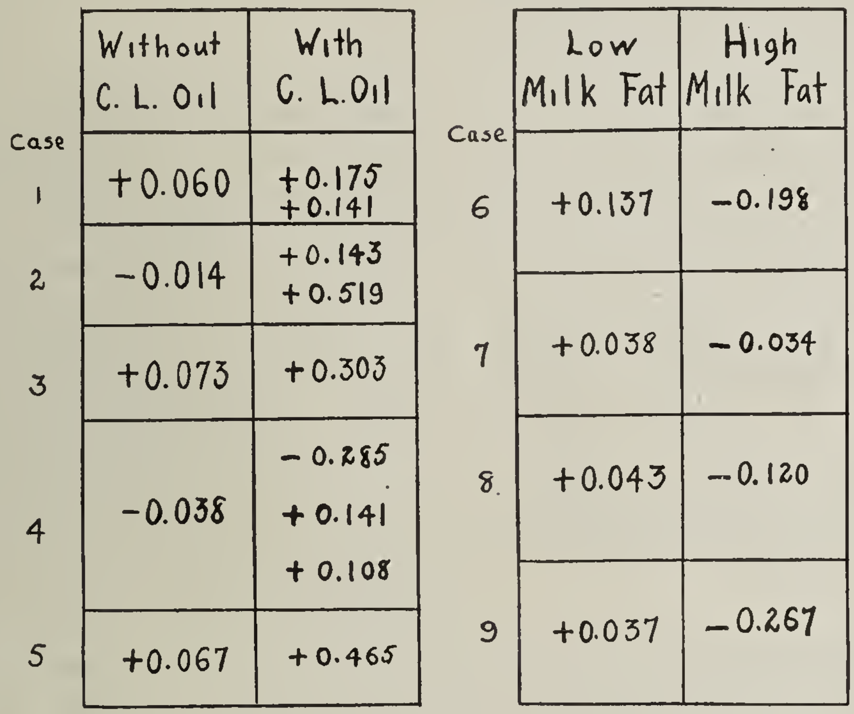
[21] Orgler, A.: Zur Theorie der Lebertranwirkung, Jahrb. f. Kinderh. **37**: 459, 1918.

[22] Hess, A. F., and Unger, L. J.: The Diet of the Negro Mother in New York City, J. A. M. A. **70**: 900 (March 30) 1918.

[23] Schmorl, G.: Die pathologische Anatomie der rachitischen Knochenerkrankung, Ergebn. d. inn. Med. u. Kinderh. **13**: 403, 191.

MALNUTRITION NOT TYPICAL DISEASE

The harmful effects of food deficiencies should not be associated in our minds essentially or chiefly with specific diseases such as scurvy or rickets, but rather as disorders of nutrition producing slight and manifold disturbances of function. This is probably quite as true of rachitic as of scorbutic malnutrition. It is probable that every organ or system in the body may be affected by faulty nutrition, so that the deficiency diseases must engage the attention of every physician, whatever his particular interest or specialty. For example, involvement of the eyes may lead to impaired vision or night-blindness; or, on the other hand, neuritis, cardiac enlargement, disturbances of the circulatory system, atrophic disorders of the skin, nails or hair, caries of the teeth, or unaccountable lack of appetite and constipation, may each in turn be the earliest symptom. A more careful inquiry into the dietary of patients will result in bringing to light many cases in which vague and ill defined symptoms can be remedied simply by rendering the diet adequate.



Case	Without C. L. Oil	With C. L. Oil
1	+0.060	+0.175 +0.141
2	−0.014	+0.143 +0.519
3	+0.073	+0.303
4	−0.038	−0.285 +0.141 +0.108
5	+0.067	+0.465

Case	Low Milk Fat	High Milk Fat
6	+0.137	−0.198
7	+0.038	−0.034
8	+0.043	−0.120
9	+0.037	−0.267

Chart 2.—An aspect of the calcium metabolism in rickets. The favorable effect of cod liver oil on the calcium balance and the unfavorable effect of an abundance of milk-fat.

The fat-soluble vitamin has been termed the "growth-vitamin." The designation is unfortunate, not only because this vitamin cannot be credited with this specific faculty, but also because no single food constituent deserves such distinction, or is endowed with this all-important function. It is probably true that if the fat-soluble vitamin is deficient, growth will not progress normally. This is certainly the case with rats, which are particularly sensitive to a lack of this vitamin, but which require a very small amount to render their diet adequate. Similar observations have not, however, been made on infants, so that we do not know, even approximately, how much fat-soluble vitamin food is needed for normal growth. The stunting effect of a lack of antiscorbutic vitamin on infants has been definitely shown, so that with equal justice this might be termed the growth vitamin. The sounder physiologic view, however, would be to regard no food constituent as entitled to be styled the growth vitamin or factor. If an essential amino-acid, vitamin or inorganic salt is lacking in the dietary, this inadequate factor—whatever its chemical nature—must be regarded as and will prove to be the growth factor. In other words, for adequate growth the diet must be complete; and when it is incomplete—whatever the nature of the inadequacy, or however minimal its amount—growth will suffer.

INTERRELATIONSHIP OF NUTRITION AND INFECTION

Studies of the deficiency diseases have served to illustrate in a most convincing manner the intimate relationship of nutrition to infection, and have led to our attributing increased significance to the former. Indeed, the chief clinical importance of disorders of nutrition seems to be associated with the fact that they bring about an abnormal condition of the tissues which renders them more susceptible to the invasion of bacteria or their products. This relationship was exemplified in 1913, when, as the result of a dietary of pasteurized milk, latent scurvy developed among a group of infants under our care. This "scorbutic taint" was followed by a widespread grip infection, with hemorrhagic skin manifestations, which disappeared on the administration of orange juice. For some years I was uncertain how to interpret this peculiar clinical picture, whether to regard the epidemic as due to scurvy or to infection. As the result of subsequent experience I realized that it was due to both causes, the result of a primary nutritional disturbance and a secondary bacterial invasion. Another illustration of the interrelationship of disordered nutrition and infection is furnished by the frequent coincidence of nasal diphtheria and latent or subacute scurvy. This concurrence is so suggestive that when a large number of cases of nasal diphtheria develop, suspicion should be aroused that the infection was implanted on tissues rendered susceptible by scorbutic or other nutritional disorder. This view holds true for animals as well as for man. Veterinarians and farmers are well aware that faulty nutrition leads to fatal infections. The so-called "snuffles" of hogs is recognized as a disorder of this twofold nature. It is probable that plants which have been poorly nourished, owing to an inadequacy of the soil, also react by diminished resistance, and that this is a factor in the infectious diseases of plant life. This "nutritional-infectious" aspect has been convincingly illustrated on a large scale among the peoples of the Central Empires, who during the many years of the war suffered from various forms of malnutrition. The general impairment of health was most strikingly manifested both in adults and in children by the great spread of tuberculosis and its increased mortality. Davidsohn[15] has reported that in Berlin there was a marked increase in infection with tubercle bacilli in children under the age of 5 years, and that they had been infected earlier in life than formerly; whereas in 1913, 30 per cent. gave a positive reaction at 4½ years, in 1919 this percentage was reached at 2½ years. The mortality of children from tuberculosis showed a similar difference in the year previous to the war compared to that of the year succeeding the armistice, the figures being thirty-two as compared to about forty-eight deaths among children under 6 years of age, on the basis of 10,000 living individuals.

Clinical investigations in the domain of the deficiency diseases have, as a rule, differed essentially from laboratory experiments. The latter, if accurately planned and correctly executed, study but one deficiency at a time; whereas the clinician investigating the dietary inadequacies of an individual or of a group, is necessarily confronted by a lack of more than one food factor. For example, an analysis of the cases of xerophthalmia or keratomalacia—a disorder ascribed to a lack of the fat-soluble vitamin—reported by Block of Copenhagen shows that many of the infants were receiving an insufficient quota not only of this vitamin but also of the antiscorbutic vitamin and of caloric food equivalents. Furthermore, in many localities where there was prolonged subnutrition during the recent war, there was a lack of vitamin, of adequate salts, of other essential substances and of calories. This confusion renders it impossible to unravel the clinical phenomena or to assign the various food factors their respective rôles. This criticism applies to the study of war or hunger edema which in 1917 spread through Poland and other countries, and which probably was the result of partial starvation combined with an unbalanced diet.[24] For this reason it is questionable whether we shall derive much increased knowledge from subsequent detailed reports concerning this vast experience of human suffering. On the other hand, a great deal will be learned in the future from clinical studies of nutrition when the diets are carefully controlled so that the results are capable of exact interpretation. We may expect such investigations to be undertaken more frequently and more intensively than heretofore.

On the other hand, for the laboratory worker there is the temptation to draw sweeping deductions from animal experiments, and to apply them *en masse* to the deficiency diseases of man. It should be remembered that the results of animal experiments are provisional and require the confirmation of clinical experience. Only too often has it been found that laboratory conclusions which at the time seemed open to but one interpretation were later explained by unsuspected and entirely different factors. The pitfalls in dietary experiments on animals are especially numerous on account of the varying reactions of the different species, and because the artificial diet—in spite of the greatest care—may be incomplete in more than one particular. In vitamin experiments there is especial danger of attributing failure of growth and nutrition solely to a deficiency of this factor, on which the attention of the investigator is focused, taking it for granted that the dietary is adequate beyond question in salts, protein and all other constituents. It is quite possible that this inconsistency will be found to invalidate some experiments that have seemed conclusive.

The disorders of nutrition have always presented a preeminent opportunity for collaboration between the laboratory and the clinic. It will be remembered that at one time the conception of rickets embraced a motley crew—congenital syphilis, scurvy, true rickets, achondroplasia and osteopsathyrosis, and that one by one these diseases were differentiated by the combined investigation of laboratory worker and clinician. The same opportunity exists today. The group of deficiency diseases furnishes urgent problems for the chemist, for the experimental biologist, the pathologic anatomist, the roentgenographer, and last, but above all, for the trained clinician. The subject is so complex that advance will be along various paths, each worker furthering and checking the work of the other, so that progress may not leap beyond the bounds of well-founded experimental or clinical evidence.

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ARTERIOSCLEROSIS AND CARDIOVASCULAR DISEASE

THEIR RELATION TO INFECTIOUS DISEASES *

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SAN FRANCISCO

The two conditions mentioned in the title of this résumé, one characterized by certain anatomic lesions and the other a clinical syndrome, are closely related to each other, but by no means identical. It is well known that we may find severe chronic lesions in the arteries without the usual symptoms of cardiovascular disease, and that there are cases of cardiovascular disease practically free from all demonstrable arterial lesions. In the majority of instances both occur simultaneously in varying combination, the exact relation of one to the other not being clearly understood.

It is surmised that the ultimate cause of both conditions is to be found in certain chronic intoxications, the nature of which is still doubtful, although it has been suggested that in the development of these intoxications infectious diseases may play some rôle. In order to determine the latter point, considerable experimental work has been done with bacteria and bacterial toxins on animals; but although suggestive, none of it is thoroughly convincing.

Again, it has been pointed out that certain infectious diseases are likely to involve the arteries acutely, and from this the conclusion has been drawn that they might also be concerned in the production of chronic disease in them. Rheumatic infections and typhoid fever have been most prominently mentioned in this connection, and occasional infections of the arteries have been credited to pneumococci, gonococci and other bacteria. At the same time the lesions produced in the arteries by diphtheria toxin have been carefully studied in man and animals. Tuberculosis and syphilis have also received considerable attention as possible causes of arterial disease.

No altogether acceptable proof, however, has been furnished of this suspected interrelation between certain infectious diseases and the later development of arteriosclerosis or of the syndrome of cardiovascular disease.

It seemed possible to throw light on this subject by a careful study of a series of cases which had been investigated as thoroughly as possible from a clinical and from an anatomic point of view; and 500 consecutive complete necropsies from our records were selected for this purpose.

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[24] The experiences in the Central Empires during the war render it improbable that pellagra is due merely to a lack of adequate protein. Adequate protein was lacking to a marked degree — milk, cheese, eggs, meat were all unavailable. Nevertheless there was no prevalence of pellagra throughout these years.

* From the Pathological Laboratory of the Leland Stanford Junior University School of Medicine.

The possible existence of preceding infections in these cases was determined both by the clinical histories and by careful anatomic study, the latter being directed especially toward the discovery of old inflammatory lesions in the tonsils, heart valves and other known foci of chronic infection.

A comparison was made of those cases in which all history or signs of previous infection were absent and those in which such had been detected, with the very striking result that chronic arterial disease was almost entirely lacking in the first group, and made its appearance early and very frequently in the second group. Furthermore, it became evident that this connection does not exist in all infectious diseases, but is fairly well limited to chronic rheumatic (septic) conditions. The second group also includes all cases of hypertension and all cases of nephritis in which there was an adequate history.

The injury to the arteries usually occurs early in life, and the anatomic lesions seem to develop very slowly and progressively, even after the original infection has become extinct.

According to our figures, arteriosclerosis and associated conditions are very rare in chronic pulmonary tuberculosis, and even in syphilis they do not seem to occur very commonly, especially if one deducts those cases in which a chronic rheumatic infection was present in addition to syphilis. True syphilitic disease of the aorta and of the cerebral arteries has naturally been disregarded in this statement.

Our investigation again brought out strikingly that there is no direct relation between the extent and severity of the arterial disease and the amount of functional disturbance in the cardiovascular system. The special involvement of certain vascular territories like that of the kidneys also did not seem to be of any particular importance in this connection. Arteriosclerosis and hypertension are therefore rather loosely associated phenomena, possibly connected with each other by their common relation to certain infections, which at times may produce merely a severe functional reaction on the part of the arteries, at times marked anatomic lesions in them, or both severe lesions and marked functional derangement.

According to the organs principally involved, the cases may be segregated into several groups: those with prevailing involvement of the cerebral vessels, those with marked lesions of the coronary arteries and of the myocardium, those with severe renal lesions and, lastly, those with endarteritis in the stomach and duodenum followed by chronic ulceration. There are many mixed cases, however.

Severe lesions of the coronary arteries and of the myocardium naturally cause marked disturbances in the function of the heart. From our material it has been impossible to determine exactly how far minor lesions of this kind are of functional importance.

The usual result of severe arteriosclerosis of the cerebral arteries was either softening of the brain or hemorrhage. The latter, of course, was more commonly seen in patients with hypertension.

The only really tangible connection between arteriosclerosis and chronic nephritis seems to be their common etiology, their interrelation in this regard being very similar to that between arteriosclerosis and hypertension. Even if one should not be ready to believe that this common cause of both arteriosclerosis and nephritis has been found in chronic septic (rheumatic) processes, as I am inclined to think, a connection of this kind is the only one which agrees with the observed facts and explains satisfactorily the frequent coincidence of the two diseases and their otherwise puzzling relation to each other. The whole intricate problem becomes very simple, if we look on these two conditions as the result of the action of complex toxic bodies which may affect the arteries more or less severely or the kidneys or both as the case may be, and if we give up once for all the idea that arterial disease as such may produce nephritis or, vice versa, that nephritis may produce the arterial disease. Even under this assumption, it is quite readily understood why, as usually happens in nephritis, the local process in the kidneys should favor an especially severe involvement of the renal arteries.

As one should expect under these circumstances, a careful study of our material reveals an uninterrupted series of cases, beginning with those with severe involvement of the arteries and little disease of the kidney, and ending with those with severe usually more acute forms of nephritis and little arterial disease.

From a functional point of view, the intermediate cases with marked involvement of arteries and kidneys are particularly interesting and are the ones which give rise to so much difficulty in interpretation and classification, both from the point of view of the clinician and from that of the pathologic anatomist. If what has been said is true, any attempt at a too narrow or one-sided treatment of this group is doomed to failure.

Note.—A more extensive article embodying the details of this investigation will appear shortly under the same title from the Stanford University Press.

THE FUNCTIONS AND SCOPE OF AN INDUSTRIAL CLINIC IN A GENERAL HOSPITAL

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With the recently awakened and rapidly progressing interest in the relation of industry to health, the problem is being studied from many different angles by an ever-increasing circle of investigators and workers. Employers and employment managers, welfare workers, social workers, industrial nurses, industrial physicians and research workers, all are directing attention to the problem of the health hazards in industry; how to conserve the health of the worker, and how to restore him to productive efficiency when injury or ill health has occurred.

The industrial clinic is one of the most important and effective single factors in this widespread movement. There are several types of such clinics, each one handling the issue from a somewhat different point of view with different set problems before it. Some clinics are operated in large manufacturing establishments to render aid to the employees of the particular establishments. Other industrial clinics are conducted outside the manufacturing establishments either by the manufacturer, or on a cooperative basis by employers and employees, or by municipalities, where all workers may apply for medical treatment irrespective of whether the state of ill health from which they are suffering is the result of their work or any other cause.

Still another type of industrial clinic, one which I am about to describe in detail, is that connected with a general hospital, such as the industrial clinic of the Massachusetts General Hospital.

FUNCTION OF THE INDUSTRIAL CLINIC

What precisely is the function of the industrial clinic of the Massachusetts General Hospital? What are its problems? What, its relations to the other clinics in the hospital? These are all questions frequently asked by physicians and laymen interested in this particular clinic.

At first glance it might seem that an industrial clinic would be an unnecessary adjunct in a hospital like the Massachusetts General Hospital with its well organized, efficiently conducted medical and surgical clinics, and clinics attended to by experts in the great variety of specialties.

Physicians in general, however, have little or no familiarity with industrial processes or conditions, and as a rule have little interest in them. The industrial clinic can thus be of help to them by pointing out the etiologic factors in industry responsible for certain pathologic states which would otherwise remain obscure and unrecognized. This bringing to light of the etiologic factors which exist in the health hazard to which a patient may be exposed at his work and which is wholly or partly responsible for the symptoms for which he presents himself for treatment is the chief function of the industrial clinic.

Moreover, cases of industrial disease present many problems which do not arise in the treatment of the ordinary patient. Should the patient return to the same job after a cure has taken place and, if so, what precautions against subsequent exposure to the hazard must be undertaken? When can the patient with safety resume his work? Should his work be changed? Is the disease or injury one for which the patient is entitled to compensation? Is the condition one that is reportable to state authorities? And there are many other questions that are foreign to other patients in the clinic.

It is, therefore, necessary that a person suffering from ill health resulting from industrial conditions be registered and followed up by a clinic interested and competent to deal with the case in all its social and industrial ramifications. The patient should be referred to other clinics only when special treatment is necessary.

Moreover, as has been pointed out by Dr. Edsall[1] in a recent paper on the functions of an industrial clinic in a general hospital, such a clinic permits of grouping of cases and, by frequent repetition of observations in the same class of workers, suggests new problems. It also permits the analysis of accumulated records and inferences as to the effects of certain occupations, and may thus increase our knowledge of the effects of occupation on health. Other functions for an industrial clinic, Dr. Edsall further points out, are the training of students in this comparatively new field of hygiene, the investigation of problems in industrial disease, and the bringing about of changes in industrial establishments so as to make hazardous processes safer.

Moreover, there is no agency at present in the community that is as capable as is the industrial clinic, with the aid of the other special clinics in the hospital enabling group diagnosis, of handling the problems that arise in connection with those crippled or made ill by industry. No agency is so well equipped and able to correlate occupations with the physical condition of the worker and thus serve as a reliable and accurate source of vocational guidance to those incapacitated by industry.

Finally, it may be pointed out that an industrial clinic, with its group of physicians and social workers trained in industrial problems, brings the hospital in closer contact with social and economic conditions outside the hospital walls than is possible for any other clinic, and thus furnishes an avenue for aggressive work on the part of the hospital beyond its walls for the prevention of disease and for the betterment of social conditions.

THE INDUSTRIAL CLINIC AT THE MASSACHUSETTS GENERAL HOSPITAL

Edsall and Wright[2] have given a detailed description of the workings of the industrial clinic at the Massachusetts General Hospital. For the benefit of those who are not familiar with the workings of the clinic, a brief summary of its operation may be of interest.

A worker at the admission desk is instructed to inquire carefully as to the occupations of those who apply for admission. Not only is the general industry in which the patient is employed recorded, but also the particular occupation in which the patient is engaged, and the length of time he has spent in that occupation. Every patient employed in any workshop, mill or factory is sent to the industrial clinic before he is sent to the clinic to which he is assigned for treatment. At the industrial clinic the patient is interviewed to ascertain whether there is any probable relation between his work and the symptoms for which he applies for treatment. If the patient's complaints are evidently not due to his work, he is sent to the clinic to which he is assigned. If, however, there is a relation between the industrial hazard and the patient's ill health, he is registered in the industrial clinic and the case is followed up.

Should the patient require treatment in a special clinic, he is referred there for treatment of the special condition.

The following group of cases selected from the records of the industrial clinic will illustrate the frequent industrial etiology of ailments not usually regarded as of specific industrial origin.

SKIN DISEASES

Case 1.—A girl, aged 16, came to the skin clinic, complaining of itching and irritation of her hands of two weeks' duration. The skin on both hands and arms was red, infiltrated, scaling and pruritic. The condition was diagnosed as "dermatitis venenata."

The patient had worked for one year as dipper in a chocolate factory. The work of a chocolate dipper consists in taking the filling and dipping it in a tray of melted chocolate. In the process, the hands of the dipper are bathed continually in the semiliquid chocolate mass. Curiously enough, this insanitary and uncleanly way of handling the candy is confined to the higher grades of chocolates. The cheaper chocolates are dipped in a cleanly way by machine. Machine dipping, however, produces a uniform, smooth surface. To satisfy our esthetic sense, the better grade chocolates are served to us with a little decoration or frill on the surface, and cleanliness and sanitation are thus sacrificed on the altar of art. The skin condition for which this patient seeks relief is a common affliction among chocolate dippers, and is produced by the irritation caused by the constant dipping of the hands in the molten chocolate.

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[1] Edsall, D. L.: Industrial Clinics in General Hospital, J. Indust. Hyg. 1: 394 (Dec.) 1919.

[2] Edsall and Wright: Monthly Review of Bureau of Labor Statistics, U. S. Department of Labor, December, 1917.

Case 2.—A man, aged 38, came to the skin clinic with the skin of both hands and arms red and oozing, with many excoriations and intense itching. He worked in a paint shop; his job consisted in cleaning the tanks in which the colors are ground. He used a hot potash solution in cleaning the tanks. He wore a rubber glove at his work, but his arms were not protected. His trouble started four months previously when he burned a small area on his hand with the potash solution, which was too hot. The irritation of his skin grew progressively worse until he had to give up his work.

Case 3.—A man, aged 37, came to the skin clinic with an extensive papular and vesicular eruption, confluent in parts, distributed over his right arm, the right side of his body, and the right buttock. In places the skin was red and swollen with vesiculation. The patient mixed stains in a paint factory. The solutions of the stains and dyes that he used were hot. Frequently to remove stains from his hands he washed them with benzene (benzol). His skin condition was thus clearly the result of these irritating substances.

Case 4.—A man, aged 29, came for relief of a skin condition. His hands showed several dull red and crusted patches. In several places there were deep, oozing fissures. The patient had worked for the last two months as a dish washer in a lunch room. He worked nine hours daily, and during his entire working hours he had his hands in hot water with a strong soap powder in it. Trouble with his hands started about one month after he started his work, and had been growing progressively worse.

The types of diseases of the skin resulting from industrial conditions present a great variety. They are due to either thermal, mechanical or chemical irritants. The susceptibility to skin disease from the injurious agents varies not only with such factors as the structure of the skin, whether tough or delicate, the condition of the circulation, the degree of moisture, etc., but also with unknown factors which are included in the general term of "individual susceptibility." These unknown factors determine the occurrence of skin disease in some, while not affecting others engaged in similar work, and also determine the development of skin disease in persons who may have been exposed to the same conditions for long periods of time without any injurious effects.

RESPIRATORY DISEASES

That exposure for long periods to inhalation of dust is injurious to the lungs is well known, and it is also a well recognized fact that certain industries, because of their dust hazards, have an unusually high mortality from respiratory diseases.

Not all dusts, however, produce the same reaction in the lung tissue. Some dusts produce permanent injury to the lung tissue, replacing it with connective tissue and producing fibrosis of the lung; other dusts are comparatively harmless, since they do not produce any fibrous changes in the lungs. But the so-called harmless dusts owe their innocuousness to the catarrhal condition which they cause in the respiratory mucous membrane. The particles of dusts are taken up by phagocytic cells and are expectorated. The experimental work of Haldane and of Mavrogardato has demonstrated the somewhat paradoxical condition that the dusts which produce a catarrhal condition of respiratory mucous membrane are the harmless dusts. The very catarrh which they set up is the means by which the lung clears itself of the dust. The dangerous dusts, on the other hand, produce no catarrh. The particles are taken up by the fixed cells, remain in the lung tissue, and gradually lead to a pulmonary fibrosis.

There is much yet to be done to estimate the effects of the various kinds of dusts. Even the so-called harmless dusts, such as coal dust, can hardly be considered harmless if they constantly keep the mucous membranes in a catarrhal condition. It is true that these dusts do not cause a fibrosis, but they do render those exposed to them more susceptible to acute pulmonary infection. This was clearly shown in Dublin's statistics of the high mortality among coal miners from influenza during the recent epidemics. The following cases illustrate the types of respiratory diseases seen in the industrial clinic, which are produced by the dust hazard of the industry:

Case 5.—A man, aged 43, complained of gradually increasing dyspnea, which had become worse during the last four months. He had no cough. A roentgenogram of the chest revealed diffuse, fine mottled shadows, with larger, irregular areas of increased density in both lungs. The man had been a stone cutter for twenty-seven years, and had been exposed to a great deal of granite dust. The roentgen-ray picture was characteristic of fibrosis. The disease is characterized by its insidious onset and slowly progressive dyspnea, and is frequently not associated with any cough. It is only after infection sets in that the patient begins to cough and raise considerable sputum, and the clinical picture may become that of advanced pulmonary tuberculosis.

Case 6.—A man, aged 52, complained of gradually and progressively increasing dyspnea and considerable nonproductive cough. He was a poorly nourished man with definite evidence of loss of subcutaneous fat. There was a foul metallic odor from his breath. There was some dulness over his right chest in back. A roentgenogram revealed a high diaphragm on the right side, and the respiratory movements were very much limited. The costophrenic angle was hazy. There was rather general dulness throughout both sides of the chest. The changes were most evident in the right upper lobe and along the course of the bronchi. There were also areas, particularly one near the heart apex, which suggested emphysematous lung. The root glands were only slightly enlarged, and there was no definite evidence of tuberculosis. The appearance was that of a diffuse fibrosis, such as is seen in chronic pneumoconiosis. An investigation of his industrial history revealed the fact that for three years he had been employed as a filer in a brass manufacturing plant. This work consists in filing off by hand the rough edges of brass castings. The amount of dust in this process is very slight. For nine years previous to the present work, however, he worked as a brass polisher and buffer. This work is done on rapidly revolving emery and cloth wheels. The wheels were not protected with any dust removal devices, so that for nine years this man was exposed to a great deal of emery and brass dust. The fibrosis of the lungs was thus the result of his prolonged and continuous dust exposure. The patient's condition now was such that he could not continue his work or take up any other work, as the slightest effort produced a very distressing dyspnea. The industrial accident board, to which this patient was referred, awarded him compensation of $4,000, which justly made the industry bear in a measure the burden of his incapacity.

Case 7.—A man, aged 48, complained of cough, wheezing and dyspnea for one year. He tired easily and suffered from frequent headache. His appearance was that of a much older man. Physical examination was negative except for a hyperresonance of both chests, with many fine and coarse musical râles. For thirty years he had been a baker constantly working under poor sanitary conditions. For several years he had been working in a poorly ventilated cellar. The cellar was always smoky and dusty. He worked near ovens all the time, was exposed to great heat and, when he went out from this room, to sudden changes of temperature; he worked for nine hours at a stretch without any rest period.

Surely the conditions under which this patient had been working for thirty years were responsible for his chronic bronchitis, emphysema and general debility.

Exposure to irritating fumes frequently causes irritation of the respiratory mucous membranes, as shown by this case:

Case 8.—A man, aged 33, was referred from the Massachusetts Eye and Ear Infirmary for a general examination. He applied for treatment because of a conjunctivitis. He also had a constant irritating cough and an irritation of his nose and throat. His symptoms were of one month's duration and started shortly after he took up work in a chemical factory. His work consisted in pouring nitric and sulphuric acid into kettles. The symptoms promptly cleared up when he changed his job.

Case 9.—A man, aged 30, complained of cough and substernal soreness of several months' duration. His physical examination was negative except for occasional scattered râles throughout the chest. Roentgen-ray examination of the lungs was negative. He worked for several years as a cleaner of castings in a foundry. His work exposed him to a great deal of sand and metal dust. While bronchitis is a disease common enough in all walks of life, it is at least highly probable that the constant exposure to dust may have been an etiologic factor in this man's illness.

Exposure to extremes of temperature, to insanitary conditions and to vitiated air frequently cause more or less severe circulatory and digestive disturbances, as illustrated in these cases:

Case 10.—A man, aged 33, complained of sleeplessness, severe headaches and frequent dizzy spells. He had a burning sensation in his abdomen not related to meals and not associated with any digestive disturbances. The physical examination and the blood Wassermann test were negative. For seven years he worked as a dyer in a tannery. The work was very hard; there was a good deal of dust in the room from the hides. He was also exposed to excessive heat and excessive moisture, as the dyes are very hot. In the absence of findings in his physical examination to explain his symptoms and in the definite exposure to dust, excessive heat and moisture, it is fair to assume that his symptoms may have been of industrial origin.

Case 11.—A man, aged 26, complained of stomach trouble of one year's duration. He belched after meals, regurgitated his food, and had occasional attacks of vomiting with severe epigastric pain. He lost 14 pounds in two months. The patient was sent into the hospital for observation. Analysis of the gastric contents was negative. All laboratory work on the blood, urine and stool was negative. Roentgen-ray examination of the gastro-intestinal tract was negative, except for a moderate degree of ptosis and atony. While in the hospital his symptoms entirely cleared up and he rapidly gained in weight. The patient's work was that of punching holes in metal plates in a ship yard. He worked in a large room where there were from forty to fifty open coke furnaces, with no exhausts. The room was nearly always filled with smoke. In view of all the negative findings on physical, chemical and roentgen-ray examination, it seemed likely that this patient's constant exposure to an atmosphere vitiated by smoke and fumes of incomplete combustion might be sufficient to cause his gastric disturbance. The prompt subsidence of the symptoms after leaving his work confirmed this opinion. The patient, after leaving the hospital, changed his work and felt much better.

Case 12.—A man, aged 32, complained of feeling ill for three months. He had coughed considerably, but the cough did not trouble him as much as general weakness and attacks of dizziness. The dizziness became so troublesome that he had to give up his work. On examination, scattered râles were found in both lungs. The heart was negative, the blood pressure was normal, and the urine was negative. Blood examination revealed: hemoglobin, 80 per cent.; erythrocytes, 4,300,000; leukocytes, 7,000. The patient worked in a rubber factory on a cutting machine. The rubber was soft, and when he handled it particles stuck to his hands and face. To clean his hands and face he would wash them with benzene two or three times a day. For three months before he left his work he was put on a job which necessitated the spreading of benzene in the process of manufacture of rubber tires. He was at that work for two or three hours daily. This caused great dizziness and made him feel as if he were drunk. The onset of dizziness, associated with his exposure to benzene and with nothing on physical examination to otherwise explain his symptoms, suggests very strongly that this man was suffering from chronic benzene poisoning. The blood picture was not that of benzene poisoning which is associated with a leukopenia, but his exposure may not have been severe enough for that or his blood picture might have improved from the time he left his work till the time he came for examination, a period of three months.

Case 13.—A girl, aged 16, complained of frequent, severe headaches with some dizziness which usually came on during the afternoon. The physical examination, including the eyes and nasal sinuses, was negative. She was employed as a sticker in a shoe factory. Her work consisted in cementing leather strips used inside shoes. The cement was made of rubber dissolved in naphtha. An open bowl of this naphtha cement was in front of her. Many other girls in the room did similar work, so that the air in the work room was heavily charged with naphtha fumes. There was thus surely enough hazardous exposure at her work to explain all her symptoms.

OCCUPATION STRAINS

A large group of cases frequently encountered are those in which there is involvement of certain muscle groups or joints resulting from excessive physiologic function of the muscles and joints in question, or from prolonged postural strains necessitated by the patient's work. The classification and grouping of these cases is rather vague. They are diagnosed as occupational strains, occupation pain, occupation neuritis or occupational neurosis. There is thus no definite separation or grouping between the occupational strains due entirely to actual change in the muscles or terminal nerves, and the true occupational neuroses as typified by the so-called writer's cramp, in which there is an important functional element even if we accept the point of view of Dr. W. E. Paul that there are always neurolytic or myolitic changes produced by the constant stress of excessive physiologic functioning.

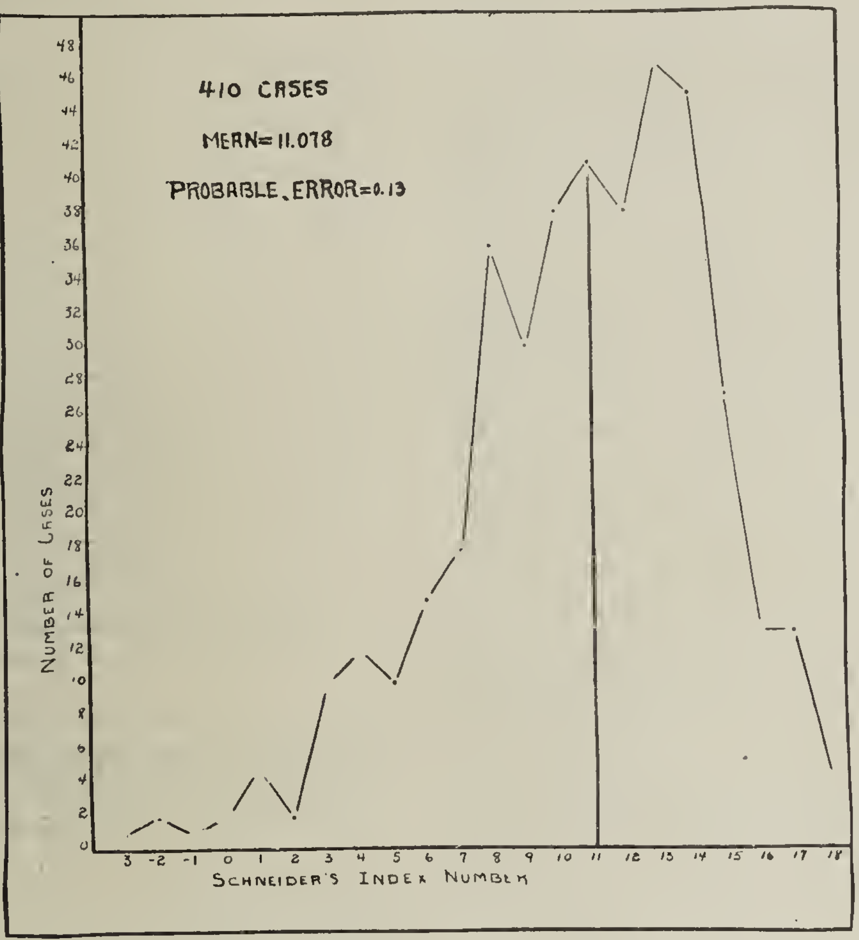
It is not at all uncommon in the inquiry into the neurosis cases to find that the patient engaged for many years in a certain line of work will, on the occurrence of some emotional disturbance, begin to experience the pains which may completely incapacitate him for the kind of work he has been engaged in for years. There is undoubtedly a psychic element which is at least the precipitating cause of the disturbance.

Case 14.—A woman, aged 30, who had worked as a paper box maker for twelve years, complained of progressively increasing pain and numbness in her hands, often going up to her arms. The pains were at times very severe, and she felt as if her arm was "being twisted off." She finally had to give up her work in the box factory because of the cramping of her fingers. Physical examination was entirely negative except for a slight tremor of both hands. Her work in the box factory consisted in feeding boxes to a machine. This involved constant use and fine motions of the thumb, index finger and middle finger of both hands. Her disability became progressively worse until she finally had to give up work. No history of any emotional disturbance could be obtained to explain the sudden onset of what was unmistakably an occupational neurosis in the patient, who has done the same work without any ill effect for twelve years. Her work was changed and her symptoms gradually cleared up entirely.

Case 15.—A woman, aged 24, complained of pain in the third finger of the right hand and also at the distal end of the third metacarpal. Examination revealed tenderness over the third metacarpophalangeal joint and over the distal end of the third metacarpal. There was considerable pain on full extension of fingers. Roentgen-ray examination of the hand was negative. The woman had been employed in a chocolate factory as a fancy decorator. Her work necessitated the holding of a bag of molten chocolate weighing about 3 pounds; at the bottom of the bag was a small opening, and by the pressure of her hand the required amount of chocolate was squeezed out. Her work thus threw a constant strain on all the joints of her hand. A change of work relieved the condition.

Case 16.—A man, aged 35, who had been employed as a sand-bobber in a silver-ware factory, had been engaged in cleaning hollow pieces of silver by a revolving wheel to which he had to feed a constant stream of fine sand. The process consisted in taking a handful of sand and by a slow rolling motion between the thumb and index and midle fingers allow the desired stream of sand to run through. This involved a very severe strain on the metacarpophalangeal joints of the index and middle fingers. He came to the hospital incapacitated to continue his work because of pain and swelling of these joints. Roentgen-ray examination did not detect any changes in the bone.

Case 17.—A man, aged 30, complained of pain in the left shoulder and arm for one month. This pain had been getting progressively worse so that he had to give up his work. Examination disclosed tender areas over the left scapula and beneath the angle of the scapula produced by pressure and muscular contraction. He was a shoe polisher in a rubber shoe factory. About six pairs of rubber boots were hung on a bar. He applied polish to them and then had to lift the bar and boots and put them on a rack. The weight of the boots and bar was from 50 to 60 pounds. Most of the strain in this process was on the left arm. This operation, the patient estimated, was repeated about 1,000 times a day. His incapacity was therefore due to the muscle strain caused by his work. A conference with the nurse in the factory resulted in the patient's being put on a different job which did not involve the same muscle strain.



Scores obtained by 410 men subjected to Schneider's test.

CONCLUSION

In citing cases from the records of the industrial clinic, those showing specific occupational diseases were intentionally omitted. We see a great many cases of lead poisoning and also occasionally those of arsenic, trinitrotoluene, anilin poisoning, and an occasional case of anthrax and other specific industrial disease. What I have attempted to show is that the great function of an industrial clinic is to trace the part industry plays in producing the more common diseases seen in all classes of the community.

If the effects of industry were only in the production of the specific occupational diseases, the problem would be comparatively easy and relatively unimportant: Easy, because the causal relation between the industrial condition and the resulting disease is manifest. Relatively unimportant, because the number of workers engaged in processes giving rise to specific industrial diseases are few in comparison with the vast army of workers exposed to less specific hazards of irritating dust or fumes, of localized fatigues, of insanitary conditions, or who are constantly subjected to the monotony and general fatigue effects of modern industry.

45 Bay State Road.

THE APPLICATION OF CERTAIN PHYSICAL EFFICIENCY TESTS *

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There appeared last year in The Journal a description of a physical efficiency rating scheme, devised by Edward C. Schneider.[1] It is the purpose of this article to give applications of the test and the reasons for its adoption by the Medical Division of the Air Service.

In aviation we deal more with temporary than with permanent ailments, because men with serious physical defects are weeded out before they reach the stage of flying. As in industry, so in aviation, we encounter that condition known as "staleness"; and whereas in the industrial world it means lowered physical efficiency, in aviation it means all of that plus risk of life and destructive of aeroplanes.

A physician skilled in neuropsychiatry and cardiovascular work can make a diagnosis of "staleness," but he cannot determine the *degree* of fatigue. Schneider, by the use of arbitrary numbers, has made the best effort in this direction.

During the war we realized the necessity for a short, simple test as a measure of physical efficiency. There have been only two cardiovascular tests that appeared to meet the requirements of our needs—Crampton's [2] and Schneider's. These two tests were applied to men who were candidates for the flying status.

From a study of 410 of these cases, in which the men were subjected to Schneider's test (recorded in the accompanying chart), the mean score was found to be 11. The lowest score, —3, was made by a man who was diagnosed as having neurocirculatory asthenia. Only four men made a score of 18, which is the highest possible under the system of rating. Forty-seven made a score of 13.

A COMPARISON OF SCHNEIDER'S AND CRAMPTON'S TESTS

To learn the relative merits of the two tests, the data were checked against the official examination for flying. Two hundred of these cases have been analyzed and the results tabulated in Table 1.

With Schneider's test, of those who made a score of 8 or higher, 149 were qualified and four disqualified on the official examination; and, on the other hand, of those with a score of 7 or lower, seven were qualified and forty were disqualified. On this basis we can say with a fair degree of accuracy that those who make a score of 8 or more will be qualified on the physical examination, and those with a score of 7 or less will be disqualified.

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* From the Medical Research Laboratory.

[1] Schneider, E. C.: A Cardiovascular Rating as a Measure of Physical Fatigue and Efficiency, J. A. M. A. **74**: 1507 (May 29) 1920.

[2] Crampton: Proc. Soc. Exper. Biol. & Med. **12**: 119, 1915.

TABLE 1.—RESULTS OF PHYSICAL EXAMINATION FOR FLYING

	Qualified		Disqualified	
	No. of Cases	Per Cent.	No. of Cases	Per Cent.
Schneider's Index:				
8 and above	149	97.4	4	2.6
7 and less	7	14.9	40	85.1
Crampton's Index:				
51 and above	118	86.0	19	14.0
50 and below	37	58.7	26	41.3
40 and above	142	80.0	23	20.0
39 and below	15	42.9	20	57.1

With Crampton's test, we obtained no clear line of demarcation, such as occurs in Schneider's rating. We took those with a score of 51 and above, and found that 118 were qualified and nineteen disqualified; while of those with a score of 50 and below, thirty-seven were qualified and twenty-six disqualified. Finding more men qualified than disqualified at 50 and below, we shifted the line to 40, and found that with a score of 40 and above, 142 qualified and twenty-three disqualified, and those of 39 and below, fifteen were qualified and twenty disqualified. There is no material advantage, therefore, in taking lower limits.

The higher correlation of the former test with the official physical examination is due to the incorporation of other well known physiologic factors omitted from the latter, namely, the pulse rate increase after exercise and the time required for the pulse rate to return to normal. Whereas Crampton rates a man on his pulse rate, increase on standing and the difference between the systolic pressures of the reclining and standing postures, Schneider rates the man on his reclining pulse rate, standing rate, pulse rate increase on standing, increase in the pulse rate after exercise, time required for the pulse rate to normal after exercise, and the difference between systolic pressures of the reclining and standing positions.

The major portion of the disqualifications were made on neuropsychiatry findings, such as increased psychomotor tension, prolonged secondary dilatation of the pupils, relaxed peripheral circulation, tics and tremors. It is the opinion of the neuropsychiatry department that these signs are manifestations of fatigue and that three of these appearing together give a sufficient reason for a temporary disqualification. It is an interesting fact to note that these symptoms are often associated with exaggerated responses of the circulatory system to exercise and postural changes of the body. With a Schneider index score of 7 or less, we can safely predict that at least three of the neurologic signs will be found by a competent examiner.

It is readily seen that a score of 7 is the dividing line of those qualified and disqualified. Of those with an index of 8, eighteen were qualified and two disqualified; on the other hand, of those with an index of 7, five were qualified and seven disqualified. We would say from the point of view of the physical examination for flying that a score of 7 or less indicates a physical condition that makes flying unsafe.

The manner in which the 200 cases were distributed is shown in Table 2.

TABLE 2.—DISTRIBUTION OF TWO HUNDRED CASES EXAMINED FOR FLYING

	Number of Cases		
Schneider's Index:	Qualified	Disqualified	Total
18	1	0	1
17	5	0	5
16	10	0	10
15	16	0	16
14	16	0	16
13	26	0	26
12	12	0	12
11	13	2	15
10	19	0	19
9	13	0	13
8	18	2	20
7	5	7	12
6	2	9	11
5	0	7	7
4	0	6	6
3	0	5	5
2	0	2	2
1	0	3	3
0	0	0	0
1	0	0	0
2	0	1	1
Total	156	44	200

TABLE 3.—EFFECTS OF PHYSICAL EXERCISE

												Blood Pressure				
Name	Date	Reclining Pulse	Points	Standing Pulse	Points	Increase on Standing	Points	Pulse after Exercise	Points	Return to Normal in Sec.	Points	Systolic Reclining	Systolic Standing	Points	Total Score	Comment
Lt. E.	7/31/19	96	1	99	1	3	1	117	1	80	2	116	114	0	6	Disqualified; diagnosed as staleness by neuropsychiatry; sent to recreational camp
	9/23/19	80	2	90	2	10	3	108	2	80	2	124	126	2	13	Returned from camp; found normal
Lt. W.	12/10/19	93	1	111	0	18	0	123	1	60	3	120	118	0	3	Disqualified by neuropsychiatry; long office hours 1½ years
	12/31/19	98	1	105	1	18	1	114	1	45	3	116	124	3	10	A hike of 2 hours; daily improvement found
Pvt. B.	11/29/19	75	2	87	2	12	2	108	1	75	2	126	128	2	11	A few symptoms of staleness found by neuropsychiatry
	12/ 4/19	78	2	93	1	15	2	114	0	60	3	114	112	0	8	Loading trucks for one week
	12/ 6/19	84	1	87	2	3	2	129	1	25	3	124	102	1	6	Loafing since last time examined
	12/ 8/19	93	1	96	1	3	1	135	1	120	1	118	126	3	4	Guard duty all night
	2/ 2/20	72	2	87	2	15	2	79	2	60	3	126	130	2	13	Ran 2¾ miles every morning before breakfast for 27 days; found qualified by neuropsychiatry
Lt. M.	1/12/20	87	1	111	0	24	0	120	1	60	3	132	112	1	4	Disqualified as staleness by neuropsychiatry; indoor work
	1/20/20	90	1	117	0	27	1	117	1	50	3	134	122	1	3	Continued indoor work
	1/27/20	90	1	123	0	27	2	126	0	120	1	132	120	1	1	Continued indoor work
	7/ 6/20	69	3	99	1	30	0	105	2	60	3	116	106	1	8	Been playing golf; outside work
	10/12/20	78	2	99	1	21	1	120	0	60	3	122	130	3	10	Qual. found; outdoor work

To show the advantage of a test that will measure the degree of physical efficiency or fatigue, I present a few cases in the form of case reports in Table 3. Lieutenant E. and Lieutenant W. came back to average physical condition as measured by the index in a comparatively short time, the former by full time recreation, the latter by shorter office hours and two hours of daily hiking.

Private B. is interesting, in that he had one week of outdoor exercise, which lowered his index. This was due to the fact that the work was too strenuous for his condition. Loafing did not help matters, nor did his all night guard duty; but when he was given his choice of any form of physical exercise, he returned a month later in fairly good physical condition. The case of Lieutenant M. is worthy of thought, because it shows how long it takes a man to come back to normal after being out of condition for a long time.

PROTOCOLS

LOSS OF SLEEP PLUS EXCESSES

Lieut. N.—
12/ 9/19: Index 5; average of 2 hours' sleep for two nights.
12/11/19: Index 13; 8 hours' sleep.

Sergt. V.—
7/ 1/20: Index 3; worked all night on aeroplane for Alaskan trip.
7/ 3/20: Index 10; had 8 hours' sleep.

A loss of sleep does produce a drop in the index.

ACUTE INFECTIONS

Capt. P.—
8/24/19: Index 15; feeling normal.
10/ 9/19: Index 7; acute rhinitis.
12/ 5/19: Index 14; feeling normal.
12/17/19: Index 18; feeling normal.

Major T.—
8/ 7/19: Index 7; diarrhea; feels weak.
8/23/19: Index 14; feeling normal.
12/10/19: Index 10; headache; 5 hours' sleep last night.
12/17/19: Index 17; feeling normal.

HOSPITAL CASES

Pvt. L.—
1/12/20: Index 5; diagnosis, Vincent's angina; 4th day in hospital; not confined to bed; no rise of temperature.
2/25/20: Index 10; throat better.
2/28/20: Index 14; feeling normal.
3/ 8/20: Index 7; detailed on kitchen police duty for a day.
3/ 9/20: Index 10; removed from kitchen police yesterday, because he complained of feeling weak.
3/15/20: Index 7; feels normal.
3/20/20: Index 6; feels normal; discharged from hospital.
Total number of days in hospital, 71.

Pvt. W.—
2/25/20: Index 0; diagnosis, unilateral tonsillitis.
2/27/20: Index 3; temperature, 99 F.
3/ 2/20: Index 14; patient up walking around.
3/ 3/20: Index 13; complains of other tonsil feeling sore.
3/ 5/20: Patient too sick to take index; other tonsil infected.
3/ 9/20: Index 4; patient confined to bed.
3/11/20: Index 13; feels normal; walking around.
3/12/20 Index 17; discharged from hospital.
Total number of days in hospital, 17.

In the case of Private L., the index was highest on the fifty-first day of his stay in the hospital, when his infection, if not completely gone, was at a very low ebb. Kitchen police duty produced a lower index, because the work was too strenuous; he should have worked up to it gradually. His index was a little higher the next day, and then gradually declined during the rest of his stay. It is reasonable to assume that if this man had been given graduated exercises from the time his infection ceased, he would have left the hospital in good physical condition.

In the case of Private W., the index rose rapidly after he got rid of his toxins. This supports the opinion that a person in good condition can repel a disease better and recuperate more quickly than a man in poor condition.

Incidentally, I will cite a case in support of the value of daily systematic exercises which is applicable alike to civilians and aviators. Last year in preparation for the transcontinental aeroplane flight, twenty-five aviators flew in from other flying fields and were given the index from one to two hours after landing. With the exception of one man, they all showed effects of fatigue. The average index was 9. This one man made a score of 17. In taking the usual history as to how many hours sleep, amount of exercise, etc., we found that this man devoted a little time each day to systematic exercise.

SUMMARY AND SUGGESTIONS

Schneider's test does not supplant, but should be used in conjunction with a thorough physical examination. For use with aviators and athletes, this is the best test so far offered for measuring physical efficiency and fatigue.

The practitioner of preventive medicine, and physical directors of schools and colleges, will find this test a valuable aid in determining the amount of exercise necessary for physical fitness in each individual case. There may be overtraining and undertraining of an individual. Although we find that a score of 7 or less is an indication of improper functioning of the neurocirculatory apparatus, we believe that a man who can only make a score of 9 should be given a thorough physical examination to determine whether his condition is due to disease or to insufficient exercise.

The conditions that we find that lower the index are aviation fatigue, loss of sleep, lack of physical exercise, alcoholic and sexual excesses, and acute infections.

We have encountered two conditions in which this test or any other test based on pulse rate will not reveal the true condition of the man. Bradycardia on account of the low pulse rate gives a better rating than the condition warrants, and those who are disturbed psychically by a physical examination will get a lower rating than they deserve on acount of high pulse rate. But the latter condition can be allayed by a tactful nurse or physician.

The index gives the true condition at the time of the test. When it comes to qualifying or disqualifying an aviator for flying, or to determining the amount of exercise needed by an athlete, it is best to determine the index on three successive days. If the man has not lost sleep or dissipated, his index will not vary more than 1 point. The reason for not relying on one index is that one may be getting his average physical condition plus loss of sleep or dissipation.

Tubercle Bacilli in Coagulating Blood.—Tubercle bacilli do not show up well by centrifuging unless they are in large clumps, but Sabathé and Buguet have recently called attention to the way in which the tubercle bacilli in the blood congregate in a layer in the zone which separates the clot from the serum when blood is coagulating. They never found any tubercle bacilli in the clot after coagulation, while they found them constantly in this zone in 130 specimens of blood from patients with tuberculosis in lungs, joints or kidneys, and with or without bacilli in the sputum.

RELATIVE EFFECTIVENESS OF VARIOUS FORMS OF TREATMENT IN NEUROSYPHILIS

OBSERVATIONS ON THE COMPARATIVE VALUE OF ROUTINE INTRAVENOUS TREATMENT, SPINAL DRAINAGE AND ARSPHENAMIZED SERUM INTRASPINALLY (SWIFT-ELLIS)*

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The treatment of neurosyphilis by the drainage of spinal fluid, in conjunction with other modes of treatment, has been brought into prominence during the last four years. Gilpin and Earley,[1] in 1916, were the first observers to advocate this form of therapy. They reported encouraging results in three patients on Dercum's service. Following this report, Pilsbury,[2] in 1917, reported his results with the employment of mercurial inunctions with spinal drainage. He said, "On the whole the results are not striking, and similar effects might reasonably be expected without spinal drainage." Recently, in March, 1920, Dercum [3] strongly advocated spinal drainage, especially in paresis and tabes. He presents the case for spinal drainage with simultaneous intravenous arsphenamin and routine mercurial therapy. He contends that the results obtained by the methods in which arsphenamized or mercurialized serum is employed are due not to what is introduced into the dural canal, but to the withdrawal of fluid which, he asserts, is always practiced in connection with such methods. He believes that the results of so-called intraspinal therapy can be duplicated merely by drainage of fluid following intravenous injection. Without entering into anything suggesting argument in rebuttal, we can only state that therapists of our acquaintance who are getting good results make a practice of introducing as much or more serum than the amount of fluid withdrawn, so that reduced hydrostatic pressure as a means of causing transfer of remedial agents from the blood to the fluid can hardly be said to apply. The suggestion of Dercum, that the substances introduced into the canal in intraspinal therapy are dissipated so quickly that they can produce no effect, would seem to be the opposite of the conclusions of Becht [4] in a series of elaborate physiologic studies on the fluid, in which it was found that epinephrin and nicotin are not absorbed rapidly enough from the spinal canal to produce the characteristic physiologic effect on the blood pressure, and that epinephrin can be detected in the canal at least five hours after its injection. Mehrtens and MacArthur [5] found that the penetration of arsenic through the meninges into the fluid occurs in approximately 43 per cent. of cases after ordinary intravenous injection, but that this proportion increases to 92 per cent. when the intravenous injection of arsphenamin is given six hours after therapeutic irritation of the patient's meninges by an intraspinal injection of his own serum. Moreover, the concentration of arsenic is three times as great for patients having preliminary serum injection as in the controls. Mehrtens and MacArthur found, moreover, that spinal drainage did not increase the percentage of arsenic penetrations of the meninges. These various observations seem to be in direct opposition to the contentions on which Dercum bases his advocacy of simple drainage.

During 1918, about fifty patients with neurosyphilis were placed on spinal drainage therapy with a view of ascertaining, if possible, the advantages of this type of medication. Our method consisted of the weekly withdrawal of from 30 to 70 c.c. of spinal fluid from fifteen minutes to one hour following an intravenous injection of arsphenamin. Mercury, in the form of inunctions or the intramuscular injection of a soluble salt, was also employed in every case. Only twenty-five of the fifty patients have received sufficient treatment to be included in this review. The others either disappeared from observation, or further treatment was precluded by some definite contraindication. The average number of spinal drainages in each case was five, the highest number being nine and the lowest three. On the completion of drainage the patients were placed on interim inunction treatment and reexamined after intervals of from two to nine months. The somewhat disappointing results led to their being placed on Swift-Ellis-Ogilvie intraspinal treatment. In order to extend the comparison to include an estimate of the relative effectiveness of routine intravenous treatment and of spinal drainage, the twenty-five cases with spinal drainage were subsequently compared with fifty without spinal drainage. It is difficult in work of this type, which involves all the unforeseen variations of the individual case, each with its own strain of infecting organism and predisposed soil, to make comparisons that may be fully controlled and above criticism. For this reason we cannot offer final conclusions, but merely state that on the impressions created by this study we have ceased to place any great reliance on spinal drainage.

TABLE 1.—PATIENTS RECEIVING ARSPHENAMIN INTRAVENOUSLY FOLLOWED BY SPINAL DRAINAGE

		Spinal Fluid Before Drainage				Spinal Fluid at Completion of Course of Spinal Drainage		
Case	Diagnosis: Neurosyphilis:	Wassermann Reaction	Nonne Reaction	Lymphocytes	Drainages	Wassermann Reaction	Nonne Reaction	Lymphocytes
1 (180703)	Tabes dorsalis	+++	+	48	5	+++	—	3
2 (241147)	Tabes dorsalis	—	+	64	4	—	+	33
3 (242098)	Tabes dorsalis	+++	+	23	6	+++	—	20
4 (206279)	Juvenile paresis	+++	+	23	6	+++	+	13
5 (176751)	Early tabes dorsalis	+++	+	16	3	+++	+	17
6 (242135)	Taboparesis	+++	+	59	6	+++	+	R.B.C.
7 (236507)	General paresis	+++	+	15	9	+++	+	12
8 (237532)	Early taboparesis	+++	+	152	5	+++	+	22
9 (244843)	Tabes dorsalis	—	+	87	3	—	+	30
10 (227053)	Taboparesis	+++	+	71	5	+++	+	56
11 (217826)	Tabes dorsalis	+++	—	112	5	+++	—	6
12 (249310)	Questionable general paresis	+++	+	45	6	+++	+	12
13 (106152)	Tabes dorsalis	+++	—	31	4	+++	+	12
14 (210960)	Tabes dorsalis	—	—	1	4	—	—	3
15 (241013)	Meningeal involvement	+++	+	285	8	+++	+	36

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* From the Mayo Clinic and the Mayo Foundation.

[1] Gilpin, S. F., and Earley, T. B.: Drainage of Cerebrospinal Fluid as a Factor in the Treatment of Nervous Syphilis, J. A. M. A. **66**: 260-262 (Jan. 22) 1916.

[2] Pilsbury, L. B.: Mercurial Medication with Spinal Drainage, J. A. M. A. **68**: 267-270 (Jan. 27) 1917.

[3] Dercum, F. X. The Functions of the Cerebrospinal Fluid, with a Special Consideration of Spinal Drainage and of Intraspinal Injections of Arsphenamized Serum, Arch. Neurol. & Psychiat. **3**: 230-251 (March 20) 1920.

[4] Becht, F. C.: Studies on the Cerebrospinal Fluid, Am. J. Physiol. **51**: 126 (Feb.) 1920.

[5] Mehrtens, H. G., and MacArthur, C. G.: Therapy of Neurosyphilis Judged by Arsenic Penetration of Meninges, Arch. Neurol. & Psychiat. **2**: 369-375 (Oct.) 1919.

RESPONSE OF THE SPINAL FLUID WASSERMANN TEST TO SPINAL DRAINAGE

Of the twenty-five patients treated by routine measures with drainage, twenty-one had a positive Wassermann reaction on the spinal fluid on 0.3 and 0.4 c.c. (0.6 and 0.8 using one-fourth volume) before treatment was begun (Tables 1 and 2). Following a course of spinal drainage, nineteen, or all but two of these twenty-one patients, still had positive Wassermann reactions on the spinal fluid; and one of the two who became negative reverted to positive with a marked rise in cell count after a rest interval on inunctions. Of the four originally Wassermann-negative cases, all were still negative at the conclusion of treatment. It would seem that to the extent that it was applied, the procedure had little effect on the Wassermann reaction in the spinal fluid.

RESPONSE OF THE CELL COUNT TO SPINAL DRAINAGE

The cell count, contrasted with the Wassermann reaction on the fluid, responded very well to drainage. The average count was 61 lymphocytes before treatment and 19 lymphocytes at the conclusion of treatment. Something suggesting a Herxheimer-like rise followed by a fall in the curve of pleocytosis was observed in six of our twenty-five cases (Table 3 and the accompanying chart). We are inclined to believe that such a rise followed by a fall in the curve of pleocytosis may occur in patients receiving routine therapy for neurosyphilis without the use of spinal drainage, as we have observed even in favorably progressing cases that the cell count in a fluid taken with the sixth intravenous arsphenamin injection may be higher than that taken five weeks before with the second injection. The completeness of the curves here presented simply pictures accurately as a result of frequent examination what we are inclined to believe may take place without spinal drainage. The interpretation of this pleocytosis as a sign of transient meningeal reaction was borne out by the development in the patients of suggestive symptoms, such as headache, dizziness and nausea during the rise, and their subsidence during the fall of the cell count.

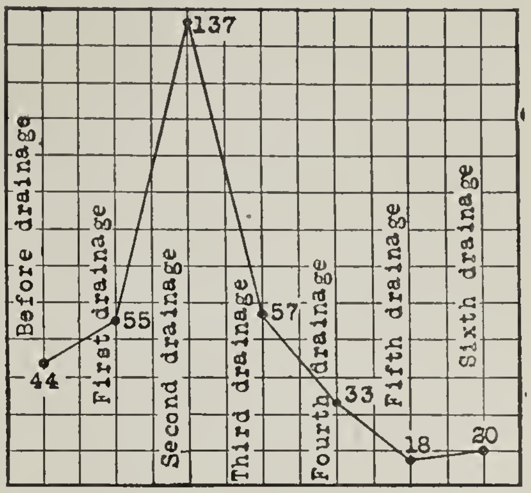
TABLE 2.—PATIENTS RECEIVING SPINAL DRAINAGE FOLLOWED BY INTRASPINAL TREATMENT (SWIFT-ELLIS-OGILVIE)

		Spinal Fluid Before Drainage				Spinal Fluid at Completion of Course of Spinal Drainage				Spinal Fluid on Return				Spinal Fluid at Completion of Course of Intraspinal Treatment		
Case	Diagnosis: Neurosyphilis:	Wassermann Reaction	Nonne Reaction	Lymphocytes	Drainages	Wassermann Reaction	Nonne Reaction	Lymphocytes	Interval, Months	Wassermann Reaction	Nonne Reaction	Lymphocytes	Intraspinal Treatments	Wassermann Reaction	Nonne Reaction	Lym. phocytes
16 (249102)	Taboparesis	+++	+	131	7	+++	+	9	7	—	—	74	6	—	—	5
17 (248639)	Tabes dorsalis	+++	+	27	4	—	+	R.B.C.	6	—	+	2	5	—	—	R.B.C.
18 (223423)	Tabes dorsalis	—	+	55	5	—	—	20	6	+++	+	109	6	—	+	10
19 (229763)	Chronic anterior poliomyelitis	+++	+	34	6	+++	+	19	2	+++	+	14	7	+++	+	5
20 (242004)	Tabes dorsalis	+++	+	96	7	+++	—	1	4	+++	+	2	5	+++	—	5
21 (118811)	Meningeal involvement	+++	—	13	4	+++	+	7	3	+++	+	28	6	+++	+	64
22 (219435)	Tabes dorsalis	+++	—	34	3	—	—	5	9	+++	+	43	5	—	+	6
23 (231016)	Early tabes dorsalis, neuroretinitis	+++	+	4	6	+++	+	72	4	+++	+	38	6	—	—	11
24 (206094)	Tabes dorsalis	+++	+	27	5	+++	+	20	3	+++	+	29	6	+++	—	3
25 (203504)	Taboparesis	+++	+	72	5	+++	+	7	6	+++	+	91	4	+++	+	4

TABLE 3.—SUCCESSIVE CELL COUNTS OF CASES SHOWING HERXHEIMER-LIKE CURVES

	Lymphocytes						
Case	Before Drainages	First Drainages	Second Drainages	Third Drainages	Fourth Drainages	Fifth Drainages	Sixth Drainages
23 (231016)	4	67	157	82	20	66	72
25 (266094)	27	43	R.B.C.	47	25	20	29
27 (292098)	R.B.C.	23	47	R.B.C.	143	74	20
25 (203504)	28	64	45	13	7	—	—
9 (244843)	87	149	49	30	—	—	—
18 (223423)	44	55	137	57	33	18	20

We have observed symptomatic Herxheimer reactions in many cases in which observations of the spinal fluid were not conducted with sufficient frequency to plot a curve of the type here presented. The reaction evidently consumes some time. It is worth while, therefore, to recall that the finding of a higher cell count on a second observation some weeks after the first is not necessarily evidence of unfavorable progress, but may on the other hand be a sign of therapeutic reaction at least theoretically encouraging.



Lymphocytes in case showing Herxheimer-like curve.

Our observation, so far as the changes in the cell count with the patient under treatment are concerned, is essentially confirmatory of the recently published work of Solomon and Klauder [6] on a provocative reaction in the spinal fluid.

STUDY OF TEN PATIENTS WITH NEUROSYPHILIS TREATED BY SPINAL DRAINAGE AND SUBSEQUENTLY BY INTRASPINAL THERAPY

Following the none too striking outcome of spinal drainage, ten of the twenty-five patients who had been drained were placed on the Swift-Ellis-Ogilvie arsphenamized serum treatment from two to nine months after completing their course of spinal drainage. While it may be argued that the previous treatment prepared the patient to some extent for the intraspinal therapy, it has been our experience that the effect of single courses followed by long rest intervals is less cumulative than is often believed, and that a comparison of the effect of subsequent treatment with earlier treatment is possible. On the other hand, in fairness to spinal drainage it must be recalled that it preceded intraspinal therapy, so that some of the effect of the Swift-Ellis treatment may be attributed to the cumulative effect of previous therapy in general. On the other hand, spinal drainage had been preceded by routine therapy in fourteen of the twenty-five cases, and in seven of those receiving both spinal drainage and Swift-Ellis treatment. The amount of treatment received prior to drainage varied from six to twenty-four arsphenamin injections (average nine injections) and fifty-four inunctions, or twenty-one succinimid injections for each patient. It is evident, therefore, that the good effect of the intraspinal therapy could scarcely be regarded as merely cumulative action on relatively untreated cases. The ineffectiveness of the drainage is, of course, made the more apparent. Table 2 gives a summary of this group. Before spinal drainage was begun, the spinal fluid was strongly positive in each case. In only one (Case 18) was the Wassermann test negative, and in this case there were 55 lymphocytes. Following the course of spinal drainage two of these nine cases (Cases 17 and 23) showed a reversal of their Wassermann reactions to negative with a fall in cell count to within normal limits. The case originally Wassermann-negative (Case 18) remained so, and the cell count dropped to 20. Seven originally Wassermann-positive cases remained so after spinal drainage with a varying amount of improvement in the cell counts. The three patients whose spinal fluid Wassermann reactions had become negative following spinal drainage returned for observation after two had rested six months and one had rested nine months. Two of the three (Cases 18 and 23) showed a complete relapse to a strongly positive Wassermann reaction in the fluid, with cell counts that had relapsed to 109 and 43, respectively. The other patient remained entirely negative, with a cell count of 2. All ten patients were then placed on the Swift-Ellis-Ogilvie form of intraspinal therapy. The average number of intraspinal injections given was approximately five, the same as the number of spinal drainages. Nine of the patients still had strongly positive fluid Wassermann reactions and marked pleocytosis when intraspinal treatment was begun.

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[6] Solomon, H. C., and Klauder, J. V.: Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis, Arch. Dermat. & Syph. 2: 679-691, 1920.

At the completion of five intraspinal treatments, five patients showed a complete reversal of the spinal fluid-Wassermann reaction to negative as compared with two after drainage, with a marked fall in cell count to 11 or below. In Table 2 the marked difference in response of the same patients to the two methods of treatment is more apparent. Three of the five patients are still under observation and have not relapsed.

COMPARISON OF SPINAL DRAINAGE WITH ROUTINE INTRAVENOUS THERAPY

A comparative study was now undertaken of fifty cases chosen at random from our files in which only arsphenamin intravenously and mercury in the form of inunctions or the intramuscular injection of a soluble salt were administered. In other words, the cases paralleled the spinal drainage cases without the spinal drainage. The same number of arsphenamin injections and approximately the same amount of mercury were given each patient in this group as were given to patients who received drainage. The average cell count in these cases before treatment was 73 as compared with 61 in the drainage cases; at the conclusion of treatment the count was 20 and 19 cells, respectively. In other words, the responses of the cell count to treatment was as good in the cases routinely treated as in the drainage cases. Of the fifty patients without spinal drainage, thirty-four gave Wassermann-positive reactions on the spinal fluid before treatment. Ten of these thirty-four (29.4 per cent.) were Wassermann negative at the completion of their course. On the other hand, the spinal fluid Wassermann reaction was reversed in only two (9.5 per cent.) of twenty-one patients with spinal drainage. It seems probable, therefore, that routine standard treatment alone is as effective as routine treatment plus spinal drainage. The discrepancy in favor of routine methods without drainage may perhaps be due to an unconscious selection of somewhat more refractory cases for the treatment by drainage.

CONCLUSIONS

Without making any pretense at setting forth final conclusions in the matter, in view of the difficulty of establishing adequate controls in a clinical investigation of this type, we may state that in our experience:

1. A comparison of the findings on patients receiving spinal drainage in conjunction with arsphenamin intravenously and routine mercurialization, and the findings on patients receiving an equal amount of routine treatment without spinal drainage, demonstrates no superiority in favor of the drainage method.
2. The most immediate change produced by either of these methods of treatment is in the cell count.
3. A transient but marked rise followed by a fall toward normal limits occurred in patients receiving spinal drainage, and we have reason to believe that a similar Herxheimer-like curve of pleocytosis accompanied by transient exacerbation of symptoms occurs in many patients under treatment for neurosyphilis by routine methods.
4. Temporary rise in the cell count early in the course of treatment should not therefore necessarily be regarded as of unfavorable prognostic significance.
5. In ten patients in whom spinal drainage had produced indifferent results, the administration of arsphenamized serum intraspinally some months later produced what appeared to be more satisfactory and more permanent results.

GALLBLADDER DISEASE

REPORT OF TWO HUNDRED AND THIRTY CASES*

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WORCESTER, MASS.

Memorial Hospital records show 230 operative gallbladder cases from Jan. 1, 1910, to June 1, 1919. Of the patients, 221 were women and nine, men. To each patient or to the patient's physician a form letter was sent, and all but ten were answered. In this way it was possible to learn their present state of health, any symptoms persisting and the presence of any sequelae, such as a discharging sinus or postoperative hernia. Furthermore, if they had required subsequent operative interference, the nature of the operation was carefully investigated.

The average age was 44 years. The oldest was a man, aged 72, and the youngest a boy, aged 17. Both of these patients enjoy comparatively good health today, over a period of six years. Moynihan [1] notes an average age of from 40 to 45 years in gallbladder disease.

In studying the history of our 230 patients with a view to ascertaining possible etiology, four were found giving a history of typhoid fever, and a fifth came in with the disease well advanced in the fervescent stage and complicated by an acute cholecystitis. At operation no stones were found, a pure culture of *Bacillus typhosus* was obtained, and the gallbladder was successfully drained. This patient reports uninterrupted good health ever since the operation and recovery from typhoid fever, five years ago. Fifteen patients had had pelvic inflammatory disease; twenty gave histories of severe and frequent attacks of tonsillitis, and ten had had pneumonia. One patient was found to have, in addition to gallstones, a severe ulcerative condition of the upper jejunum. The lumen of the bowel was being encroached on, so a lateral anastomosis was done with apparently good results. In favor of the focal infection theory, one case especially stood out. One of the nurses in training was admitted, in October, 1914, with an acute coryza; her symptoms subsided under treatment and she felt well, until at the end of a week she was seized with violent gastro-intestinal symptoms. She vomited, and developed jaundice. There was moderate tenderness over the entire abdomen, but no localized pathologic area could be noted at the time. Her symptoms having subsided, she was discharged apparently well, November 12. One month later she was readmitted with tonsillitis of the follicular type. From the crypts a streptococcus was grown. This patient did well until December 28, when another series of abdominal pains began which localized in the upper right quadrant. Operation was performed immediately. An acute condition of the gallbladder was found and drained. From the gallbladder contents a streptococcus having the same characteristics as that found in the throat was obtained. This patient has remained well for six years.

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* From the Surgical Service of Memorial Hospital.

* Read before the Worcester District Medical Society, Jan. 12, 1921.

[1] Moynihan, B. G. A.: Gall Stones and Their Surgical Treatment, Ed. 2.

TABLE 1.—TYPES OF CASES AND TREATMENT *

Types of Cases	No.	Per Cent.	Treatment	No.	Per Cent.
Simple acute cholecystitis	36	15.7	Cholecystostomy.......	151	65.6
Acute and chronic cholecystitis with stones	175	76.0	Cholecystostomy with choledochostomy	4	1.8
Empyema with stones....	10	4.3	Cholecystectomy.......	72	31.4
Carcinoma (not proved to be primary)	2	0.8	Choledochotomy with cholecystectomy	1	0.4
Stones in gallbladder and common duct	6	2.8	Choledochostomy alone	1	0.4
Stones in common duct alone	1	0.4	Cholecystotomy.......	1	0.4
Total...............	230	100.0	....	230	100.0

* The average number of days in the hospital following operation was: with drainage of gallbladder and ducts, 23.3 days; with removal of gallbladder with and without drain, 20.6 days.

Among the 221 women, 90 per cent. had had one or more children, a factor which must be considered, for pregnancy seems to have a bearing on the formation of gallstones.

The incidence of a coexisting pathologic condition of the appendix must be considered. An adequate gallbladder incision should allow for a routine examination of the appendix when there is no danger of spreading an infection into the lower quadrants. Deaver[2] contends that the appendix is guilty in the majority of the cases of upper abdominal ailments, and that the gallbladder is probably second. Furthermore, at operation, it is not always possible to place the blame, and therefore it becomes necessary to remove both. In our 230 cases, the appendix was found diseased twenty-six times. It was removed fifteen times during drainage operations on the gallbladder and eleven times during cholecystectomy. Ninety-two per cent. of these patients report excellent health over a period of from three to nine years.

In 230 cases there were thirteen deaths, or 5.3 per cent.

Smithies reports 6 per cent. of deaths in 1,000 cases; C. H. Mayo,[3] 4.6 per cent. in 1,767.

TABLE 2.—CAUSES OF DEATH IN TEN CASES WITH DRAINAGE *

Disease	Cause of Death
Empyema of gallbladder with stones....	Peritonitis
Cholelithiasis............................	Facial erysipelas and septicemia
Acute cholecystitis.......................	Peritonitis
Cholelithiasis............................	Acute cardiac dilatation
Cholelithiasis............................	Chronic valvular disease and peritonitis
Cholelithiasis............................	Pulmonary embolus
Cholelithiasis with ruptured gallbladder	General peritonitis
Cholelithiasis with deep jaundice........	Postoperative hemorrhage
Empyema of gallbladder................	Acute hemorrhagic pancreatitis
Cholelithiasis............................	Peritonitis

* Ten deaths in 151 cases, 6.6 per cent.

Complications were noted six times. One cholecystectomy became obstructed on the sixth day. Dense adhesions about the hepatic flexure were found at operation. The patient made an uneventful recovery, after these were freed. Two primary wound infections occurred in drained cholecystectomies. One postoperative pneumonia was found with subsequent wound infection. A two months' miscarriage on the twentieth day after cholecystostomy required curettage, and in two other cholecystostomies the patients acquired right sided femoral phlebitis.

TABLE 3.—CAUSES OF DEATH IN THREE CASES WITH CHOLECYSTECTOMY *

Disease	Cause of Death
Cholelithiasis with existing cholecystduodenostomy.....	General peritonitis
Cholelithiasis....................	Acute cardiac dilatation
Empyema with stones...........	General peritonitis and pancreatitis

* Three deaths in seventy-three cases, 4.1 per cent.

Operative results were estimated from a series of 207 replies out of 217 communications. Among these 207 patients, 199 were women and eight men.

A consideration of the cases in which cholecystectomy was performed shows seven with improvement and five with no results following the operations. Two of the latter patients died within eight months after operation from general abdominal carcinoma. These were the cases in which excision of malignant gallbladders was performed. Three patients report postoperative hernias. One of these had primary infection after operation, and another had a secondary infection following ether pneumonia. Two patients operated on in 1915 had trouble within six months after leaving the hospital. Their chief symptoms were persistent indigestion, occa-

TABLE 4.—OPERATIVE RESULTS

		Well		Improved		Unimproved	
Operations	Total	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Cholecystostomy...............	135	97	71.8	25	18.4	13	9.8
Cholecystectomy...............	70	58	82.8	7	10.0	5	7.2
Choledochotomy...............	1	1	100.0				
Choledochotomy with cholecystectomy	1	1	100.0				

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2. Deaver, J. B.: Operation and Reoperation for Gallstone Disease, J. A. M. A. 74: 1061 (April 17) 1920.

3. Mayo, C. H.: Collected Papers of the Mayo Staff, 1915.

sional regurgitation of food, and constipation. One required operation within the year, and the other at the end of twenty months. Both showed dense adhesions involving the hepatic flexure and duodenum. These were freed, and both patients made excellent recoveries, each reporting good health over a period of three or four years.

Twelve patients who underwent cholecystostomy were not relieved by gallbladder drainage and came to subsequent cholecystectomy. Of these, two came to the complete operation within ten weeks, two within one year, three within two years, and the remainder within from three to five years. One of the latter who was operated on in 1919 showed early malignancy, apparently primary, a condition which could have been obviated had excision been done at first. Adhesions were found in all cases, and 75 per cent. were complicated by cholelithiasis. As all of these patients had primary gallbladder drainage with unsatisfactory results and secondary cholecystectomy with good results over a period of from one to eight years, I think it only fair that we put them down to the credit of cholecystectomy.

Of the drainage cases, twenty-five patients were improved. That is, over a period of from one to nine years they were able to attend to their housework, had one or more pregnancies, and noted only some increase in constipation and a certain degree of gastric symptoms. Twelve of these patients had died, but their husbands or other relatives kindly gave me the required information. The average life was thirty months after operation. One patient developed acute intestinal obstruction two years after operation. She was brought to the hospital in a moribund state, and laparotomy revealed dense adhesions about the hepatic flexure. The causes of death in the other cases were: pneumonia, three; Bright's disease, two; gastric and pancreatic carcinoma, one; uterine carcinoma, one; mammary carcinoma, one; cardiac disease, three, and diabetes, one. Of the remaining thirteen patients who have had little or no relief from operation, four report postoperative hernia; six have occasional gallbladder colic, with or without jaundice, constipation and persistent indigestion. Three of these six had persistent sinuses from one to two years, but are healed at present. Two still have persistent sinus, after a period of twelve and eighteen months, respectively. The sixth patient, after enjoying four years of health, suddenly developed, last winter, a swelling in the region of the old closed sinus. After rise of temperature, abdominal discomfort and jaundice for a week, the sinus reopened spontaneously and a large amount of mucopurulent bile was evacuated and a large gallstone was passed by rectum. Her symptoms subsided rapidly and her condition is satisfactory at present. Four patients have received no benefit whatsoever. They report the same symptoms noted before operation.

The foregoing statistics are, of course, based on a comparatively small number of cases. Were there more, the percentages of relief following the operation probably would be less. Thus, C. H. Mayo,[3] in a series of 242 cholecystostomies, reports 53 per cent. cured; 38 per cent. improved and 9 per cent. not improved; and of 219 cholecystectomies, 71 per cent. cured, 22 per cent. improved and 7 per cent. not improved.

The mortality in cholecystostomy is greater than that noted in cholecystectomy (6 per cent. as against 4.1 per cent., or approximately 3 to 2). Furthermore, the actual results in cholecystectomy are more satisfactory, from 10 to 20 per cent. more cures being effected. Another interesting factor arises when we consider the gallbladder patient who returns for a second or even a third operation. In our cases thirteen patients returned for their second operation after drainage of the gallbladder. One of these was redrained, but obtained relief only after a complete removal a year later. The other twelve obtained relief after cholecystectomy was performed. Primary cholecystectomy apparently incurred the need for further operative interference far less, for only two returned, and these were relieved by simple freeing of the adhesions. Deaver [2] found that out of fifty-one patients with gallbladder disease returning for operation, thirty-six had had cholecystostomy and fifteen had had cholecystectomy; and in another series of his personal patients, 10 per cent. had had primary cholecystostomy and only 1.3 per cent. had had cholecystectomy. In view of all these statistics, the complete excision of the diseased part seems to offer better results.

By the use of the duodenal tube, Lyon [4] is able to withdraw bile from the common duct, gallbladder and hepatic ducts. This physiologic type of drainage is based on Meltzer's theory of contrary nerve innervation, the sphincter of Oddi first being relaxed by the passage of magnesium sulphate solutions into the duodenum without touching the gastric mucosa.

The procedure as it now stands can offer little from the standpoint of treatment in real cases of acute gallbladder disease and cholelithiasis. But with the possibilities it offers of fractional biliary removal so that the bile from the various parts can be examined microscopically as well as grossly and bacteriologically, a new avenue for accurate diagnosis has been opened.

REMOVAL OF THE GALLBLADDER WITHOUT DRAINAGE

FURTHER OBSERVATIONS *

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The modern tendency is strongly against the promiscuous use of drainage after operations on the pelvic or lower abdominal organs. Moynihan [1] expresses the opinion of the majority of surgeons when he says: "Now, thanks largely to the work of Clark and others, who have studied the question with great care, we know that, when employed as a routine measure, drainage is rather a means of sepsis than a measure of escape from its effects. Drainage of the peritoneal cavity is very rarely necessary." The experience gained in the treatment of wounds during the World War has served to strengthen this view, and a generally felt prejudice against the use of drains in these patients is seen in several articles that have recently appeared in the British journals.

In addition to serving as a pathway for the entrance of infection, drains inevitably weaken the abdominal wall, protract the convalescence, and promote the formation of adhesions. Observations that I have been able to make recently have served to impress me with the uselessness of drainage in experimental peritonitis of the dog; for in the cases in which drainage was used, there was a walling off of the drain within a few hours, the omentum becoming adherent around the drain, which certainly seemed to prevent the latter from removing any of the peritoneal exudate, and, moreover, the animals that were closed without drainage did fully as well as those in which drainage was used. So strongly have I been impressed that I ventured recently to close without drainage the peritoneal cavity of a patient suffering from penetrating wounds of the abdominal wall with perforations of the large intestine, a rapid and uneventful recovery resulting.

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[4] Lyon, B. B. V.: New York M. J. **112**: 23 (July 3) 1920; **112**: 56 (July 10) 1920.

*Read before the Medical Society of Virginia, Petersburg, Va., Oct. 26-29, 1920.

[1] Moynihan, G. A.: Abdominal Operations, Philadelphia, W. B. Saunders Company, 1905, p. 33.

It is unnecessary, however, to argue in favor of the strict limitation of the use of drainage after operations involving the pelvic or lower abdominal organs; this principle is too well recognized by the progressive surgeon. It is surprising, however, in view of the consensus regarding the undesirability of drainage here that so little attention has been paid by the rank and file of surgeons to the question of omitting drainage after operations on the biliary tract.

Three years ago, I[2] published the report of my results after nearly five years' experience in omitting drainage following cholecystectomy. In a series of thirty-eight cases, there was only one death, the convalescence was shortened, and permanent relief appeared to be secured in a much larger proportion of cases than by the older procedure of prolonged drainage. The method was adopted at the Mayo Clinic, and recently, papers by Richter[3] and Bottomley[4] have appeared, both of these authors reporting excellent results. In spite of these favorable reports, the omission of drainage after cholecystectomy has not been generally adopted, a condition which I consider deplorable, for nowhere else will the evil results of unnecessary drainage be more apparent than when the bile passages are involved. Halsted,[5] in a recent communication commending the attitude of Richter in omitting drainage after operations on the common duct, states that the nutritional disturbances resulting from the exclusion of bile from the intestine are more serious consequences of drainage than is the formation of adhesions. It is my opinion, however, that this exclusion of bile is of secondary importance, because bile can be temporarily supplied by its oral administration, a procedure I have found quite efficacious in preventing marked disturbance when the natural supply is prevented from entering the intestine. In reporting the results of experiments carried out on dogs, I showed that bile alone spilled in the peritoneal cavity tended to cause adhesions; but when the bile was contaminated with pathogenic micro-organisms, adhesions of an extent and density seen nowhere else in the abdominal cavity were produced. More recently, I have found that ligating the common duct in dogs results in the ligature cutting through and allowing bile to escape into the cavity. When animals survive this procedure, which they did with surprising frequency, the continuity of the common duct being reestablished, it is difficult to describe the extent and character of the resulting adhesions. These observations are in keeping with clinical experience, for secondary operations on patients that have been already subjected to operation on the bile passages followed by drainage reveals widespread, dense adhesions. It is hard to conceive that this matting together of the adjacent structures would not cause decided functional disturbance and be responsible for the persistence of symptoms and the return of the patient for further surgical treatment.

In the preceding discussion, I have attempted to show the deleterious consequences that are certain to follow the prolonged use of drainage after cholecystectomy. What plausible arguments can be urged in favor of employing the pack or drain after this operation?

First, in cases of persistent oozing of blood, that it may be unsafe to close without drainage. The frequency of this occurrence, as judged by my own experience, has been much exaggerated. It has been very unusual for me to encounter a case in which a dry pack left in a short while did not effectually check this oozing.

Second, to allow the escape of infectious or otherwise noxious material. If, as Moynihan points out, the drain more often serves as a means of ingress rather than escape for infectious material in other abdominal operations, why should not the same be true when we are dealing with the bile passages? Bile in the peritoneal cavity, unless in enormous amounts, does not seem to endanger life; the greatest injury that it is usually capable of is the formation of adhesions. This was illustrated by the experiments already mentioned, in which a tight ligature was placed around the common duct. This ligature cut through eventually, allowing the escape of bile into the cavity, but a considerable proportion of the dogs survived. Since the pack or drain saturated with bile is even more productive of adhesions than the bile alone, one cannot hope to gain by attempting to remove bile in this way. If bile is spilled in the cavity, it is my practice to wash it out with saline solution, the latter being removed from the cavity by means of an electric suction apparatus. By this means, the peritoneum is much more thoroughly cleaned than would be possible by drainage. Following the operatic technic that I have described elsewhere, there is scarcely any possibility of more bile escaping after the completion of the operation of cholecystectomy; for, with a patent common duct, it flows into the intestine and the pressure within the duct is not unduly elevated. The development of my present technic has been a gradual evolution. In the beginning, realizing that the opinion held by the leading surgeons was utterly opposed to the omission of drainage, I always employed drains in cases of the least doubt, erring on the side of overconservatism. Impressed by the fact that, when two or more ligatures are placed at different levels on the cystic duct at time of operation and drainage is employed, no evidence of staining ever occurred, I have come to feel that the cases which drainage benefits are extremely rare.

In the three years that have followed the appearance of my earlier paper, it has been possible for me to extend my observations on the results of omission of drainage after cholecystectomy; the patients having been treated in this way now number seventy-two, with two deaths. At necropsy of the two fatal cases there was no evidence of leakage from the stump of the cystic duct. The same salient features were observed in the patients in the latter part of this series as were reported in the earlier paper; a shortened and more comfortable convalescence, and a larger proportion of patients obtaining permanent relief. The essential features of the operation as originally described remain the same. Richter has modified my technic by leaving the stump of the cystic duct free in the peritoneal cavity, considering that I have been guilty of a "peculiar basic error" in covering it with peritoneum. I must confess that I am unable to see why this covering the raw surface constitutes a "basic error," and my results would indicate that the "error" has not been followed by disaster. Indeed, it seems to be a generally accepted rule that any raw surface in the peritoneal cavity should be so covered.

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[2] Willis, A. M.: Cholecystectomy Without Drainage, J. A. M. A. **69**: 1943 (Dec. 8) 1917.

[3] Richter, H. M.: The Technique of Gall Bladder and Common Duct Surgery, Surg., Gynec. & Obst. **29**: 455 (Nov.) 1919.

[4] Bottomley, J. T.: The Question of Drainage in Cholecystectomy, Boston M. & S. J. **183**: 232 (Aug. 19) 1920.

[5] Halsted, W. S.: The Omission of Drainage in Common Duct Surgery, J. A. M. A. **73**: 1896 (Dec. 20) 1919.

CONCLUSION

I would emphasize again that the omission of drainage after the majority of the operations of cholecystectomy is a procedure that is perfectly safe, and that the results obtained by such omission are distinctly superior to those following the older method of packing or draining with gauze. This is indicated clearly not only by my own results but also by those obtained by other surgeons, and it is my earnest hope that the omission of drainage in such cases will be more widely tried, for I am thoroughly convinced that the surgeon who makes an impartial test will become a convert.

BRONCHIECTASIS AND BRONCHITIS ASSOCIATED WITH ACCESSORY SINUS DISEASE

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Up to the year 1916, medical literature contained little of note associating bronchiectasis and chronic bronchitis with diseases of the upper air passages. The removal of adenoids in children had long been recognized as benefiting repeated or persistent bronchitis. The occurrence of nasal polypi was connected with bronchial asthma. It remained for the French to instruct us in the importance of careful nasal examinations in all cases of chronic cough not due to tuberculosis.

During the World War, all the nations engaged were confronted with the difficulties in the diagnosis of pulmonary tuberculosis, a matter which became especially serious for France.

In 1914, St. Clair Thompson,[1] discussing the complications of sinus disease, wrote: "The same cause [nasal and sinus suppuration] often explains the inveteracy of bronchorrhea."

In 1916, Rist[2] called attention to the association of chronic bronchial cough—too frequently considered in the French "triages" as due to tuberculosis—with chronic disease of the nasal sinuses. Rist compared the respiratory tract with the urinary tract, cystitis being so frequently the consequence of renal infection.

Sergent,[3] another French army officer, at once corroborated Rist's statements in a publication on cases entitled "faux tuberculeaux." Sergent reported that incorrect diagnosis had been made in one third of the cases of the supposedly tuberculous soldiers, and that most of these mistakes were in men who had on more thoughtful investigation chronic bronchitis associated with chronic infection of the nose or of the nasal sinuses.

Both Rist and Sergent insisted that correction of the nasal disease brought about cure of the bronchitis.

It was the privilege of one of us[4] to be associated with Rist and Sergent during 1918, and to call attention to their work when similar conditions arose in the American Expeditionary Forces.

In 1919 one of us[5] briefly referred to the failure of internists to realize the dependence of many forms of bronchiectasis and chronic bronchitis on disease of the accessory sinuses, and it appears that physicians still do not request thorough investigation of the nose in such conditions.

Mullin and Gilbert,[6] in 1920, laid further emphasis on such associated conditions.

Since 1918 we have made roentgen-ray examinations of the accessory sinuses in all cases of chest disease, when the sputum proved repeatedly negative to the tubercle bacillus. The results have fully confirmed the French writers. Few cases of bronchiectasis or of chronic bronchitis have been found in which chronic infection of the accessory sinuses was not demonstrated. Bilateral empyema of the antrums is most frequently encountered. At times all the sinuses are involved. The findings have been invariably proved correct by the opening and washing of pus from these sinuses. Such pus usually contains pneumococci, similar to those found in the sputum.

Our cases have been of long standing, and in consequence the relief and the improvement of the cough, even with the additional postural drainage of the chest, have not been so marked as in the cases of shorter duration reported from France.

We have been especially impressed that the history in many cases was negative to nasal disease, the patients denying pain, nasal discharge, or any sign suggesting nasal infection. They have been most surprised at the results of the investigations, having for the most part been treated over varying periods for pulmonary tuberculosis.

REPORT OF CASES

The accompanying reports of three cases, from a series of thirty-eight, well illustrate the association of bronchiectasis or of chronic bronchitis with suppuration of the nasal sinuses:

Case 1.—Mrs. F. B., aged 29, whose family history was negative, had measles at the age of 15, followed by complete recovery. An operation for appendicitis was performed thirteen years ago. Both breasts were removed for tumor ten years ago. The patient had influenza two years ago. She has taken cold very easily and often for years. These colds were always in the chest. She has had a slight discharge from the nose and nasopharynx for years. She has never had headaches of any kind. A few days after ether anesthesia thirteen years ago she took a severe cold in her chest but did not have pneumonia. She has coughed and expectorated ever since, and has been worse by spells. The sputum comes up easily, in thick, yellow pus with a bad taste and odor, and has reached 12 ounces daily at times. There have been slight, scattered pains in the chest occasionally. She has lost 10 pounds in weight. The temperature has been normal all the time. The pulse has varied from 80 to 90. The important points in the examination are: The patient expectorates profusely when in the inverted position. There are coarse, moist râles and rhonchi scattered over both lungs, more numerous at the bases. The sputum contains no tubercle bacilli, but many streptococci, pneumococci and *Micrococcus catarrhalis*. The urine is normal, hemoglobin, 74 per cent. Roentgen-ray examination of the sinuses shows both antrums opaque. Pus from the antrums contains pneumococci.

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[1] Thomson, St. Clair: Some of the Symptoms and Complications of Sinusitis, Practitioner, London, June, 1914, p. 745.

[2] Rist, E.: Les principes du diagnostic rationnel de la tuberculose pulmonaire, Presse méd. **24**: 305 (July 13) 1916; Le diagnostic differential de la tuberculose pulmonaire et les affections chroniques des fosses nasales, ibid. **24**: 321 (July 24) 1916.

[3] Sergent, E.: Histoire suggestive de quelques faux tuberculeux; diagnostic de la tuberculose pulmonaire et des affections des foies respiratoires supérieures, Bull. et mém. Soc. méd. d. hôp. de Paris, July 28, 1916. Journal statistique d'un centre de triage, J. de méd. et de chir. prat., Sept. 10, 1918.

[4] Webb, G. B.: Symposium on Tuberculosis, War Medicine, Paris, January, 1919.

[5] Webb, G. B.: Some Lessons of the War in Tuberculosis, Tr. Am. Climat. & Clin. A., 1919.

[6] Mullin, W. V., and Gilbert, G. B.: Relation of Sinus Disease to Disease of the Chest, Tr. Mid-West. Sec. Am. Laryng., Rhin. & Otol. Soc., February, 1920.

Case 2.—Mr. D., aged 26, whose family history was negative, was said by his mother to have had pneumonia three times as a child. He had an attack of pneumonia four years ago. He has had chronic catarrh in his head for many years and frequent pains over his eyes. He has been coughing and raising sputum for several years. The onset was gradual, and the patient can give no definite date as to when it occurred. He was rejected by the army in 1917 because he was considered tuberculous. He spent a year resting in a health resort, but the cough and expectoration increased. There was no fever at any time. The pulse ranged between 70 and 80. The cough was not increased by working. Examination of the lungs disclosed decreased breath sounds and many coarse, moist râles over both bases, with a few medium coarse râles over the upper portion of the left lung. The sputum contained no tubercle bacilli at any time, but many pneumococci. Roentgen-ray examination of the sinuses reveals pansinusitis, both antrums being especially opaque.

Case 3. — Mrs. L., aged 28, whose family history was negative and whose personal history was not important, had had headaches for a year while in school. These were apparently relieved by glasses. She has been coughing and expectorating profusely for fifteen years. She has had considerable discharge from the nose most of this time. The sputum tastes bad and amounts to 8 ounces a day. She coughs and expectorates more when she first lies down. She is thin and anemic. There are many moist râles scattered over the lower half of each lung. Blood examination reveals: hemoglobin, 82 per cent.; leukocytes, 12,000; polymorphonuclears, 74 per cent. The sputum contains no tubercle bacilli but some staphylococci and pneumococci. Roentgen-ray examination of the sinuses reveals the right antrum opaque.

PREVENTION OF CHRONIC CHEST DISEASE

The route of infection of the lung from the nasal sinuses is not yet clear. Experiments of Mullin and Ryder[7] indicate that direct lymphatic absorption is possible, especially in cases in which there is little escape of pus from the sinuses. With free escape of pus they feel that direct inhalation may explain the associated disease.

From the foregoing review it is at once evident that it is the internist who must first suspect the nasal or sinus disease, and that if we are to prevent such chronic chest disease, early attention must be directed to the upper air passages and appropriate treatment initiated.

402 Burns Building.

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[7] Mullin, W. V.: The Lymph Drainage of the Accessory Sinuses, Tr. Am. Laryng., Rhin. & Otol. Soc., 1919. Mullin, W. V., and Ryder, C. T.: Experimental Lesions of the Lungs Produced by Inhalation of Fluids from the Nose and Throat, Am. Rev. Tuberc. 4: 683 (Nov.) 1920.

The Road to Investigation.—Reflection breeds speculation and leads to understanding and discovery.—H. Sewall, *Am. Rev. Tuberc.* **4**:824, 1921.

CLINICAL EVIDENCES OF ACIDEMIA IN CHRONIC NEPHRITIS

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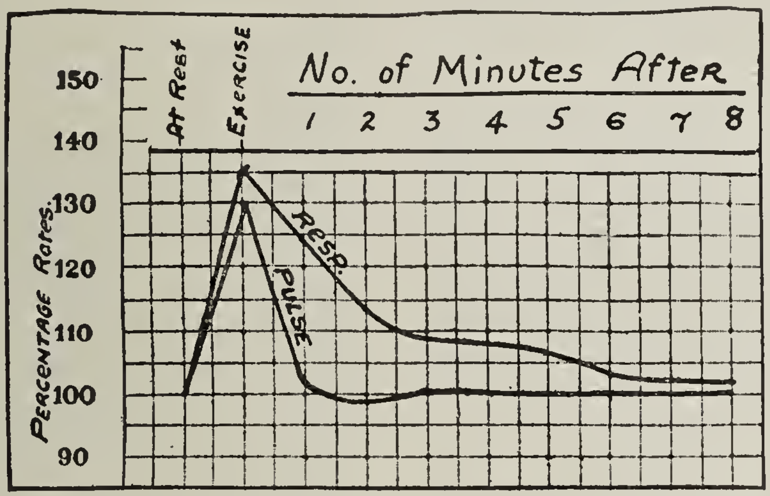
Elsewhere I[1] have emphasized the clinical evidence of acidemia in even early cases of chronic nephritis. It was shown that in ninety-five out of a hundred cases in which nephritis had been present under three years, there was a special kind of dyspnea that seemed unexplained by the heart. In the present article I will give further observations.

Frequently, one sees a nephritic who is dyspneic after mild exertion, but whose heart is not enlarged and whose heart rate rises and falls in a normal manner after exercise. A chart embodying the average respiration and pulse response to exercise in 100 cases of early chronic nephritis is reproduced here. The tardiness with which the respirations approach their rest rate is readily seen to be in contrast with the quicker (and normal) slowing of the heart rate.

Although not more than 20 per cent. of patients make a complaint of their dyspnea, since in mild cases it is not troublesome, 95 per cent. admit having it, when questioned, and its presence can be proved by testing the reaction of the respiration rate to exercise.



Average respiration; pulse response to exercise in 100 cases of early chronic nephritis; the rates are calculated to percentages of rest rates, which are taken as 100.

I am writing only of noncardiac dyspnea. For the purpose of distinguishing it from heart dyspnea, two observations are helpful:

1. It has no accompanying cyanosis.

2. It is speedily removed by the administration of sodium carbonate by the mouth.

It is remarkable how, after, say, four doses (20 grains each) of the alkaline salt, the most extreme dyspnea of this type subsides, and usually disappears altogether. There is then no dyspnea of any kind left, thus proving that the heart had no part in causing the respiratory distress.

From a study of more than 100 cases of chronic nephritis, it is apparent that various degrees of this dyspnea occur. Some patients (5 per cent.) show none at all. The majority have it, but not sufficiently to complain of it. Perhaps a fifth of them will mention it; and, finally, in about 5 per cent. of cases it is the most distressing symptom.

The degree of this dyspnea, in any given case, cannot be predicted by reference to the degree of renal damage. To illustrate:

J. S. and R. D. both had such extreme dyspnea (noncardiac) that it was distressingly present even when they were lying at rest; in J. S. the phenolsulphonephthalein test showed 50 per cent. in two hours, but in R. D. only 16 per cent.

On what factors the degree of the dyspnea depends is uncertain. No doubt the degree of acidemia and the degree of sensitiveness of the respiratory center are cardinal considerations. But, beyond these again, why should the blood of a nephritic be unable to rid itself of the acids of exercise as quickly as the blood of a normal individual? The explanation probably does not lie in the fact of lowered renal excretion, because (as seen above) the 50 per cent. patient may be as dyspneic as the 16 per cent. patient.

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[1] Cornell, B. S.: A Clinical Study of Chronic Nephritis, Canad. M. Month. **5**: 257 (July) 1920.

VALUE OF DETECTING ACIDEMIA

The practical value of clinical detection of acidemia is twofold:

1. *In Early Diagnosis.*—A syndrome of lumbar pain, frequency (day or night) and dyspnea of noncardiac origin is suggestive of incipient nephritis, even in the absence of albumin. Noncardiac dyspnea is a very early symptom in nephritis and has frequently led me to prolong the search for albumin with ultimate success, even though the albumin was absent as long as two weeks.

2. *In Treatment.*—The physician will frequently meet a nephritic whose distressing dyspnea fails to respond to digitalis; he has no cyanosis or cardiac enlargement or signs of cardiac decompensation. To this patient sodium bicarbonate (pure) in sufficient doses gives prompt relief. So far as I know, there is no contraindication to its use. The only caution, perhaps, should be not to render the urine alkaline for too long a period, thereby facilitating phosphatic deposits.

VISUAL EFFECTS

It is interesting to note that in fully half the cases, color changes in the light from an electric bulb are described by the patient during his dyspneic period after exercise. To some the light becomes red, to others blue, green or variegated. The delusion lasts almost as long as the dyspnea lasts and, furthermore, once the patient is put on large doses of sodium bicarbonate, this delusion is no longer experienced.

RESULTS OF OPERATION FOR VARICOCELE *

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During the period immediately preceding and after the entrance of the United States into the World War and while recruiting was in active progress, a large number of operations for varicocele were performed on young men in order to permit their entrance into the army or navy. As a result of one of these operations in which the ligation of the veins was followed by the development of a hydrocele, a suit for alleged malpractice was brought.

A search of the American literature at this time, in order that the highest medical authorities on the subject might be quoted, revealed the following:

Keyes' "Urology," published in 1917,[1] in the portion of the book devoted to the operation for varicocele, states nothing as to either hydrocele or atrophy of the testicle resulting secondarily from the operation.

Chetwood,[2] in his "Practice of Urology," published in 1916, states that "in some instances traumatic hydrocele develops."

Cabot,[3] in his "Modern Urology," published in 1918, states that "traumatic hydrocele is a rare sequel."

Morton,[4] in "Genito-Urinary Disease and Syphilis," published in 1918, states that "atrophy of the testicle exceptionally follows either high or low operation, even when the vas is not included in the ligature." He says nothing about hydrocele.

The modern textbooks on surgery are no closer to the facts than most of the books on urology.

Gask and Wilson,[5] in their textbook on surgery, published in 1920, discuss the merits of the high and low operation and say: "The former operation is the simpler and better, and the scar is approved by the members of the various examining boards. *There is no risk of recurrent hemorrhage or of a vaginal hydrocele appearing later,* a hydrocele being a common complication of the low operation."

In the "Oxford Surgery," published in 1918, the article on varicocele is written by Burghard,[6] who does not mention the after-results, nor is it mentioned in the latest volume of Da Costa's [7] "Surgery" or in the new "Lehrbuch der Chirurgie" by Garrè and Borchard,[8] published in 1920.

Warbasse,[9] in his "Surgical Treatment," published in 1919, writes that "the ordinary operation of resection of the veins often fails to secure just the necessary physiologic balance of circulation, and pain and nutritive disturbances follow." He says nothing of hydrocele.

Keen's [10] "Surgery," although published in 1908, is a favorite book of reference for the legal expert. It says: "The results under modern technique are excellent. A cure, as far as the real discomforts resulting from the enlarged veins can almost always be obtained."

Among the textbooks on urology it was only in an English book by Thomson Walker,[11] "Genito-Urinary Surgery," that any evidence of the frequency of hydrocele as a sequel of varicocele operations was considered with any detail or an approach to the actual facts in the case. He writes "I have frequently seen hydrocele of the tunica vaginalis follow the operation even in the hands of competent surgeons," and he quotes an article by Corner.[12] He states that Corner found hydrocele in 23 per cent. of the cases, most of which apparently developed soon after operation. The article by Corner is based on reports of 100 cases which he examined, out of 500 operations for varicocele which were performed on patients previous to admission to the British army. He writes "Hydroceles, consequent upon varicocele operation, are of two kinds, one large and tense which is noticed by the patient, the other small and flaccid which is not noticed by the patient. The former were present in 8 per cent. of the cases, the latter in 15, a total of 23 per cent." He mentions the fact that hydrocele may appear two years after the operation. He also reports two cases of spermatocele, making 2 per cent.; recurrence of varicocele in 2 per cent.; testis harder in 90 per cent.; the testicle enlarged in 55 per cent.; smaller than the gland of the opposite side in 21 per cent.; thickening of the vas deferens in 8 per cent.; sensibility of testis lost in 2 per cent., and orchitis in 5.6 per cent., immediately following operation.

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* Read before the Surgical Section of the New York Academy of Medicine, Jan. 7, 1921.

[1] Keyes, E. L., Jr.: Urology, New York, D. Appleton & Co., 1917.

[2] Chetwood, C. H.: Practice of Urology, New York, William Wood & Co., 1916, p. 326.

[3] Cabot, Hugh: Modern Urology, Philadelphia, Lea & Febiger **1**: 482, 1918.

[4] Morton, H. H.: Genito-Urinary Disease and Syphilis, St. Louis, C. V. Mosby Company, 1918, p. 596.

[5] Gask and Wilson: Surgery, 1920, p. 1112.

[6] Burghard, F. F.: Varicocele, in Oxford Surgery, 1918.

[7] Da Costa, J. C.: Modern Surgery, Philadelphia, W. B. Saunders Company, 1919.

[8] Garrè and Borchard: Lehrbuch der Chirurgie, 1920.

[9] Warbasse, J. P.: Surgical Treatment, Philadelphia, W. B. Saunders Company **3**: 318, 1919.

[10] Keen, W. W.: Surgery **4**: 615, 1908.

[11] Walker, J. W. T.: Genito-Urinary Surgery, 1914, p. 827

[12] Corner: Brit. M. J. **1**: 191 (Jan. 27) 1906.

In the American literature, Bloodgood[13] protested against the number of varicocele operations which were being performed on recruits for the army and navy. He stated that in sixteen cases of low operation for varicocele, six were traced. Of these patients, one had atrophy of the testicle and one had hydrocele. In the high operations, seventeen of twenty-nine patients were followed up; none had atrophy of the testicles, but five had hydroceles, which was almost 30 per cent. He says: "Hydrocele, therefore, may follow the operation for varicocele even after the most approved method, in which after operation there is no swelling of the testicle or thrombosis of the vein."

RESULTS AT ST. LUKE'S HOSPITAL

There were 303 patients operated on for hydrocele from Jan. 1, 1917, to April 1, 1920, in St. Luke's Hospital, and a careful effort was made to examine these cases in the spring of 1920 in order to determine the after-results. These operations had been performed, not by any one surgeon, but by different surgeons attached to the staff of the hospital. In almost every instance, the operation performed was the high operation. As a number of these young men, immediately following the operation, went into the army or navy, many of whom were not even residents of the state or city, it has been difficult to trace a large number of them. Of the 303, 143 were not heard from. The letters were returned in forty-one more instances; a reply was received by letter in forty. Of those who replied by letter, seven had hydrocele; thirty reported that they were all right, and three wrote that they had pain, while word was received that four had been killed in action. Seventy-six patients returned for examination. Of these, only thirty-seven were reported normal. Four had an atrophy of the testicle, two moderate and two marked. Two still had a varicocele present, and there was a hydrocele present in thirty; large in twenty-two, and small and flaccid in eight. There was an enlargement of the left testis in three. That is, of the seventy-six examined, approximately only 48 per cent. can be said to be perfectly normal, and 39 per cent. of those examined had hydrocele to some degree. Of those reporting by letter, seven stated that they had hydrocele or had been operated on for hydrocele subsequent to their discharge from the hospital after their operation for varicocele; and as a number of the patients who were examined in the return clinic were found to have a small flaccid hydrocele after they had stated that they believed that they were all right, it is a fair assumption that in all probability a number of those patients who considered themselves cured also had a small hydrocele. Of the total of 106 patients examined or reporting by letter, 35 per cent. had hydrocele of some degree. It is to be remembered that these figures apply only to the number of patients examined or reporting, which was a little more than one third of the total operations.

AVOIDANCE OF THE COMPLICATIONS

The hydrocele that develops following a varicocele operation may be small and flaccid or may develop into a large, tense sac. When it is of the small and flaccid variety, it causes little or no discomfort to the patient. When a large, tense hydrocele develops, the patient is unquestionably far worse than he was before the operation. It therefore behooves us to determine, if possible, the reason for this complication in order to avoid it; or, if its avoidance is impossible, either to stop performing this operation in most cases, or to undertake it only after carefully explaining to the patient the possibility of hydrocele following a varicocele operation. And it is also of importance that the frequency of this occurrence should be explained in our textbooks, as otherwise an unprincipled or, if we wish to be charitable, we may say an ignorant doctor, can combine with an equally unprincipled lawyer and make things most unpleasant for the surgeon performing the operation, even if they fail to receive any compensation for their efforts.

First, should the operation ever be done? Bloodgood urges against the performance of the operation. He states that as a rule the varicocele disappears at about the age of 25, and with few exceptions before 30. While this is true in many instances, a number of the patients in the above-mentioned series of cases on whom the operation for varicocele was performed were past this age. In the group reported there were thirty-three between 25 and 30 years of age; eight between 30 and 35; five between 35 and 40, and three over 40. The rest were under 25. It is furthermore to be remembered in considering these figures that the group was made up of young men volunteering or drafted for the army or navy. Many of them, however, had no subjective symptoms and applied for operation only in order to enter the service. It therefore appears to me that we should strictly limit our operation to those cases in which the varicocele is of unusually large size and causing distinct symptoms in a patient who is not of the ordinary neurasthenic type. It has even been recommended that the tunica vaginalis be excised at the time the veins are ligated and removed. This, I should think, would add to the danger of atrophy of the testicle.

CAUSE OF HYDROCELE

As to the cause of the hydrocele, this is difficult to state. If, in the high operation, the testicle is forced up from the scrotum in order to make an unusually low ligation of the veins, and the tunica vaginalis is opened or traumatized, it would be easy to explain; or if all of the veins of the cord, including those which accompany the artery of the vas which should not be tied, as well as those of the pampiniform plexus, are included in the ligature, this by interference with the circulation of the testicle might readily result in hydrocele. However, hydrocele has developed when neither of these things is done, thus contradicting one author who states that hydrocele develops only when an operation for varicocele is improperly performed, and also the so-called medical expert witness who swears on the stand that only when the operation is improperly performed does a hydrocele develop.

It is fair to assume, from the evidence which we have, that the hydrocele is a result of circulatory disturbance. Bloodgood states that in sixty-one cases of operation for hernia in which the veins were excised by the older method, atrophy of the testicle took place in nine instances, about 15 per cent. In a number of these cases, hydrocele developed when the veins were excised, and none developed in any instances when the veins were not excised. Taylor[14] has quoted Bloodgood as stating that hydrocele occurred in about 4 per cent. of the cases in which the veins had not been excised, and in 22 per cent. in which they had been excised.

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[13] Bloodgood, J. C.: A Warning Against Operations for Varicocele on Applicants for Enlistment, Registrants for the Selective Draft and Soldiers, J. A. M. A. **70**: 409 (Feb. 9) 1918.

[14] Taylor, A. S.: The Results of Operations for Inguinal Hernia, Arch. Surg. **1**: 382 (Sept.) 1920.

It is my impression from an examination of these patients in the return clinic, and the discharge notes on their histories when they left the hospital, that hydrocele was less likely to occur in those cases which healed not only with primary union, but also with the least amount of thrombosis in the remaining stumps of the veins or in which there was no hematoma or swelling of the testicle immediately following the operation, than in those in which this occurred. In most of them, hydrocele developed a very short time after leaving the hospital, especially when a discharge note showed that there was some thickening about the testicle or the stumps of the remaining veins at the time of discharge from the hospital. One patient, however, who was examined in the follow-up clinic two months after discharge, and who then had no hydrocele, had developed one a year later.

The essential factor in the operation for hydrocele consists in the ligation and excision of the veins of the pampiniform plexus, leaving uninjured and untouched the spermatic artery (although this is usually included in the ligature) and the veins and artery which accompany the vas deferens. There is, however, a free anastomosis between the two sets of veins. When the veins of the pampiniform plexus are ligated and excised, necessarily thrombosis occurs in the stumps. If this thrombosis extends by the anastomosis with the veins accompanying the artery of the vas, these veins also become thrombosed. It is to be expected that more interference with the circulation would therefore occur than would result otherwise, and while this thrombosis is particularly likely to extend in the presence of a small amount of infection, it unquestionably may extend in an absolutely aseptic case, if the amount of anastomosis or the position of the anastomosing branches favors its extension. This appears to me to be an adequate explanation why hydrocele occurs in some cases and not in others; and as it is a matter which cannot be controlled at the time of operation or afterward, I consider it an unavoidable complication in a certain number of instances, and therefore that the hydrocele itself is then an unavoidable result of a properly performed operation, and not the result of an improperly performed operation.

SUMMARY AND CONCLUSIONS

1. The operative treatment of varicocele is frequently followed by hydrocele. Of a total of 303 operations, seventy-six patients were examined, thirty of whom, or 39 per cent., had a hydrocele; forty reported by letter or telephone, and of these seven, 17 per cent., stated that hydrocele had developed. Of the total of 106 patients examined or reporting by letter, thirty-seven, or 35 per cent., had hydrocele. Four, or about 4 per cent., had atrophy of the testicle, and there were two recurrences of the varicocele.

2. Modern textbooks on urology and on general surgery fail with one exception to recognize the frequency of this complication.

3. The operation should not be performed except in those cases of very large varicocele giving marked symptoms in a non-neurasthenic patient—certainly not in the type of cases previously referred by the various medical examining boards for admission to the army or navy.

4. If the operation is undertaken, the frequency of hydrocele as a complication should be explained to the patient as a protection to the operating surgeon.

5. In the performance of the operation every care should be taken to avoid trauma to the veins of the cord, and to prevent hematoma or even slight infection, and thus to limit thrombosis and also to avoid the ligation of the spermatic artery as well as the artery of the vas.

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ORGAN STIMULATION BY THE ROENTGEN RAY *

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Much,[1] in the preface to his "Pathologic Biology," has criticized, perhaps with justice, modern medical research. He says:

> There exists a pronounced tendency at the present time to overemphasize diagnostic methods. A diagnostic idea sweeps over the whole world with the greatest rapidity. If many therapeutic problems remain unanswered, it is possible that the reason lies less in the difficulty of the subject than in a lack of interest in biologic therapy. . . . Our only hope is that these diagnostic efforts may pave the way for later therapeutic discoveries.

A survey of modern roentgenology reveals this proclivity in clear outline. Day by day, diagnostic technic becomes more refined and useful; therapeutic use lags far behind. What, indeed, can we consider the yield in therapeusis? An occasional effect on malignant tissues or benign tumors; greater usefulness in glandular tuberculosis and in the leukemias; some application in certain goiters. The dermatologist and the gynecologist, too, find a limited field of indication.

Perhaps the early efforts to use the roentgen ray—and the radioactive agents—in malignant diseases is responsible to some degree for this relative paucity of therapeutic results. The roentgenologist has become obsessed with the idea that therapeutic results must be achieved through the destructive effects of the roentgen ray. We believe, on the contrary, that the therapeutic application of the roentgen ray will find far greater possibilities when once the simple biologic fact that cellular stimulation follows roentgen-ray exposure receives the consideration of the internist.

Heretofore we have emphasized almost exclusively the destructive effects to be achieved with the roentgen ray, either on malignant cells or on tuberculous granulation tissue, the effort being constantly made to intensify the effect on the pathologic tissue and to spare the normal tissues. But it is a biologic aphorism that agents which in large doses are toxic to cells act as stimulants in small doses. Pharmacologically, we constantly make use of just this principle.

If, then, the roentgen ray is active in a destructive sense, why should we not take advantage of its properties as a stimulant, the more so since we may thereby stimulate certain diseased organs whose metabolic functions are vital to the organism as a whole? From a nontechnical point of view it would seem that we could

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[1] Much, H.: Pathologische Biologie, Ed. 3, Leipzig, 1920.

make use of no agent more suitable. We can with modern apparatus gage the dosage in a fairly satisfactory manner: it can be used selectively, that is, we can to some degree limit the effect to certain organs or tissues—and the effects should be promptly noticed—advantages that our pharmacologic methods do not all possess.

When we speak of organ or cellular stimulation it will be clear, of course, that we distinguish in this case between increased metabolic processes and reproductive stimulation. The latter is commonly implied when the roentgenologist speaks of stimulation.

At least two methods seem possible through which organ stimulation by means of roentgen rays might be of therapeutic use, the one direct, the other indirect. The former can be illustrated in a very simple manner by merely studying the rate of flow from some gland after roentgen-ray exposure.

EXPERIMENTAL WORK

EXPERIMENT 1.—*Stimulation of liver.*—The gallbladder of a 10-kg. dog was removed and a cannula inserted in the common bile duct; the operation was completed at 8:30. Collection of bile commenced at 9 and continued for three hours. Roentgen-ray exposure was made at noon for ten minutes (liver region, Coolidge tube, 10-inch focal distance, 8 ma., 5-inch back-up, unscreened). The bile secreted during the ten minutes' exposure was collected separately. The results expressed in volume of bile secreted as well as the amount of bile pigment (colorimetrically determined) are given in Table 1.

TABLE 1.—SECRETION OF BILE IN EXPERIMENT 1

Time	Bile C.c.	Bile Pigment
9-10 a. m.	0.4	1.
10-11	1.5	0.99
11-12	2.4	0.96
12-12:10 (roentgen-ray exposure)	1.3*	0.66†
12:10-1:10	3.5	1.6
1:10-2:10	3	1.05
2:10-3:10	2.75	0.95
3:10-4:10	4.7	1.35
4:10-5:10	2.6	1.4
5:10-6:10	2.8	1.45

* 7.8 c.c. per hour.
† 3.96 per hour.

EXPERIMENT 2.—*Kidney stimulation.*—In an 8-kg. dog, cannulas were inserted into both ureters in the evening, and hourly determinations of urine secretion were begun at 9 a. m. Roentgen-ray exposure of the right kidney was made at noon, and collection of urine was continued for five hours (Table 2).

TABLE 2.—URINE IN EXPERIMENT 2

	Volume of Urine		
Time	Left Kidney C.c.	Right Kidney (Irradiated) C.c.	Total Nitrogen Excretion Right Kidney Gm.
9-10	9	10.5	0.055
10-11	8	10	0.048
11-12	9	7	0.028
12-1 (Roentgen ray at noon)	6	7	0.03
1-2	5	13	0.058
2-3	7	10	0.032
3-4	4.2	4.7	0.012
4-5	3.5	4.2	0.01

The diuretic effect on the kidney that was exposed is apparent, and is associated with an increase in the amount of total nitrogen excreted.

EXPERIMENT 3.—*Pancreatic stimulation* (internal secretion).—A partial pancreatectomy was performed on a dog, Nov. 30, 1920, a portion of the tail of the pancreas being left in situ. After determination of sugar tolerance, the animal was placed on a constant diet containing 100 gm. of fat-free meat, 50 gm. of dried cracker meal, and 15 gm. of bone ash. The sugar determination of the urine is given in Table 3.

TABLE 3.—SUGAR DETERMINATION IN THE URINE IN EXPERIMENT 3

Date	Gm.
January 9	5
January 10	5.5
January 11	2.8
January 12	3.8 *
January 13	6.8
January 14	3.12
January 15	0
January 16	2.5
January 17	5.32
January 18	8
January 19	2.76
January 20	6.8

* Roentgen-ray exposure over pancreatic area for ten minutes, afternoon of the 12th. and morning of the 13th.

It will be observed that the only time that this animal was sugar free was on the 15th, two days after roentgen-ray stimulation.

CLINICAL APPLICATION

While it is possible that our indications for liver stimulation are at present indefinite, the clinical application of kidney stimulation and the stimulation of glands with an internal secretion is more apparent. Allen [2] has recently made the statement that "any positive means of augmenting the endocrine pancreatic function even by a little would give therapeutic results far surpassing those of the negative plan of sparing the function by diet." From preliminary clinical observations now in progress we have gained the impression that by means of such roentgen-ray stimulation a method of decided usefulness is offered for the treatment of diabetes. We may mention that we have irradiated various organs in wholly or partially depancreatized dogs without being able to influence the sugar tolerance in any degree.

To illustrate the fact that the roentgenologist has constantly the factor of tissue depression or destruction in mind, rather than that of increasing metabolic function, we call attention to the paper of Dresel [3] in this particular connection. Dresel has endeavored to alter the sugar tolerance of diabetics by irradiating the suprarenals, expecting to lower their function and so indirectly affecting pancreatic secretion. He reports some transient lowering of the blood and urine sugar of diabetes, due, in our opinion, to an unintentional irradiation of portions of the pancreas.

Fraenkel [4] seems to have been the first to make definite efforts to develop the use of stimulation by means of roentgen rays in the treatment of internal diseases. In a recent paper he calls attention to a number of clinical conditions so treated, including the irradiation of the ovaries in certain forms of dysmenorrhea, irradiation of the thymus and hypophysis in osteomalacia, irradiation of the periosteum to facilitate the healing of fractures, irradiation of the epiphysis of bones and the hypophysis of children to promote growth, and irradiation of the spleen and bone marrow in pernicious anemia, the spleen in tuberculosis, etc.

INDIRECT EFFECTS: ENZYMES; ANTIBODIES; THROMBOPLASTIC SUBSTANCES

The second effect of organ stimulation by means of the roentgen ray may be somewhat more complex in its mechanism, but therapeutically equally as useful. It involves the observation that following organ stimulation certain substances may be discharged from the cells which act on remote pathologic lesions.

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[2] Allen, F. M.: Am. J. M. Sc. **160**: 781, 1920.
[3] Dresel, K.: Deutsch. med. Wchnschr., **46**, No. 45, 1920.
[4] Fraenkel, M.: Deutsch. med. Wchnschr. **46**: 1309, 1920.

Hektoen[5] has approached this problem from the antibody side and has endeavored to increase antibody production by irradiating various organs, particularly the hematopoietic system.

In a paper published elsewhere we have shown that it is possible to mobilize enzymes (protease, diastase, erepsin, etc.) after irradiating various organ complexes.

Stephan[6] observed that after irradiating the spleen a marked effect could be observed on the coagulation time, a finding that received immediate confirmation.[7]

The clinical application of such indirect effects has been found in the reported treatment of asthma by irradiating the spleen and the hypophysis,[8] and the favorable results which irradiation of the spleen is supposed to have on a tuberculous process.[9]

Indeed, when we come to the particular field of the roentgenotherapist—malignant diseases—in which the effect is supposedly a directly destructive one on the malignant tissue, it is possible that the effect is not selective per se, but depends first of all on the peculiar vascular instability of malignant tissues and secondly on indirect biologic alterations produced in the normal cells of the host. A discussion such as that of Keysser[10] in a recent paper is of interest in this connection.

SUMMARY

The roentgen ray, in proper dosage, has the property of stimulating cellular metabolism. When organs are selectively stimulated by roentgen rays, therapeutic results can be achieved either by direct stimulation of an external secretion (the kidney) or of an internal secretion (the pancreas in diabetes). A second method of possibly influencing remote pathologic lesions lies in the mobilization of antibodies, enzymes and thromboplastic substances following selective organ stimulation. The effects on tuberculosis (irradiation of the spleen), on hemophilia and purpura (irradiation of the spleen) and some of the effects on malignant tissues can possibly be examined from this point of view with profit. It is probable that the indications of roentgen-ray therapy in the treatment of internal diseases will find marked extension if proper recognition is given the possibility of organ stimulation by such physical means.

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[5] Hektoen, Ludwig: J. Infect. Dis. **27**: 23 (July) 1920.

[6] Stephan, R.: München. med. Wchnschr. **67**: 309, 1920.

[7] Neuffer, Hans: München. med. Wchnschr. **69**: 40, 1921.

[8] Ascoli, M., and Fagiuoli, A.: Riforma Med. **36**: 622 (July 10) 1920; abstr. J. A. M. A. **75**: 903 (Sept. 25) 1920.

[9] Manukhine, J. J.: Vrach. Gaz. **15**: 617, 1914.

[10] Keysser, F.: München med. Wchnschr. **69**: 4, 1921.

Public vs. Physicians.—Physicians are merely human beings with special training. Like other human beings they are often guilty of selfishness and neglect, and shamefully often of ignorance, which in this age is perhaps the most remediable defect. Too often the physician forgets to study the patient as well as the disease, falling into ruts out of which he is only jostled by the activities of mental healers and dietary faddists. It is an interesting commentary upon democratic processes that many public questions are settled not according to the well thought out opinion of the public at large, but according to the views or desires of those who shout most audibly. To accomplish legislative objects physicians as a group must be prepared to do a fair proportion of the shouting. In short, to improve the understanding between the layman and the physician, medical men should work for the improvement in the first place of medical and secondly of lay education in matters pertaining to the human body; they should attempt a more genuinely altruistic outlook in all their work upon patients, although of course protecting their own perfectly ethical interests; and they should be willing at all times to play a proper part as citizens for the promotion of the common good.—Editorial, *Colorado Medicine*, February, 1921.

Clinical Notes, Suggestions, and New Instruments

LESIONS OF TYPHOID FEVER PRODUCED BY BACILLUS FAECALIS-ALKALIGENES

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This case seems worthy of record on account of the unusual bacteriologic findings:

A well developed man, aged 21, died on the sixth day of clinical illness. The necropsy, which revealed lesions typical of typhoid fever in an early stage, was made two hours after death by Dr. D. H. Dolley, professor of pathology at the University of Missouri School of Medicine, who has kindly allowed me the use of his notes, from which such abstracts as illustrate the case are given:

The spleen was enormously enlarged, measuring 22.5 by 13.5 by 10 cm. It weighed 850 gm. It was dark colored, firm, and granular in texture. The splenic nodules were prominent.

The liver was slightly enlarged and congested. Microscopic sections revealed extensive focal necrosis.

The mesenteric glands were enormously enlarged and congested. Extensive hyperplasia was evident in microscopic sections.

The lower ileum contained a considerable amount of free blood. Beginning 71 cm. above the ileocecal valve and extending to the valve, eight ulcers were found in size from 1 by 1 cm. to 8 by 2 cm. Between these ulcers, fifty-nine elevated patches were counted, the surfaces of which were not yet ulcerated, though the surface layer of some could be easily rubbed off, leaving typical ulcers. These elevations were enlarged solitary and agminate glands.

In the large intestine, eighty-nine enlarged solitary follicles were counted, eleven of which were ulcerated. These were situated from 2 to 43 cm. below the ileocecal valve. The ulcers were early in type, the edges slightly elevated above the central areas, giving the typical plateau formation. The centers were yellow, shading into golden brown. There was necrosis—apparently superficial—though microscopic sections disclosed that it extended down to the muscularis. There was no hemorrhage about the ulcers, though injected vessels were visible on the surface. On section, the ulcers showed a thin layer of yellow necrotic material over a white nodule quite distinct from the more pink surrounding tissues. The nonulcerated patches were similar in structure.

BACTERIOLOGIC FINDINGS

Bouillon and agar cultures were made from the spleen and intestinal patches, all of which gave abundant growth. Endo plates streaked from these cultures gave colonies considered typical of the colon and typhoid organisms. In both the cultures from the spleen and intestine, the typhoid-like organism predominated greatly. The colon isolated was typical in every respect. The typhoid-like organism appeared typical on all the ordinary mediums, except that it grew more luxuriantly than usual and had a more moist appearance, and answered all staining requirements. It failed, however, to agglutinate with known typhoid serums of several strains, and in successive generations did not improve in this respect. In Russell's double sugar medium it gave no reaction in butt or slant. Its reaction was then tried on dextrose, galactose, dextrin, mannite, lactose, inulin and maltose, with negative results. These tests were repeated weekly up to the eighth week, always with the same result. Litmus milk remained unchanged in appearance for from eight to ten days; then it became darker and showed a slight gelatinous coagulation.

The organism was compared with a known culture of *B. faecalis-alkaligenes* furnished through the courtesy of Dr. E. O. Jordan, and the two were found to correspond.

COMMENT

The number of cultures made and the great predominance of *B. faecalis-alkaligenes* in all of them leaves no doubt that this organism was the causative agent in the production of the lesions, which, as said before, were those typical of severe infection by the typhoid organism.

The literature available mentions the occasional production of disease simulating typhoid fever by *B. faecalis-alkaligenes*, but details are lacking. For this reason it has seemed worth while to report this case.

The laboratory work was carried out by Miss Anna Dean Dulaney, Assistant in the Public Health Laboratory, University of Missouri.

REPORT OF A CASE OF ATRESIA OF THE ILEUM WITH MICROCOLON *

Maurice Kahn, M.D., Los Angeles

This case is of sufficient rarity, I think, to justify recording.

REPORT OF CASE

I was called to operate for congenital intestinal obstruction on an infant boy, forty-eight hours after its birth. It seemed normal at birth, but soon it was noticed that the baby vomited everything given within a few minutes of its ingestion. No meconium had passed since birth, which, in the opinion of Dr. F. C. Ainley, the obstetrician in the case, indicated an absolute obstruction due probably to some congenital deformity. The abdomen was distended, with visible coils of intestine, though peristalsis was not discernible. On account of the distention of the abdomen with gas, and its being intestinal and not gastric, Dr. Ainley concluded that this must indicate that some material had passed through the pylorus, which would eliminate pyloric or duodenal obstruction. Dr. Henry Dietrich, the pediatrician who was called in consultation, was of the same opinion as Dr. Ainley. A proctoscopic examination made with a cystoscope failed to reveal any abnormality for a distance of 3 inches from the anus.

Operation was performed. The abdomen was opened by a left paramedian incision with the umbilicus at about its center, large enough to explore the entire abdominal cavity. Immediately distended coils of small intestine protruded and no effort was made to restrain them. They were caught in hot towels and well protected. It was then noted that the small intestine was normal aside from the distention, except the terminal 6 inches of the ileum, which showed a marked contraction in such a manner as to duplicate almost exactly in feel that of a string of beads. This contracted portion was about the size of an ordinary lead pencil, and did not dilate under rather harsh manipulation. It ended blindly, that is, it was not united at all to the cecum. The entire large intestine as far down as the sigmoid was represented by a tube about 3 mm. in diameter and looked like a small white cord. The sigmoid was a trifle larger, and the upper rectum about 8 mm. in diameter. The cecum was in the right fossa, and the entire large intestine was normally placed with normal mesocolon throughout its course. Prior to the operation the father of the infant stated to me that he very much desired a healthy child, but if the abnormality was such as would greatly handicap the child, then he preferred its death. While the outlook was not at all bright in the event of further surgery being performed, yet in deciding what course to pursue I asked myself what I should wish done if the child were my own—and I answered by closing the abdomen without making any effort at corrective surgery. The child died fifteen hours later.

COMMENT

Many theories have been advanced to explain the genesis of stenoses and atresiae, namely: (1) intra-uterine volvulus; (2) embolism or thrombosis of the superior mesenteric vessels; (3) pressure from tumors or from amniotic bands; (4) traction of the omphalomesenteric duct or its hyperinvolution; (5) intra-uterine peritonitis, and (6) persistence of the epithelium occlusion and ingrowth of the mesenchyma.

In the case herewith reported there was no evidence, such as twists, bands or agglutinated coils of intestine, supporting any of these theories. It seems to me that with the exception of the epithelium occlusion theory, all the foregoing postulations may be discarded as more or less fanciful hypotheses unless postmortem findings supply the evidence. Moreover, there is assumed in these theories, excepting the last one, a prenatal pathologic condition, which is always a repellant explanation to the scientific investigator, whereas an evolutionary theory is attractive and respectfully entertained.

Having recognized that the duodenal lumen in young embryos is normally completely obliterated by epithelium forming a solid cord of cells, Tandler[1] concluded that sometimes this atresia may persist and be found as a congenital occlusion or stenosis. Forssner[2] found that in early embryos the lumen of the duodenum was completely obliterated in places. This normal epithelium occlusion of the duodenum disappears by a process of disintegration leading to vacuolation. Forssner thinks that this epithelium occlusion may take place throughout the small intestine. Tandler considered that the cause of the occlusion was the resistance exerted on the expanding epithelium by the surrounding mesenchyma. Moreover, when the epithelium occlusion is followed by sufficient ingrowth of mesenchyma, complete mesenchymal occlusion occurs and this condition may be permanent. Or by subsequent changes a stenosis may develop or valve formation occur.

1111 Brockman Building.

REPORT OF A CASE OF ANAPHYLAXIS FOLLOWING AN INTRADERMAL PROTEIN SENSITIZATION TEST *

H. J. Gerstenberger, M.D., and J. H. Davis, M.D., Cleveland

During July, 1919, one of us was called in the absence of the family physician to see, in the words of the mother, "whether it were not possible to change something in the diet or care of her child that would remedy or lessen the irritated condition of the skin and the wheezing heard during breathing."

The child was a well developed and well nourished boy, aged 12 months, with signs of a mild rickets, a prominent forehead, and slight enlargement of the wrists. There was a distinct but mild dry eczema of the face, chest and arms, causing, as one could see from the many scratch marks, a great deal of itching; and there was a decided emphysema accompanied by wheezing and a somewhat labored expiration. The spleen was not palpable and the posterior cervical lymph nodes were somewhat increased in size and number, as is usually the case in exudative children. The skin symptoms were first noted by the mother when the child was about 7 months of age, while the respiratory difficulty never, until recently, made the impression on her of a decided abnormality, although she recalls now that since the boy was about 2 months old she noticed that there was something about his breathing that was not just right.

The boy was breast fed until about 3 weeks of age. Then he was fed a Walker-Gordon mixture by the family physician, and at the age of 9 or 10 months he was given straight milk with vegetables. He received orange juice early, but was given neither eggs nor potatoes. When the eczema developed the diet was changed in various ways without definite results, and so the family physician consulted a dermatologist.

The skin at that time is reported to have evidenced a marked moist eczema, which improved but was replaced by a dry, scaly, itchy skin which remained uninfluenced by further treatment until June, 1919, when it improved without any special change in the diet or treatment.

When seen one month later at the age of 12 months, it was advised that he be given less food, skimmed milk as the basis of the diet, atropin sulphate in 1 : 1,000 solution, gradually increasing the drop doses to the point of physiologic reaction, and a 10 per cent. tricalcium phosphate in cod liver oil. A cutaneous protein sensitization test was suggested at this time in case the therapeutic measures instituted should be of no avail.

However, a decided improvement in the skin and chest symptoms was soon noticed by the mother and nursery maid. The diet was kept the same in quality, but increased in quantity to meet the appetite of the child without causing an increase in the symptoms. The latter, on the contrary, continued to grow less and less, and at times seemed, at least to the mother and nursery maid, to be entirely absent.

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* Read before the Western Surgical Association, Dec. 4, 1920.

[1] Tandler: Morphol. Jahrb. **29**: 187, 1900.

[2] Forssner: Anat. Hefte **34**: 1, 1907.

* From the Departments of Pediatrics of Lakeside Hospital and of Western Reserve Medical School.

The nursery maid who had constant care of the child was convinced in her own mind that the atropin was responsible for the improvement, for not only had she noticed that the child began to improve after the atropin had been started, but she also felt that return of the symptoms occurred when the atropin was reduced or stopped, as occasionally happened.

The family physician returned in August, 1919, found an increased thymic dulness, and requested a roentgen-ray examination of the chest. A wide shadow was found in the thymic area which the roentgenologist pronounced an enlarged thymus. Consequently, the family physician stopped the atropin and had the thymus roentgenized once every three or four weeks for five times. The condition of the child became worse instead of better, and the thymic shadow remained the same, so that the roentgenologist advised against further exposure. The family physician then reordered the atropin in the form of belladonna in small doses. The child improved once more, and gradually during the latter half of November breathed, according to the family, in an almost normal manner.

During the first days of December he developed a severe cold, and as a result had a severe asthmatic attack during the night of December 3. On the following morning he was seen in consultation with the family physician, and then admitted to the pediatric service of Lakeside Hospital for diagnosis and treatment.

His condition seemed worse then than at any previous time. Especially was the cyanosis decided on slight exertion, and this was accompanied by an increase in the shortness of breath. At the hospital his diet was again built around skimmed milk, the atropin was reordered in large doses, and the cod liver oil was continued. In forty-eight hours there was a distinct improvement in the shortness of breath and the degree of cyanosis, although increased activity was still able to increase both symptoms.

The tuberculin and Wassermann tests were negative, although the former showed a slight swelling which, however, was so uncharacteristic of the regular positive intracutaneous tuberculin test that it was considered to be due to the local trauma. The blood count was 4,960,000 red cells and 15,000 leukocytes, with hemoglobin, 90 per cent. The differential count gave 35 per cent. polymorphonuclear neutrophils, 51 per cent. small lymphocytes, 7 per cent. large lymphocytes, 6 per cent. transitional cells, and 1 per cent. eosinophils.

The boy's brother had been exposed to whooping cough and the patient had therefore received from the family physician two injections of pertussis vaccine. A third one was given him on the second day during his stay at the hospital.

December 5, the roentgenogram showed a decidedly smaller shadow than the last one taken during October. In fact, the shadow was quite like that of a normal child. In consequence, the family physician was convinced that the recent improvement noticed during November was really due to the reduction in size of the thymus and not to the influence of the atropin. He was especially convinced of this because, Nov. 10, 1919, he had his assistant perform cutaneous scratch tests with different proteins in simple saline solution, which all proved to be negative. No potassium hydrate was used.

The proteins used were: wheat, cow's milk, rice, potatoes, egg white, beef, oats, tomato, horsehair, pneumococci, staphylococci and ragweed. However, as I recently had had the same negative experience with the scratch method in the case of another asthmatic child, and a positive result with the intracutaneous method, it was decided to apply the latter method to this child also, before concluding that the entire clinical picture in this case was due to an enlarged thymus and not to a state of sensitiveness to proteins or to an exudative diathesis, vagotonia or status lymphaticus.

INTRACUTANEOUS SENSITIZATION TESTS

December 8, intracutaneous protein sensitization tests were made with oat protein, cow's milk casein, egg yolk allergen and egg albumin, preceded by a control with physiologic sodium chlorid solution. The solutions used at the first as well as at the later tests were all made in the same approximate manner so that they were probably about the same strength. Later on a scientifically accurate determination was made of the protein contents of a solution made up as closely like the original solution as it was possible to do, with the result of a finding of 1.2 per cent., so that a variation of from 1 to 1.5 per cent. might be probable. From 0.1 to 0.2 c.c. was injected, enough to make a wheal varying in size from a lentil to a match head. The child cried from the beginning of the injections, which consumed more time than was really necessary, owing to the fact that the solutions were prepared between the individual injections.

It was noticed as the injections went on that the cyanosis was distinctly increased; but no alarm was felt, as it was customary for the patient to become mildly cyanosed on slight exertion, and this experience was considered to be more than "slight exertion," and therefore caused no astonishment in the production of a more marked cyanosis.

The first injection was the control with physiologic sodium chlorid. Then followed in order, oat protein, cow's milk casein, egg yolk allergen, and egg albumin. After the egg yolk allergen had been injected and while the egg albumin was being administered, the cyanosis and dyspnea suddenly became severe and extreme. Epinephrin was immediately administered subcutaneously in repeated doses, totaling about 1 c.c. While the respiratory difficulty was at its worst, a pale swelling about the size of a quarter of a dollar was seen at the seat of the egg yolk allergen and egg albumin injections.

The areas of administration of the oat protein and cow's milk casein were absolutely negative. As the cyanosis and dyspnea, except for the final extreme severe period, developed slowly and gradually during the periods of injection, it was our impression that the aggravated condition of the child was not due to a condition of anaphylaxis, but rather was the result of the increased physical effort in struggling.

We imagined that we had produced a severe and acute mechanical emphysema by forcibly pumping the child's lungs full of air beyond the relative constriction of the bronchioles, which, of course, was known to have existed from the beneficial effects that atropin had had on the child's condition before the injections had been made.

The power of the factors of expiration being smaller than those of inspiration, one could understand how gradually with each inspiration more air could have been forced into the lungs than was let out during expiration, resulting finally in the fixation of the chest in the inspiratory phase. On the following day, however, the child developed a very marked and general urticaria, which required for its improvement hypodermic administration of epinephrin. The appearance of this symptom made the diagnosis of anaphylactic shock more probable as the cause of the acute difficulty of the day before.

Nevertheless, it was decided after a few days of rest to repeat the test, but modify the procedure by having the syringes ready and loaded with the proper solutions in order to use as little time as possible and avoid undue exertion on the part of the child. This idea was carried out further by reducing the number of proteins to be tested to three.

REPETITION OF TESTS

December 11, cow's milk allergen, cow's milk casein and cow's milk albumin were injected in the same solutions as were used in the first observation. One of the lesions showed a pale swelling; but on the following day a raised red indurated area, about the size of a bean, was seen at the seat of the cow's milk allergen injection, while the cow's milk casein and cow's milk albumin showed only a very faint and slight induration which was considered absolutely negative.

The test was performed in a very short period of time, and caused the child only slight difficulty and annoyance.

On the following day, December 12, the proteins of orange, tomato and strawberry were injected in the same manner and with the same rapidity as on the previous day. No urticarial wheals were seen, and only a slight induration, such as was noticed at the seat of the cow's milk casein and cow's milk albumin injections of the day before, was observed at the point of administration of the tomato. No reaction at all was found where the strawberry and orange proteins had been applied. The technic again worked perfectly, and the child went through the tests with only slight difficulty.

As a result of the good experiences of the last few days, it seemed as if possibly, after all, the mechanical factor of an acute emphysema produced as the results of the prolonged exertion and crying of the child had been mainly responsible for the extreme condition of the first day. Of course, the factor of anaphylaxis could not be excluded, and so it was decided to inject only one of the two proteins which produced urticarial wheals on the first day, namely, egg yolk allergen and egg albumin. The former was chosen and was injected the following day, December 13, quickly and carefully without any difficulty or inconvenience to the child.

The resident physician who had performed the injection remained for a few minutes and then left. The nurse had placed the child in bed, and after about five minutes went out of the room for some water. She returned immediately and discovered the child breathing with the greatest difficulty and extremely cyanotic. The resident physician was called and found the child in a state of apnea and marked cyanosis. He administered epinephrin and started artificial respiration. A total of 2 c.c. of epinephrin was injected subcutaneously. The child recovered. A large urticarial wheal was seen at the point of the egg yolk allergen administration and likewise at the areas which on the first day, December 8, had shown urticarial wheals, namely, the point of injection with egg yolk allergen and egg albumin.

COMMENT

This experience settled beyond question that the extreme condition of the child, December 8, was due to anaphylaxis, and that the mechanical emphysema, which from the clinical picture did exist to a medium degree before the administration of the egg proteins, was at most a minor factor. The child had never received egg in any form, so we are justified in assuming that this hypersensitiveness was congenital.

The family history regarding the older brother, the parents and the grandparents is negative to asthma, eczema and hayfever.

Although the amount of protein administered at the individual injections was small, it nevertheless must be admitted that the dosage was probably somewhat above the upper limit of safety for a child of this type. However, we believe that had we injected one tenth or one twentieth of the amount used, which would have been beyond all criticism, we still should have witnessed the development of a severe and serious anaphylactic shock.

We appreciate now more than ever the value of epinephrin, not far away but close at hand. Had these tests been made at home and in the absence of epinephrin, we should have reported today a fatality instead of a recovery.

It is of interest to note that the first anaphylactic shock of December 8 did not prevent the production of the second on December 13. In other words, this boy did not develop a state of anti-anaphylaxis as a result of his first anaphylactic shock.

December 16, another roentgenogram of the thymic region was made, and it showed an abnormally wide shadow. The technic employed as to the position of the child and the condition of the tube was proper and the same as used in previous exposures.

A fluoroscopic examination demonstrated that this seeming contradiction in the roentgenogram depended on the phase of respiration in which the picture was taken, a picture made during extreme inspiration giving a practically normal shadow and one taken at extreme expiration a markedly abnormal one, as large as, if not larger than that recorded in the plates of Aug. 5, 1919.

Poisoning from Hexamethylenamin.—E. S. Weiler warns in the *Revista Médica del Rósario* of the possible cumulative action from this drug. He reports a case of acute cholecystitis in typhoid fever in which he gave 2 gm. by the vein every twelve hours. Symptoms of severe toxic action developed after the ninth injection, with loss of consciousness and incontinence for five days, with hematuria for a month. Micturition was painful for a time.

A SIMPLE METHOD FOR COUNTING BLOOD PLATELETS *

M. A. Van Herwerden, M.D., Utrecht, Holland

In a recent publication, Oluf Thomsen[1] of the Statens Serum Institut in Copenhagen described a method for the counting of platelets in human blood, by which the blood is collected in sodium citrate and the platelets thus held in suspension are counted in a Thoma-Zeiss apparatus.

The statement made by Thomsen, that other methods are either inaccurate or too complicated for use, has induced me to describe a simple method, worked out some years ago, which has been employed with good results in the work of H. G. Langemeyer.[2]

According to Thomsen's method, an amount of 4.5 c.c. of blood obtained by venesection is allowed to stand from two to three hours, until the red blood corpuscles settle at the bottom. A part of the plasma with the suspended blood platelets is collected in a graduated pipet, and a drop of the mixture is placed in a Thoma-Zeiss apparatus. The advantage of Thomsen's method over others is that it gets rid of the red blood corpuscles, which constitute a real impediment in the counting of the platelets. But its disadvantage lies in the volume of blood required: instead of a single drop of blood drawn by pricking a finger tip, it is necessary to draw 4.5 c.c. by venesection. Another disadvantage is the somewhat complicated reckoning necessitated by the fact that the plasma which remains with the sedimented cells is a variable factor.

The method that I have devised is based on the well known fact that red blood cells are permeable for urea, and the observation that the platelets are preserved and clotting is prevented by the substance. A concentrated urea solution, diluted with an isotonic salt solution, forms a hypotonic medium in which the red blood corpuscles hemolyze. In this way it is possible to get rid of the erythrocytes, while the thrombocytes, which are prevented from clotting by the urea solution, are rendered visible and appear in the Thoma-Zeiss apparatus as small corpuscles. They may then be readily counted.

EXACT PROCEDURE

Twenty-one parts of a 10 per cent. urea solution in water is mixed with nine parts of 0.9 per cent. sodium chlorid solution, and the fluid is drawn up to the 0.6 mark of a Thoma-Zeiss pipet for counting white blood corpuscles. Blood is drawn by pricking the finger tip with a needle, and the first drop is wiped off. The mixture in the pipet is allowed to flow out onto the small wound until the level of fluid within the pipet has fallen to 0.4. A second drop of blood is allowed to flow from the wound directly into the drop of urea-sodium chlorid mixture. The blood and urea mixture is then taken up by the pipet until the mark 1 on the scale is reached. If the single drop of blood is not sufficient, more blood is taken from the wound until this level is secured in the pipet. The pipet is then filled with the urea-sodium chlorid solution up to the mark 11. In this way the pipet will come to contain 0.4 parts of blood. After gentle shaking for five minutes, the fluid in the capillary portion of the pipet is discarded, and 2 drops from the bulb are placed in counting chambers. It will be found that the red blood corpuscles have disappeared completely, or that only a few remain. The leukocytes and blood platelets are distinctly visible, the latter as round or oval disks. After standing for thirty minutes they may be readily counted in f. i. 10 x 20 quadrants.

COMMENT

By means of this method it is possible in a short period of time to count the platelets contained in a small drop of blood. Relatively high powers of the microscope may be used if a thin cover glass is employed in place of the usual thick one of the Thoma-Zeiss apparatus.

The largest number of platelets counted by this method in human blood taken from males was 326,000 per cubic millimeter, and the smallest number was 217,000.

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* From the Rijks-Universiteit.

[1] Thomsen, Oluf: Comp. rend. Soc. de biol. **83**: 505, 1920.

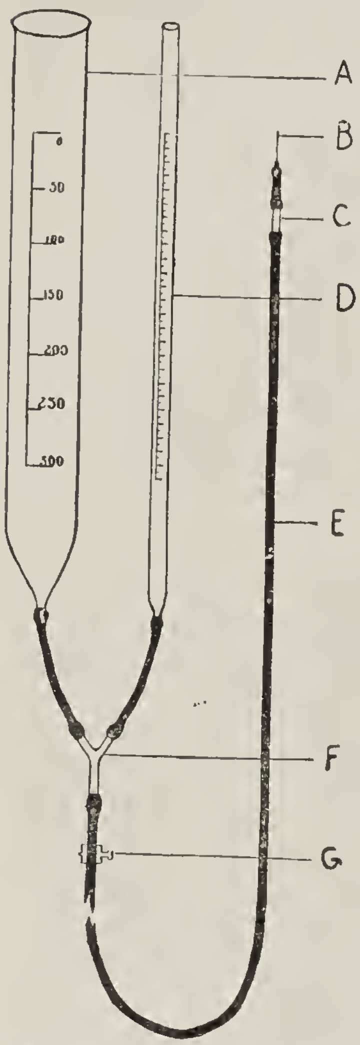
[2] Langemeyer, H. G.: De Bloodplaatjes van den Mench, diss. Utrecht, 1916.

In blood taken from women during the intermenstrual period, the numbers were 350,000 and 221,000. During the latter days of menstruation, higher numbers have frequently been recorded. Two determinations, made an hour apart, on blood from the same person but from different finger wounds, gave 365,100 and 370,200 per cubic millimeter. These high figures, however, must be attributed to the influence of menstruation, as the intermenstrual determinations on the same person gave figures ranging between 300,000 and 330,000. This example is quoted to show the relatively small variations in readings obtainable by this simple method.

APPARATUS FOR CONTINUOUS INTRAVENOUS ADMINISTRATION OF FLUIDS BY WHICH THE RATE OF FLOW MAY BE EASILY DETERMINED AND CONTROLLED

Hugh F. Freidell, M.D., Santa Barbara, Calif.

The apparatus consists essentially of a 300 c.c. container such as an arsphenamin tube, a small buret, 6 feet of rubber tubing, a glass Y tube, screw clamp, small glass tube for window, and needle. It is assembled as shown in the accompanying diagram.



Apparatus for continuous intravenous administration of fluids: *A*, arsphenamin tube; *B*, needle; *C*, glass window; *D*, 25 c.c. buret; *E*, rubber tubing; *F*, glass Y tube; *G*, metal screw clamp.

The rate of flow is determined by pinching off the tube from the large container with the thumb and finger, and noting how many cubic centimeters are delivered per minute from the small buret. It is controlled by the elevation of the container and adjustments of the screw clamp. At any time during the administration the rate of flow may be determined in like manner and regulated by adjusting the screw clamp.

METHOD OF USE

In the apparatus as used by the author, the container and buret are attached to the metal tray of an ordinary copper sterilizer by strong spring clamps. One handle of the tray is used to suspend the apparatus; the other is folded down out of the way. The solution is kept at body temperature by passing a few coils of the rubber tubing through the pan of the sterilizer containing warm water. The needle is immobilized in the vein by a collodian seal and adhesive strips.

THRUSH COMPLICATED BY ACUTE POLYARTHRITIS IN AN INFANT

Morris Goldring, M.D., Brooklyn

Baby D. K., aged 5 months, who had been breast and bottle fed, was restless, cried, and was unable to nurse. There was no history of previous illnesses. The family history was negative so far as gonorrhea and syphilis were concerned.

Examination revealed small white flakes resembling coagulated milk that could not be wiped off, situated on the tongue and the inner surface of the cheek. The mouth was dry and the lips were markedly injected. There was no glandular involvement; the pulse was rapid; the temperature was 104.

I instructed the mother to cleanse the mouth with a solution of sodium bicarbonate after each feeding, and apply carefully a 1 per cent. dilution of liquor formaldehydi twice a day. The rubber nipple was kept in a solution of boric acid. The baby also received a thorough cleansing of the gastro-intestinal tract.

The following day the temperature was still 104, the baby now having a hoarse cry and vomiting all food. After examination, I noticed extension of the flakes into the pharynx. The baby was unable to sleep and refused all foods.

Two days later, the patient developed diarrhea, which consisted of a semifluid stool, the bulk made up of cheesy flakes. This condition, however, improved with high alkaline enemas.

The condition showed gradual improvement, and the mouth cleared within one week after the onset of the disease. The temperature fluctuated between 102 and 104, and the baby cried when moved.

After careful examination, I noticed the left ankle red, swollen and extremely tender. Simultaneously the left knee and left wrist showed the same signs. Wet dressings were applied continually, and hot colonic irrigations were given every four hours. In three days the swelling began to subside, and within one week, there was complete recovery.

It may be of interest to note that the twin sister of this patient also developed thrush at the same time, but recovered completely within six days without any severe constitutional disturbances.

SUGGESTIONS FOR IDENTIFICATION OF BLOOD GROUPS

Robert W. Belknap, M.D., Cambridge, Mass.

It may be of interest in view of recent articles in The Journal by Karsner[1] and again by Unger,[2] to note a few practical modifications of the microscope slide method of identification of blood groups which I have found useful. The classification used below is that of Jansky, which has recently been recommended for universal adoption in place of the more familiar one of Moss, on the grounds of priority.

Perhaps the rather obvious fact has not been sufficiently emphasized that if the laboratory worker happens to belong to either Group II or III, he has at hand the means of grouping all other blood. The chances of belonging to one or the other of these groups is, according to Karsner's table of distribution of groups, about 52 per cent., and that of finding a suitable group in another individual who would be readily available, especially in a hospital would, of course, be excellent. In this method, besides the usual drop of blood in citrate-salt solution, it is necessary to take a small amount of whole blood from both the known and the unknown person. Enough can easily be obtained, in small glass tubes, from the ear lobe. This tube is then centrifugalized for a few minutes within a larger centrifuge tube until the serum becomes supernatant, when it can be drawn up as needed in a fine capillary pipet. The actual matching of bloods, which is easily understandable, would follow the schemata in Chart 1 if the known is Group II, or Chart 2 if the known is Group III. In either case a mixture of known cells-unknown serum and known serum-unknown cells is made at opposite ends of a slide.

	I	II	III	IV
Unknown serum; cells II.......	+	0	+	0
Unknown cells; serum II......	0	0	+	+

Chart 1.—Identification of blood groups when the known blood is of Group II.

	I	II	III	IV
Unknown serum; cells III......	+	+	0	0
Unknown cells; serum III.....	0	+	0	+

Chart 2.—Identification of blood groups when the known blood is of Group III.

Advantages of this method are that it is not necessary to have Group II and Group III serums on hand with the attendant difficulty of finding the rare Group II blood, and that the serum is always fresh. On the other hand, it is not quite so rapid in an emergency.

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[1] Karsner, H. T.: Laboratory Problems of Blood Transfusion, J. A. M. A. **76**: 88 (Jan. 8) 1921.

[2] Unger, L. J.: Precautions Necessary in the Selection of a Donor for Blood Transfusion, J. A. M. A. **76**: 9 (Jan. 1) 1921.

Another method which I have found useful when it is possible to keep known serums on hand utilizes Group I in addition to the usual Groups II and III. It forms somewhat of a confirmatory test and conserves the supply of the rare Group II. In this test it is often possible to identify Group I with only one serum-cells mixture (in 43 per cent. of cases). This may be represented as in Chart 3, in which C indicates unknown cells.

C + I = 0 .... Group I
C + I = +; C + III = 0 .... Group III
C + I = +; C + III = +; C + II = 0 .... Group II
C + I = +; C + III = +; C + II = + ... Group IV

Chart 3.—Method when Group I also is utilized: C, unknown cells; +, agglutination; 0, no agglutination; I, II, III, respective serums.

By proceeding in this order the common groups are identified or eliminated first, and it will be seen that from the probabilities the chance of having to proceed to the second test is 58 per cent., and to the third, 16 per cent., so that on the average there is somewhat less manipulation than when using only Serums II and III, and in addition there is always the valuable check of the use of the strongly agglutinative Serum I.

I have used serum sealed in small "home made" ampules and have a very active Group II after eight months without other preservative than aseptic precautions while collecting and tubing.

1 Mercer Circle.

A SHORT SILVER IMPREGNATION METHOD FOR THE DEMONSTRATION OF SPIROCHAETA PALLIDA IN TISSUE *

SAMUEL R. HAYTHORN, M.D., PITTSBURGH

Within the last few years a number of methods for lessening the time required for the demonstration of *Spirochaeta pallida* in tissues have been reported. Eyenes and Sternberg[1] applied a silver method to frozen sections, which has found favor in several laboratories. Warthin and Starry[2] have reported two methods for applying silver solutions to sections mounted on cover glasses, and they report excellent results. To my mind, however, there is still a place for a short silver impregnation method.

For several years I have been applying a modification of Levaditi's method in which the reagents were dissolved in acetone for the purpose of hastening penetration. The principle of action is based on the alternate dehydration of the tissues by the acetone and the return of the tissue blocks to solutions containing considerable water. The processes of infiltration and dehydration are carried out simultaneously so that much time is saved.

Recently we have had a large amount of acute syphilitic material and have had ample opportunity for experimenting with the acetone silver method on known positive tissues by varying the strengths of the solutions, and the time of application necessary for each. We therefore recommend the following modification of Levaditi's silver impregnation method[3] on the grounds that it is quite as reliable as the usual technic and can be completed in about sixty hours, or at least, in the time required for the embedding of tissues in paraffin for ordinary microscopic examination.

TECHNIC OF THE ACETONE-SILVER METHOD

Pieces of tissue from 2 to 3 mm. in thickness are fixed in 10 per cent. formaldehyd solution for eight hours or more. Over night gives excellent results.

The pieces are placed for about ten minutes in warm distilled water (from 50 to 60 C.).

The pieces are laid on clean filter paper just long enough to take off the excess of water.

They are placed for one-half hour in chemically pure acetone.

The pieces are incubated for eight hours, or over night, in Solution 1.

They are removed from Solution 1, touched to clean filter paper, and transferred to a clean bottle containing freshly prepared and filtered Solution 2.

They are allowed to remain in Solution 2 for from six to eight hours, and then passed through the following solutions in the order named: absolute alcohol, two hours or more; cedar wood oil, one hour; xylene, one-half hour; paraffin, two hours. Then they are blocked.

The sections are cut as thin as possible, and the first ten or fifteen are discarded because the tissue is thoroughly penetrated and there is sometimes a precipitate on the surface.

All traces of paraffin are removed with xylene and the sections are mounted in balsam.

PREPARATION OF SOLUTIONS

SOLUTION 1

Ten per cent. silver nitrate solution	5 c.c.
Acetone (C. P.)	10 c.c.
Distilled water	5 c.c.

Mix just before use and filter.

The silver solution should be prepared frequently, although a 10 per cent. solution will keep for two or three weeks in a tightly stoppered, dark brown bottle. The advantage of using a 10 per cent. stock solution of silver nitrate is that Solution 1 can be varied from 1 to 5 per cent. by changing the relative amounts of stock solution and distilled water used. Beautiful differentiation was obtained with a first solution containing as low as 1 per cent. silver nitrate on a specimen containing great numbers of spirochetes; but for diagnosis of unknown specimens the 2.5 per cent. solution, as recommended, gave the more reliable results.

SOLUTION 2

Pyrogallic acid	1 gm.
Acetone (C. P.)	25 c.c.

Mix and filter.

RESULTS

The picture obtained by the use of the acetone silver method is practically the same as that obtained with Levaditi's method. The spirochetes appear very black, and in a few instances positive results were obtained with the acetone silver infiltration when Levaditi's method was negative.

The great advantage of the method is that it may be carried out within three days, and when the fresh tissue is received early in the morning, it may be made ready for examination on the second day following.

Sandusky and Park Way.

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* From the William H. Singer Memorial Research Laboratory.

[1] Eyenes and Sternberg's Method for Staining Treponema Pallidum in Sections, Mallory and Wright: Pathologic Technique, Ed. 7, Philadelphia, W. B. Saunders Company, p. 402.

[2] Warthin, A. S., and Starry, A. C.: Rapid and Improved Method of Demonstrating Spirochetes in Tissues, Am. J. Syph. **4**: 97 (Jan.) 1920; Second Improved Method for the Demonstration of Spirochaeta Pallida in the Tissues, J. A. M. A. **76**: 234 (Jan. 22) 1921.

[3] Levaditi's Method for Staining Treponema Pallidum in Sections, in Mallory and Wright: Pathologic Technique, Ed. 7, p. 401.

PNEUMOPERITONEUM AS A LAPAROTOMY ADJUNCT

ROBERT EMMETT FARR, M.D., MINNEAPOLIS

Pneumoperitoneum is now one of the established adjuncts to the diagnosis of abdominal conditions. Its apparent comparative safety, simplicity and helpfulness are sure to cause this method of examination to be widely adopted, provided, of course, it is found that no untoward results follow its use.

In our abdominal work we have made use of pneumoperitoneum for the purpose of excluding movable viscera, especially small intestines, from the operative field. To illustrate: In pelvic work one may by using a preliminary pneumoperitoneum and the Trendelenburg position, combined with anesthesia which abolishes muscle reflexes, find the pelvis completely free from intestines. A left or right lateral tilt will offer the same advantages in work in the lateral halves of the abdomen. In the upper abdomen the reverse Trendelenburg with the pneumoperitoneum effectually excludes from this region the small intestines, allowing one to make a visual examination by the addition of vertical retraction of the abdominal wall.

301 Physicians and Surgeons Building.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, MARCH 12, 1921

THE MEDICAL TREATMENT OF GASTRIC ULCER

Except in those cases that are adjudged to require surgical intervention, the management of gastric ulcer is essentially one of careful dietary consideration. Opinions as to the preferable procedures have been sharply conflicting, in accord with differing views as to the most important contributory factors leading to the symptoms, and with respect to the influences that promote healing. Consequently, the medical treatment of gastric ulcer differs widely in the hands of different clinicians, each of whom consciously or unconsciously appeals to a well defined physiologic principle in support of his efforts. On the one hand are the advocates of complete physiologic rest for the upper digestive tract, even rectal alimentation being avoided because it tends reflexly or otherwise to provoke gastric secretion or peristalsis. Such a regimen means starvation, a condition not preeminently favorable to the healing of any tissue lesion. At the other extreme are those who balance the advantages of the nutritive resuscitation promoted by more liberal diet against the local irritation which the requisite food may cause. It has been described as a choice between the devil and the deep sea. Sippy of Chicago has devised a widely followed form of alkaline treatment with selected diet. Realizing the irritating or corrosive action of acid gastric contents on ulcers that would tend to heal spontaneously, Sippy's plan aims at continuous neutralization during the period of gastric digestion by proper food and alkalis, and the removal at night of any products of continuous hypersecretion. Transgastric or duodenal feeding has also had its adherents.

It seems almost superfluous to add to the numerous therapeutic advices which attempt to steer between the disadvantages of excessive secretion, peristaltic rest, and starvation, respectively. Coleman has recently asserted that none of the diets heretofore employed successfully fulfil the two main indications for treatment, namely, to protect the ulcer from mechanical and chemical injury, and to maintain the nutrition of the patient at a level which will favor the healing of the ulcer. He aims, therefore, to select foods which, because of peculiar individual properties, will give a larger protection to the ulcer. As some others have done, Coleman[1] attains complete rest for the stomach during from three to five days through the use of glucose enemas—300 c.c. of a solution of from 7 to 12 per cent. by rectal drip, three or four times a day. The quantity of water is sufficient to prevent thirst. Protein and fat are not added to the enemas because of the doubt of the absorption.

According to the dictum of Pawlow, egg albumin alone does not call forth gastric secretion, and "fats" inhibit it. Coleman therefore regards these foods as peculiarly suited to the conditions imposed by a gastric ulcer. Oils may even act like demulcents to protect denuded surfaces. In Coleman's plan, olive oil is given at first in moderate but gradually increasing quantities, up to a total of 150 c.c. a day, 1,395 calories. The whites of two or three eggs a day are added shortly after the oil is begun and increased to five or six—from 7 to 8 gm. of nitrogen and 450 calories. The 100 gm. of glucose, given by rectum throughout the treatment, brings the energy intake to 2,200 calories a day. The procedure is continued for three or four weeks. The scheme makes an appeal as being physiologically rational, and its adherents assure us that it has gained successes. It is true, however, that diverse other procedures produce similar successes, and it must ever be remembered that nature is a beneficent helpmate to damaged tissues.

THE SIGNIFICANCE OF BLOOD PLASMA VOLUME

The accurate study of blood volume in its possible relations to pathologic conditions is one of the more recent developments of progressive clinical medicine. As the blood is made up of two unlike components, the plasma amounting to approximately 55 per cent. of its weight, with a residual 45 per cent. of corpuscles, it is evident that changes in either of these factors may suffice to alter the quantitative composition of the entire mass. On this account mere estimation of the corpuscular content or the quantity of hemoglobin in the blood will not give a true picture of the volume changes in the blood; for it by no means follows that alterations in the cellular components are accompanied by either corresponding or compensating changes in the volume of fluid in which the cells are suspended.

Accordingly, new procedures, notably the dye method proposed by Keith, Rowntree and Geraghty,[2] have come into vogue. With their special technic they secured remarkably constant results on normal persons, the total blood mass averaging 8.8 per cent., or 1/11.4 of the body weight in a series of eighteen men. Working at the Medical Clinic of the Massachusetts General Hospital in Boston, Bock[3] obtained almost identical results. Both groups of clinicians have reported essentially identical figures, 5 per cent., or one-twentieth, as the average plasma volume expressed as a fraction of the body weight.

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[1] Coleman, W.: A New Diet for Gastric Ulcer, Proc. Soc. Exper. Biol. & Med. **18**: 43 (Nov. 17) 1920.

[2] Keith, N. M.: Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med. **16**: 547 (Nov.) 1915.

It is superfluous to call attention to the wide variations which the corpuscular volume and the hemoglobin content of the blood may undergo as the result of injury or disease. Apparently, marked shifts may also occur in the distribution of the red corpuscles into and out of the peripheral circulation so that the fluctuations in their mass may be quite unexpected. According to Bock, however, even in the midst of great variations in the corpuscular mass the plasma volume of the blood is surprisingly constant. In the studied cases of edema associated with cardiac and renal disease there has been no shift of increased fluid into the blood, but the balance between plasma and tissue fluids was maintained through such an interchange of fluid and dissolved substances as to maintain the fluid phase of the blood at about its normal level. These facts mean, therefore, that variations in the total blood volume per kilogram of body weight are due for the most part to changes in the corpuscle content of the blood. After acute hemorrhage, in which changes in blood volume are commonly reported, it has been shown by Bock that ordinarily rapid dilution of the plasma volume to its former normal level occurs and that it remains constant thereafter, even though the total blood volume may be much reduced by reason of loss of red corpuscles.

It should not be concluded that alterations in plasma volume never occur. The data from hemorrhage and shock, diarrheas of the severe types encountered in cholera, edema of the lungs, and the cases recently described by Marriott[4] under the caption of anhydremia in children, point to actual changes in plasma volume. The severity of the symptoms in such conditions is presumably attributable to the dehydration of the tissues in the effort to meet the requirements of the blood plasma. Consequently, one aim of effective therapy should be to restore the lost fluids and avert the danger of tissue desiccation. Stable plasma volume apparently is an expression of the effort of the organism to secure an equilibrium between cells and plasma —an adjustment that is ordinarily as prompt as is the neutrality regulation of the organism. As Bock states, the physicochemical relations existing between the blood and tissues of the body form a series of complex phenomena that is disturbed only with difficulty. It seems reasonable to suggest, Bock adds, that the plasma volume must be free from great alterations from the normal, in quantity, if cellular activity is to proceed at an optimal rate. While absolute fixation of the plasma volume cannot occur in the nature of things, the considerations reviewed above indicate only a narrow range for the volume changes that may occur. Diagnostically, the alteration of plasma volume (rather than merely total blood volume) is indicative of a seriously abnormal physiologic situation that demands relief because the normal adjustments between blood fluid and tissue reservoirs can no longer be properly secured. Therapeutically it points to the necessity for effecting a normal tissue fluid reserve; for, as Bock has maintained, when such a reserve is present, the blood plasma volume tends to remain at a normal physiologic level.

FOOD AND THE CHILD

With the problem of an adequate food supply for millions of people in diverse parts of the world—in far eastern China as well as in central European Austria and Poland—brought vividly to our attention, has come the fundamental question of the nutritive requirements of the individual. It is futile to argue about surplus when millions are threatened with starvation. On the contrary, one is continually impelled to ask what are the minimal needs to preserve health, maintain strength and, if possible, promote working efficiency. Debates about the protein requirement, the fat minimum and other important details of nutrition have become overshadowed by the even more fundamental inquiry as to the amount of energy in the form of any available combination of foods absolutely essential to prevent human deterioration. The war time slogan, "Provide the calories and the protein will be provided thereby," has received renewed attention in these ominous days.

The food needs of groups of persons vary in relation to diverse factors, some of which are clearly recognized. Bodily activity is of fundamental importance. Work cannot be accomplished without supply and expenditure of energy in the human organism any more than it can be in a nonliving machine of human construction. The active worker must receive more food fuel than his sedentary neighbor. Aside from this, however, there is a fundamental requirement technically described as due to the "basal metabolism." Human calorimetry, a subject investigated with much enthusiasm and notable success by a number of scientists in this country, has at length furnished a wealth of data respecting the fundamental energy need of the body at complete rest. Upon the values thus derived, other supplementary needs must be superimposed. The working quota, the allowance for physiologic expenditure in digestion, the proportions set aside for special tissue repair or growth where this still occurs, the losses through the excreta—these are well appreciated additions to the basal needs.

It has been pointed out frequently of late in the columns of The Journal that a further factor of size, particularly in relation to age, has not always received the consideration which its rather unexpected significance in nutrition demands. Only a few years ago it was customary to apportion the family food requirement on a theoretical basis according to a commonly used system of coefficients; for example, assuming that a man takes one portion, then a woman takes 0.8, a boy of 12 takes 0.8, a boy of 8 takes 0.7, and so on. For adults it may probably be said, with considerable approach to accuracy, that the basal metabolism of different individuals, such as a large man or a small woman, is roughly proportional to their size. Size is usually expressed as weight, but such expression is slightly inaccurate. The fat person, because his fat deposits are not an active part of the body, has a slightly lower basal metabolism for his weight than the thin person. Women have on the average a slightly lower basal metabolism than men of the same weight. It is now scientifically established, on the other hand, that children have a decidedly higher metabolism per kilogram than adults. Boys of 12 to 16 years average 25 per cent. higher than grown men. This does not include their greater energy production when active, but is due to their quickened life processes. Old persons have a slightly diminished metabolism.

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[3] Bock, A. V.: The Constancy of the Volume of the Blood Plasma, Arch. Int. Med. **27**: 83 (Jan.) 1921.

[4] Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.

A dietary survey of the food intake of children given a free range of choice tends to substantiate in a statistical way what the calorimeter has so clearly demonstrated by means of direct individual scientific measurements of the energy exchange. Holt and Fales[1] have lately reviewed the whole subject of the food requirements of the child during the entire growing period. From a critical study of the elaborate data now secured, they conclude that the food value normally lost in the excreta is a nearly uniform proportion of the intake, about 10 per cent., for all ages after infancy. The requirements for growth are greatest during the period when growth is most active, namely, during the first year of life and during adolescence. They are nearly uniform from the fourth to the tenth or eleventh years. The average for three factors—basal, growth requirements and food values lost in excreta—are nearly uniform for children of the same weight living under similar conditions. The requirement for activity is the only factor which varies widely with different individuals.

More concrete and of direct practical bearing are the added conclusions respecting the average calorific needs of children during the school age. Holt and Fales point out that the calory allowances must be decidedly higher than is generally assumed for the period of adolescence, particularly because of the high basal metabolism, the increased growth needs and the large requirement for the familiar muscular activity of youth. A dictum that may come with surprising force to many is this: The total daily caloric requirement of children of both sexes during adolescence exceeds by nearly 1,000 calories the requirements of the adult man or woman of moderate activity. Children who are underweight require more calories per kilogram than those who are of average weight for their age. Children who are overweight require fewer calories per kilogram than those of average weight. It is a common observation, says Holt, and an undoubtedly true one that during adolescence the average boy or girl takes more food than the average adult man or woman. Unquestionably, this represents a real physiologic need.

The exhortation to make the values for the daily food intake exceed adult standards during adolescence will lead to earnest thought on the part of many interested persons. Lately we have been warned against the dangers of overeating, inactivity and consequent obesity in the adult.[2] Evidently we shall do well to transfer the surplus in many cases from the account of the adult to the credit of the adolescent, for as Benedict, too, has concluded: "It is still the best practice to give a most liberal diet to children, since the greater part of the evidence on underweight indicates that children usually receive too little rather than too much food." Formerly one was warned about "sparing the rod and spoiling the child." Perhaps a corresponding adage might be promoted to warn us not to "spare the food and stunt the child."

Current Comment

THE ALLEGED GERMICIDAL PROPERTIES OF MILK

More than thirty years have elapsed since Nuttall, investigating the mechanism of natural immunity, demonstrated experimentally that blood possesses the power of killing bacteria. Soon afterward the investigation of such bactericidal power was extended to other body fluids. A somewhat comparable phenomenon has been observed in the case of milk, but the explanation of what takes place has been the subject of active debate. The facts are these: When freshly drawn milk stands without being manipulated in any way, an apparent decrease in the number of bacteria that it contains takes place within a short time. This behavior is seen only in raw milk, never being observed in milk that has been heated to any considerable extent. With respect to the temperature at which the milk is deprived of this potency, opinions have varied. A number of bacteriologists have stated that the rapid decrease in the number of micro-organisms in raw milk is apparent rather than real. They ascribe the results actually observed to an agglutination of the bacteria present so that a smaller number of colonies may exhibit themselves in the modes of counting currently employed, although no fewer organisms are actually encountered. Should this be true, it would obviously be a misnomer to speak of the germicidal properties of milk. Chambers[3] has recently subjected the problem to a renewed investigation at the University of Illinois. The combined evidence of microscopic examination and plate count demonstrates a bactericidal property, or actual decrease in numbers of bacteria in raw milk under certain conditions. Part of the earlier discrepancies lay in the failure to recognize that the germicidal action is specific, depending on the individual animal and on the species of bacteria involved. In the freshly drawn mixed milk from a herd of cows, the bacterial inhibition may therefore be variable. When only the total number of micro-organisms in the milk is considered, a decrease in numbers may be evident, or one unaffected strain by its rapid increase may completely hide the germicidal action on another less numerous strain. Chambers suggests that the predominance of lactic acid forming organisms with the increasing age of the milk might be attributed to bacterial inhibition; for these organisms are apparently unaffected by it, increasing immediately from the start, whereas the other organisms seem to be restrained in growth and, in some cases, decreased in numbers. The germicidal property is destroyed by heating to from 80 to 90 C. (176 to 194 F.) for two minutes. Correlation between agglutinating and germicidal power has not been demonstrated. To explain the latter, one naturally thinks of a serologic origin; but this is at present nothing more than a vague hypothesis.

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[1] Holt, L. E., and Fales, H. L.: The Food Requirements of Children, Am. J. Dis. Child. **21**: 1 (Jan.) 1921.

[2] Joslin, E. P.: The Prevention of Diabetes Mellitus, J. A. M. A. **76**: 79 (Jan. 8) 1921. The Danger of Being Too Fat, editorial, J. A. M. A. **76**: 523 (Feb. 19) 1921.

[3] Chambers, W. H.: Bacterial Inhibition, I, Germicidal Action in Milk. J. Bacteriol. **5**: 527 (Nov.) 1920.

THE MOTILITY OF THE PYLORIC SPHINCTER

In a recent issue of The Journal,[1] the changing views with reference to the factors that control the opening and closing of the pyloric sphincter were reviewed. It was pointed out that the theory of the chemical control of this function which assumes that acid plays a decisive part in the normal behavior of the pylorus is being abandoned in the light of the growing evidence that such an hypothesis fails to conform to many of the known facts. It is always hazardous to advise the abandonment of long accepted conclusions until the evidence against them is sufficiently cogent and overwhelming to justify clearly a new point of view. An "open mind" is not necessarily synonymous with an iconoclastic attitude. Proof should supersede prejudice. The mode of action of an organ as important as is the stomach cannot fail to interest the physician. Hence we are impelled to report additional evidence in substantiation of the thesis that acid is not the principal factor controlling the opening and closing of the pyloric sphincter. Wheelon and Thomas[2] of the St. Louis University School of Medicine have succeeded in recording simultaneously the motor activities of the antrum and the pyloric sphincter, and in demonstrating that they are remarkably coordinated and in a high degree dependent on each other. It may be regarded as established that the antrum is an organ of special motility, the purpose of which is to mix the ingesta and bring them into contact with the gastric juices, and to propel the semidigested chyme onward into the duodenum. The direct graphic and roentgenographic observations of the St. Louis physiologists indicate that the phases of activity in the sphincter are such as to supplement those of the antrum; hence the motility of these two parts may be considered as constituting a cycle of the pars pylorica. The outcome is that the sphincter is open during the greater part of the antral contraction and actively closed while the antrum is relaxing. In other words, the behavior of the pyloric sphincter is the physiologic consequence of the state of contraction or relaxation of the part of the stomach adjacent to it. The familiar "law of the intestine"—the seemingly purposeful interrelation of contraction and inhibition, respectively, in connected segments of the enteric tract—is apparently followed. As for the possible rôle of acid, as Wheelon and Thomas state, one cannot but conclude that if it really acts to regulate the pylorus it must also act in a similar way on the antrum and stomach as a whole; for "the motility of the antrum determines the motility of the sphincter."

TRIBUTE WE PAID GERMANY

According to a recent newspaper clipping "the sum of $500,000 has been given by Drs. Schamberg, Kolmer and Raiziss to the Dermatological Research Laboratories for the support of medical research." The clipping states further that the amount represents the profits received during the war from the sale of the arsphenamin which was manufactured—first as a wartime necessity and later as a licensed preparation—at the Dermatological Research Laboratories, under the control of these men. When it is recalled that the drug was sold at about one-third the prewar price of "salvarsan" of German make, and also that the drug was prepared during the economic conditions attendant on the war, the vastly greater toll collected by the German proprietors at the time they controlled the sale of "salvarsan" may be easily calculated. It is indeed to the credit of the American workers that their gains—modest in comparison to those of the Germans—have been dedicated to altruistic purposes.

UNIFICATION OF FEDERAL HEALTH WORK

"Lest we forget," and simply as a reminder, we reproduce a plank in the platform of the Republican party, as adopted last June:

> The public health activities of the federal government are scattered through numerous departments and bureaus, resulting in inefficiency, duplication and extravagance. We advocate a greater centralization of the federal functions, and in addition urge the better coordination of the work of the federal, state and local health agencies.

It is hoped that the party now in power will not forget an important plank of the platform on which it rolled into power.

Surgery; Hospital: Nursing.—The tripod on which the alleviation of a great many of the sufferings of mankind and the prolongation of human life rests, has for its supports good surgery, good hospitals, good nursing.—J. J. Walsh, *Hospital Progress* **3**:53, 1921.

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[1] The Control of the Pylorus, editorial, J. A. M. A. **75**: 1648 (Dec. 11) 1920.

[2] Wheelon, H., and Thomas, J. E.: Observations on the Motility of the Antrum and the Relation of Rhythmic Activity of the Pyloric Sphincter to That of the Antrum, J. Lab. & Clin. Med. **6**: 124 (Dec.) 1920.

Association News

THE BOSTON SESSION

Special Railroad Fares

The Trunk Line Association acts for the railroads within the following territory:

New York State (east of and including Buffalo, Niagara Falls, Suspension Bridge and Salamanca), New Jersey, Pennsylvania (east of and including Erie, Oil City and Pittsburgh), Delaware, Maryland, District of Columbia, Virginia and West Virginia (east of and including Wheeling, Parkersburg, Kenova, Orange and Norfolk).

This association has just announced that there will be available for members of the American Medical Association who go to Boston for the annual session a special rate for the round trip, going and returning by the same route, of one and one-half fares to the western gateway of the New England Passenger Association territory, plus double the regular one way fare from this gateway to Boston. In order to secure this rate, the purchaser is required to present an identification certificate. One certificate will enable the member to purchase tickets for himself and for dependent members of his family. These identification certificates may be secured by writing to the Secretary of the Association, Dr. Alexander R. Craig, 535 North Dearborn Street, Chicago, and enclosing a self-addressed, stamped envelop. They will not be available for two or three weeks, so that requests received in the interim will not be acknowledged but will be filed and will be given attention as soon as the certificates are available.

Tickets will be sold on presentation of these certificates from June 4 to 6, and will be validated at Boston during the days of the session. When validated, these tickets will be good for return, leaving Boston on the date of validation, and the passengers must reach original starting point within the limit shown on tickets but in no case later than midnight, June 13.

As soon as advices are received from the chairmen of other passenger associations regarding the action which may be taken by their lines, the American Medical Association will be informed and prompt announcement will be made through The Journal.

ANNUAL CONFERENCE ON MEDICAL EDUCATION AND HOSPITALS, LICENSE AND PUBLIC HEALTH

Held in Chicago, March 7-10, 1921

MEDICAL EDUCATION AND HOSPITALS

Monday, March 7—Morning

The Seventeenth Annual Conference of the Council on Medical Education of the American Medical Association met in the Florentine Room of the Congress Hotel and was called to order at 9:40 a. m. by Dr. Arthur Dean Bevan, Chicago, chairman of the Council on Medical Education.

Organization of the Profession for the Practice of Modern Scientific Medicine

Dr. Arthur Dean Bevan, Chicago: The task to which we dedicated ourselves—the securing of uniform and acceptable standards—has in large part been achieved. The accepted American standard is now two years of premedical work in a university, a four year medical curriculum and a hospital year, forming as high a standard of medical requirements as those adopted by any country. But our task has not been completed. Last year the House of Delegates added to the duties of the Council on Medical Education the duty of studying the hospitals of the United States for the purpose of improving their standards and the character of their work. This added function came naturally enough, as with the addition of the hospital year to the medical curriculum the Council had been compelled to investigate carefully the hospital problem from the educational standpoint.

As the work of the Council grew and we were compelled to study not only the undergraduate medical work but also the intern year in the hospital, graduate medical work, the training of specialists, the development of group practice and the actual medical work done in hospitals, we have realized that our problem is a large and complex one. There has crystallized clearly into view the fact that the efforts of this congress and of the organized profession of the country are all for the common purpose of securing for the people the great possibilities of the cure or prevention of disease offered by modern scientific medical practice.

There has been much discussion of the coming of compulsory health insurance and state medicine. Fortunately, other countries have experimented with these methods and the results are not sufficiently encouraging for us to follow their example. It has become more and more evident that these great medical problems must be solved, and the medical work done by the medical profession itself. In our democratic form of government the medical functions of the city, of the state and of the nation must largely be developed and carried on by those who are best qualified—the medical men themselves.

How can this best be done? By a scheme of state medicine? Probably not. How then? By the intelligent and well organized efforts of the medical profession. Is this to be accomplished by creating out of the medical profession a huge political machine which shall enter into every town, every county and every state and which shall enforce laws for the purpose of furnishing medical care to all individuals? Not at all. It is not necessary to alter in any way our present laws or our present organization. It is simply necessary for the organized profession to recognize the fact that its most important function is to secure for all our people the benefits of modern medical practice and to develop intelligent practical plans to secure the best medical service possible in each community. Such a program means the cooperation of the profession with the municipal, state and national authorities. It means an energetic and intelligent propaganda for the education of the people and the profession. It means the creation of a public opinion which will demand efficient, sound, universal medical practice, and it means providing for each community the necessary medical men and medical plants and medical equipment.

The time has arrived when it is evident that we must reorganize our course of medical study for the purpose of giving a broader and less specialized training to the men who graduate in medicine and who are to become general practitioners. The training of specialists comes later and is the special preparation to be given to a limited group of men, 10 per cent. or more of the practitioners of the community, who are to provide expert medical services in limited fields of practice.

We must not only reorganize our undergraduate work on broader lines, but we must give to the position of the general practitioner the importance which it deserves in the whole medical scheme. The common illnesses furnish much more than 90 per cent. of the total number of cases in actual practice, and these cases can be much better taken care of in a community by the broadly trained general practitioner who lives there and is always accessible than they could possibly be by any scheme which employs the services of specialists, no matter how competent.

There are two safe plans for the practice of a specialty: First, the practice of a specialty by a specialist who has the broad view of medicine acquired in general practice as well as the special training required in his limited field. Second, the practice of a specialty by a specialist who lacks the broad training of the general practitioner, but who acts as a member of a group well organized for group practice, so that patients referred to him have been carefully gone over by a man broadly trained in general medicine who acts as captain of the group and makes the diagnosis of the general condition of the patients and decides what cases require the services of this or that particular specialist and controls in a general way the diagnosis and the therapy in the case.

The broad question of organizing medical practice so as to secure for the public the great possibilities of modern medicine is a large and complex subject. It includes not only the subject of educating the general practitioner and medical specialist, but also the organizing of general hospital and outpatient departments, of special hospitals and group clinics, wherever they are needed, the proper training of nurses, proper public health service, and the combining of all this work with the practice of medicine in the most effective way. In a practical way the first step to be taken by each county and each state medical society is a survey of existing conditions to ascertain its medical needs.

Private Medical Practice in Its Relation to the Idea of Progress

Dr. V. N. Leonard, Duluth, Minn.: We are all ready to admit that the average patient is entitled to the best that scientific medicine can offer. This is our responsibility. Yet we know that in spite of increased educational requirements in the medical schools, the extension of postgraduate training and the division of work into various special fields, this responsibility has not been fully met. Sooner or later the fact must be faced that our present system of individual medical practice not only cannot of itself be made to shoulder its present responsibilities but will become less and less capable of doing so because of the ever increasing complexity of our work. If the practice of medicine is to endure as a private enterprise, it must meet its responsibilities completely and efficiently.

Whatever reorganization of our methods may be necessary, it must originate within the profession and be directed and controlled by it. The danger of legislation destructive to the rights and privileges we now enjoy, to our ideals, our hopes and our power for public good is a real danger.

The task of training any individual to shoulder the enormous burden of modern medicine has long since become impossible. No man, however resourceful, however comprehensive his training, can ever hope to carry it. The one obvious solution of the difficulty is a rational division of labor—not a division which will scatter the fragments of scientific medicine to the four winds, but a division by closely cooperating workers, one which will offer proper guidance to the patient, one which will admit of a ready synthesis of diagnostic findings and intelligent collaboration in therapy.

What would become of the general practitioner under such a reorganization? For the reason that most of us are general practitioners this question would perhaps concern the profession more than any other. In the first place, large numbers of physicians now in general practice would become members of cooperative groups. A group entirely composed of general practitioners can, as experience has shown, at least afford adequate laboratory facilities which are beyond the reach of the individual. Such a group will progress in direct proportion to the vision and unselfishness of its constituents. Each can be encouraged to develop himself along chosen lines, to assume his chosen portion of the burden. Given the opportunity, which might never have come to him as an individual, a member of such a group will soon be doing better work in his chosen field than any one in his community. Coincident with this development, the community will soon be receiving a quality of medical service which it had never known and which it will be quick to appreciate. But what of the general practitioner in this community who prefers to remain in independent practice? There will be many like him, and many will be needed. No reorganization of our methods could ever supplant the family physician. He is a necessary and vital factor in the public welfare. But his burden must be lightened, he must have the practical support of the group, and the group must have his cooperation. Cooperation is the keynote of the whole situation. The practitioner must realize that the group needs him quite as badly as he needs the facilities which the group has to offer, while the group must realize that to obtain his support its facilities must be freely opened to him in a genuine spirit of service and cooperation, respecting his rights, and scrupulously turning back to him such work as he can adequately handle.

It is the belief of a constantly increasing number of medical practitioners that group work will accomplish at least two things: First and foremost, it will enable the clinician to meet his full responsibilities to his patient in offering to the public a comprehensive service at a cost which can be met by the average patient. Second, it offers a much needed opportunity for closer organization of the profession as a whole.

What concerns us most at present is how to enable the practicing physician to meet the increasingly heavy demands modern conditions are heaping on him. The solution of this problem will largely determine the future relation of the physician to society. If the state must carry a portion of his burden he will sooner or later become the servant of the state. If politics can be kept out of medicine until the profession itself has an opportunity to accomplish a satisfactory reorganization of its methods, and especially if such a reorganization should result in a close cohesion among medical men as a whole, a future commensurate with our honorable past may be assured.

SYMPOSIUM ON GRADUATE TRAINING IN THE VARIOUS MEDICAL SPECIALTIES

Medicine and the Medical Specialties

REPORT OF THE COMMITTEE ON INTERNAL MEDICINE

Dr. James B. Herrick, Chicago: As to the requirements for recent graduates applying for certificates of competency as internists, the members of the committee are in quite general accord as to the principles involved.

1. It is felt that all such applicants must be able to furnish evidence of satisfactory training in the fundamental sciences of chemistry, biology and physics.

2. It is felt that candidates must be graduates of reputable medical colleges, but that a certain degree of latitude must be allowed in the interpretation of this requirement. It hardly seems fair to demand that all applicants be graduates of Class A schools, for not infrequently able men graduate from poor schools, but have been able to overcome that handicap. The danger of accepting poorly prepared men can be overcome by formulating required standards of work during the intern year.

3. Inasmuch as an intern year is part of the required course in some schools, it must be assumed that all candidates should be able to present evidence of having taken at least a year's work after the standard four-year medical course.

4. There is a certain amount of difference of opinion among the members of the committee as to the time to be required for special preparation for internal medicine and the way in which it is to be spent.

(*a*) There is substantial agreement that not less than three years' work, exclusive of the preliminary intern or laboratory year, will be required to acquire a reasonable degree of proficiency. Some members of the committee believe that a longer period is desirable; none favor a shorter one.

(*b*) There is fairly substantial agreement regarding the conditions under which the candidate should work. They may be summarized as follows:

(1) The work should be done under the supervision of a recognized institution.

(2) Time should be available both for careful routine work and for study and research.

(3) The principle of increasing responsibility with increasing efficiency should be followed.

(4) The applicant should be required to show special proficiency in some one field.

(5) He should be required to make a special study in the preclinical sciences underlying this particular field, and

(6) He should present evidence demonstrating his familiarity with the methods and aims of research, including knowledge of the use of literature.

It is believed that the nature of the work should be about as follows:

1. Clinical study of patients for about 50 per cent. of the allotted time.

2. Study of scientific problems in the laboratory for the remainder of the allotted time.

The examination of candidates should be as practical as possible, but should at the same time assure proof that the examinee has grasped the principles underlying his professional life work. So far as possible the bedside examination and the carrying out of assigned laboratory procedures should be the chief means of determining efficiency, but there is doubtless a place also for written and oral tests.

REPORT OF THE COMMITTEE ON PEDIATRICS

Dr. Harry M. McClanahan, Omaha: Conclusions: 1. Young men who can and will give three years to the study of pediatrics and the allied sciences are those who in the future will be qualified to take chairs in our universities. These men will be capable of doing research work and logical thinking. They will add to our knowledge.

2. Older men who have had a considerable practical experience cannot take such courses; neither can they become proficient in certain of the sciences. These men should have the opportunity, therefore, of perfecting themselves in embryology and anatomy of the infant, in physiology and a sufficient knowledge of chemistry and biochemistry to at least recognize the cases that should be benefited by such knowledge. The modern tendency toward group medicine will make it possible for men with wide clinical experience to become associated with younger men with modern training, and can thus give their patients the benefit. They should, however, possess sufficient training to enable them to interpret the findings.

3. Opportunities for studying diseases of the new-born should be afforded those doing postgraduate work. Many lives are sacrificed at

the threshold that might be saved. It would be well to establish a closer affiliation between the departments of obstetrics and pediatrics, as is now the case in the University of Minnesota.

4. The question of degrees and certificates requires separate consideration. Degrees can be granted only by universities and it seems to me that a discussion of this subject is beyond the province of the committee. Certificates can be granted by any properly constituted body. When certificates are granted by personal examination of the applicant, they will have a distinct value; the chief advantage in our judgment resides in the fact that the man poorly qualified will hesitate to apply for a certificate. It will encourage physicians to prepare themselves more fully in order to obtain a certificate. I quote as follows a letter received from Dr. George Blumer: "I feel that when it comes to the granting of certificates, we must not be too technical the way a man reaches efficiency, provided we are satisfied he has attained it, so that we shall probably have to treat the case of the older man differently from the case of the young man who takes up some particular subject right after graduation."

5. Are our medical schools in the chief medical centers prepared to give ample opportunities for postgraduate study in both clinical and laboratory departments? This question is answered by an article appearing in The Journal of the American Medical Association, June 15, 1920, by Dr. Louis B. Wilson of Rochester, Minn. The evidence is that the American universities have ample facilities.

6. Pediatrics is internal medicine with an age limit. Infants and children are subject to nearly all the diseases of adults excepting those due to age; hence it follows that clinical facilities should be provided in the various clinics, as skin, venereal, genito-urinary, eye, ear, nose and throat departments. Surgical pediatrics should also receive consideration; for example, congenital hypertrophic pyloric stenosis.

GRADUATE TRAINING IN NEUROPSYCHIATRY

Dr. Arthur S. Hamilton, Minneapolis: Of the Johns Hopkins' graduates since 1912, 6 per cent. are now engaged in nervous and mental diseases, but it must be realized that special facilities in this line exist in Johns Hopkins, and on that account an unusually large number of graduates would enter neuropsychiatric work. Dr. Bevan estimates that in the United States about 3,000 students are graduated each year, and of these something like 300 to 500 become specialists. Assuming that 10 per cent. of these choose neuropsychiatry as their specialty and that each determines on a three-year course of preparation, we must provide for from ninety to 150 men as constantly under training.

In the opinion of the committee, an adequate graduate training sufficient for university endorsement of qualification to practice as a specialist in neuropsychiatry calls for a minimum course as follows in the order suggested by the Council on Medical Education:

(*a*) The basic general training in the undergraduate medical school should be at least that of Class A school, giving laboratory courses in neuro-anatomy, neurophysiology, neuropathology and instruction in psychology, clinical neurology and psychiatry. The number of hours recommended by the American Medical Association (105) for clinical instruction in neuropsychiatry is not sufficient, especially when the students have not been well prepared in the preclinical branches, with the result that the general practitioner is ordinarily lamentably ignorant of nervous diseases and especially of functional and behavior disorders which are by far most frequent in general practice. It might well be emphasized that even more important than the time element is that of competent instruction.

(*b*) Courses leading to the specialty, which might be elective in the undergraduate medical school, should include advanced work in all of the foregoing; yet it must be borne in mind that, with the crowded state of our present curriculums, the student cannot hope to become sufficiently familiar with any one and much less with all of even the preclinical subjects, and a considerable part of the postgraduate period must be set aside for additional work in the fundamental subjects. It must also be remembered that most men select their special field in medicine during the course of their internship or after entering practice, and to such men electives in the undergraduate period will have had no special value. Considering also how important it is that specialists in neuropsychiatry should have a good understanding of general diagnostic procedures, particularly as applied in internal medicine, it is easy to see how a student may come to his postgraduate work relatively overweighted in his preparation for neurology, but lacking in sufficient general foundation.

(*c*) The hospital internship is an essential part of the preparation for specializing in neuropsychiatry and should be either a rotating general service or a service in internal medicine. The broader the understanding of general medicine and of pathology, the better specialist will the man be.

(*d*) 1. Review courses in anatomy, physiology, pathology and psychology are not sufficient. Undergraduate instruction in the preclinical subjects, even when supplemented by electives, does not constitute a sufficient basis for subsequent specialization, and any attempt merely to review these courses must result unsatisfactorily. Only extensive independent investigation in these subjects, wholly different from the didactic work of the undergraduate period, will suffice.

A much closer correlation than is usually found is needed between the clinical and preclinical subjects, and work in the latter field should be directed by one who is at least in sympathy with and able to appreciate the clinician's point of view. In other words, in neuro-anatomy, neurophysiology and neuropathology, the instructor should have in mind integration, localization and clinical application, and should teach them as applied science rather than as pure science. In even greater degree is it necessary to bring psychology, as ordinarily taught, into close relationship with the needs of one who will ultimately engage in the practice of medicine. Research in human behavior as a field of psychology is just beginning, and yet it is this which the medical student really needs. Considering the lack of clinicians qualified to teach the laboratory branches, the necessary correlation can probably be better secured by proper cooperation between the laboratory and clinical teachers than through the assumption of preclinical branches by the latter.

A too rigidly prescribed course to be required of every one entering the practice of neuropsychiatry must be avoided. Standards are essential, but there will always be those of exceptional ability or whose peculiar experience may have been such as to amply qualify for practice, teaching and research, even though they may not have had the benefit of a well-planned and well-balanced period of study, and the time will always vary with the preliminary attainments and native ability of the student. Accomplishment rather than time spent should be the determining factor in deciding on fitness. Yet all this constitutes no reason why a well-planned and well-balanced course of study may not be available to those who desire to fit themselves for a course in neuropsychiatry.

REPORT OF THE COMMITTEE ON POSTGRADUATE INSTRUCTION IN SURGERY

Dr. Charles H. Frazier, Philadelphia, and **Dr. Dean Lewis**, Chicago: In consideration of postgraduate instruction in surgery, the committee realized that provision must be made for two separate and distinct groups: First, those who, on graduation in medicine, may wish to pursue a course which, on its completion, will prepare them for the practice of surgery and lead to a degree; and, second, those who have been engaged in the practice of general medicine for a number of years and wish to prepare for the practice of surgery; or, having practiced surgery, are desirous of perfecting themselves in the more recent developments in diagnosis and practice.

Group 1. This committee in its recommendations has in mind the degree of Doctor of Philosophy, but it is apparent that requirements for this degree may not be uniform in the several universities in which the candidates may be enrolled. Therefore, before the report of this committee is adopted, a conference should be had with the representatives of the graduate schools of the leading universities for the purpose of ascertaining under what conditions the degree of Doctor of Philosophy will be granted.

Group 2. To outline a course of preparation for those who can continue their hospital service as in Group 1 for the minimum three years, is not a difficult task. It implies merely continuance of a hospital service, beginning in the junior grades and advancing to a position of greater responsibility. The candidate would be part of an organization already in operation in many hospitals.

Recommendations as to Group 1: 1. The postgraduate course, as herein provided, is the equivalent of that now required for a Ph.D. degree in other departments of graduate schools.

2. For the prospective candidate there should be no differentiation in the third and fourth years of undergraduate study.

3. As a preliminary requirement each candidate should serve an internship, preferably a rotating service. This service should be at least one year in length in an approved hospital, and at least six months of the time should be devoted to medicine.

4. The candidate should be a graduate of a Class A school.

5. The committee does not approve of a definite time schedule, but the candidate should meet the requirements, in time, in the character and amount of work accomplished, of the degree in question.

6. The candidate should demonstrate his capacity for investigation and research by presenting an acceptable thesis based on the thorough study of some definite surgical problem.

7. The candidate should receive his training in a hospital with at least seventy-five surgical beds. His service should include personal contact with patients, history taking and clinical and laboratory examinations in wards and dispensaries.

8. A course in operative surgery on the cadaver is highly desirable, but the course should include also operations on animals and assistance in the surgical clinic.

9. Not only is there no objection to the candidate's being assigned as an instructor if qualified, and when the opportunity offers, but the committee believes that training in teaching has many advantages.

10. Before completion of the courses outlined, an examination shall be conducted by a board authorized to grant a degree; this board may be appointed from the members of faculties of universities engaged in the giving of postgraduate courses in medicine.

11. The examination, which should be oral and written, should include the following subjects: surgical diagnosis, including the examination of patients; surgical pathology; surgical anatomy; surgical physiology; operative surgery; preoperative and postoperative care of patients; traumatic and surgical diseases.

12. In the preparation for the degree, "practical surgery" should be the major subject; anatomy, physiology or pathology the minor subjects.

13. To those sufficiently well prepared and properly qualified, research problems in any one or more of the above-mentioned subjects may be offered.

Recommendations as to Group 2: 1. The candidate should be a graduate of a Class A medical school.

2. He should have served an internship in an approved hospital, the internship being at least one year.

3. The candidate should offer bona fide evidence that he is interested in surgery and that he is morally qualified.

4. The candidate should have a thorough review of anatomy and operative surgery and should come in contact with the patients before an operation and see, when possible, the operation and coordinate the gross pathology when such exists with the microscopic findings.

[Note.—The names of all the committeemen will appear in the full report.]

REPORT OF THE COMMITTEE ON OTOLARYNGOLOGY ON PREPARATION FOR SPECIAL PRACTICE

Dr. George E. Shambaugh, Chicago: Most of the men seeking preparation in otolaryngology have heretofore relied on the taking of postgraduate courses. These, for the most part, are short, intensive courses and clinics suitable especially as review work for those already established in special practice. Such courses do not form a proper basis for the preparation of the specialist, even when pursued over a period of months or years. The objection to such courses as a basis for special practice is the same whether these courses are offered in New York, Chicago, London or Vienna. It is not in listening to discussions or demonstrations by others that the student acquires a store of useful knowledge, but by actually doing the work himself.

A few of our men have secured their special training by serving as interns in special hospitals. Such preparation has also been insufficient, as the time of the student is taken up largely by assisting at the major operations and by the surgical dressing of cases with little or no opportunity for the more difficult and much more important work of making careful examinations to determine what cases require surgical treatment.

In outlining a plan for the proper preparation for special practice, this committee has kept in mind the following principles:

1. The student must have proper preparation before taking up the work of the specialty. We recommend, therefore, that he be a graduate of a Class A school and shall have completed a full year as intern in an approved general hospital.

2. The work pursued must be on the basis of genuine graduate instruction in which the opportunity for work, adequate facilities, is provided, while the student is encouraged to do his work independently.

3. The subject matter must include work in the fundamental sciences as well as the clinical study of cases.

We recommend that the minimum period of training consist of eighteen months' full time work, the first year to be spent in one place. The last six months may be continued here or the work may be pursued in other approved centers. The work during the first year should include a half of each day devoted to the clinical study of cases, the other half day to the study of the fundamental sciences and to library work. All of this work must be done by the student independently under proper supervision. Instruction by course-taking, clinics, etc., is discarded as of no particular value in the first year of fundamental training.

The work in the fundamental sciences should be done in a properly equipped laboratory such as exists in all Class A medical schools. The clinical work must be done in a properly equipped and properly organized outpatient department either of a Class A medical school or of a special hospital, the student serving as clinical assistant.

On the completion of the first year's fundamental training, the student is advised to secure, so far as this is possible, the position of intern in a special hospital or of resident in otolaryngology in a general hospital.

For these students who are not able to secure suitable hospital positions after the completion of the first year's work, the remaining six months necessary to fill out the eighteen months' minimum requirement may be taken as continuance of the first year's work in the same institution or in advanced work in other centers. Others may devote the last six months serving as assistants in the practice of some established specialist. When the latter alternatives are followed, the work selected must meet with the approval of the institution in which the first year has been spent.

We recommend that on the completion of the foregoing requirements, the student be granted a certificate setting forth that he has had the proper training for taking up the practice of the specialty. This certificate is to be granted by the institution in which the first year's work has been taken. We make no recommendation regarding the granting of higher degrees. We feel satisfied that such degrees will be granted by the university as readily to those students preparing for the practice of otolaryngology as to students in any other field whenever the work pursued meets the requirements established for the granting of such degrees.

We recommend the perfecting of existing postgraduate courses, clinics, etc., as review work for those established in special practice, as well as for those who have completed the first year of fundamental training outlined above.

In order to put into operation this simple, effective program for preparing men in otolaryngology, we recommend that the Council on Medical Education and Hospitals, after investigation, publish a roster of the several institutions in this country prepared to fulfil the requirements for work as outlined above, giving the number of places available in each institution. This list should include only those Class A medical schools with an outpatient department properly developed and equipped for providing suitable work for a small corps of clinical assistants, as well as such hospitals with outpatient departments suitable for such work. It is also recommended that a similar list be published of approved special hospitals in which there are positions for interns available, as well as those approved general hospitals where there is a position of resident in otolaryngology. The list should state the number of places available in each hospital.

It is further recommended that the Council, after investigation, publish a list of such postgraduate institutions in which courses are being offered that are suitable as review work for those established in the practice of otolaryngology as well as for those who, after completing the first year's fundamental training outlined above, desire to finish their last six months' preparation by taking such special courses.

REPORT OF COMMITTEE ON ORTHOPEDIC SURGERY

Dr. R. W. Lovett, Boston, and Dr. Edwin W. Ryerson, Chicago: This committee takes the position at the outset that orthopedic surgery is a branch of general surgery, and that no preparation for the practice of orthopedic surgery can be considered satisfactory which does not comprise adequate practical training in the principles and technic of general surgery.

(*a*) Basic general training in the undergraduate medical school?

Answer: Basic general training in an undergraduate medical school, preferably a Class A school. The candidate for orthopedic surgery should take the standard medical course. The ability to read French, Italian or German should be considered as an added qualification for taking up the study of the specialty.

(*b*) Courses leading to the specialty which might be elective in the undergraduate medical school.

Answer: In the case of schools where orthopedic surgery is a required subject, and where the opportunity for elective courses exists, especial stress should be laid on the value of additional training in anatomy, surgical physiology and pathology, and neurology in the preparation of the orthopedic surgeon.

(*c*) The hospital internship at the time of graduation—should it be a rotating internship in a general hospital?

Answer: Surgical internship of at least one year.

(*d*) Minimum practical graduate training in the specialty considered: (1) Review course in the anatomy, physiology, pathology and bacteriology, etc., of the organs involved.

Answer: The minimum graduate course in preparation for the specialty of orthopedic surgery should include hospital work of at least one year (in addition to) devoted entirely to an orthopedic service, and six months of practical work in allied activities, such as physiotherapy, shop work and schools for the crippled. During this time, review courses in anatomy, surgical physiology, pathology, neurology and applied mechanics. It is hoped that the length of this minimum course may soon be extended to at least two years, but under present existing circumstances the committee is of the opinion that the course as recommended is as long as should now be considered the minimum.

(*e*) Suggestions regarding hospital internship or other clinical courses when further knowledge or skill in the specialty may be obtained.

Answer: If a student, on completing the minimum course as suggested, desires further clinical experience, he should obtain a fellowship in the subject at some institution where such facilities exist, or serve as assistant to a properly qualified orthopedic surgeon.

The committee feels that its recommendations should be held to pertain only to the training of specialists in orthopedic surgery, and not be considered as an expression of the value of short courses for graduates in medicine.

(*f*) Advisability of granting a certificate in the specialty to physicians who have demonstrated their proficiency.

Answer: The committee believes that no advanced degree should be given for less than three years of work in orthopedic surgery in a recognized university equipped to give such instruction. The course recommended earlier in this report as constituting the minimum requirement should be considered as forming a part of this three-year course leading to an advanced degree.

(*h*) Recommendations regarding a board of examiners and methods of testing proficiency of those completing the course, or others seeking the certificate in the specialty.

Answer: The committee is of the opinion that for the present it is not desirable to recommend in this specialty either examining boards or the issue of certificates.

OUTLINE FOR POSTGRADUATE STUDY IN UROLOGY

Dr. Herman L. Kretschmer, Chicago: Urology should be understood to embrace diseases of the urinary organs in men, women and children, as well as genital and sexual diseases of the male. The various surgical lesions of the above-mentioned organs are to be included.

Minimum requirements for training in urology: 1. Graduation from a first-class medical school.

2. The internship to be of two years' duration, which may be divided in one of two ways:

A. (*a*) A medical internship for one year; this to be a broad general service with men of wide experience.

(*b*) A surgical internship for one year in a general surgical service, with ample opportunity to perform the more common standard operations. This under supervision and instruction of the attending surgeon.

B. (*a*) Medical internship for six months.

(*b*) Surgical internship for six months.

(*c*) Gynecologic internship for six months.

(*d*) Surgical resident for six months.

These services to be taken in a standard hospital with a large clinical material and proper supervision.

3. Special urologic training, this to embrace two years and preferably three years of special training in urology in a first-class hospital. It should be offered only at such institutions as have fully equipped departments of urology with a large and varied material, including men, women and children, with ample opportunity to perform major urologic operations.

(*a*) Work in the outpatient department.

(*b*) Laboratory work to include bacteriology and surgical pathology of the genito-urinary system, blood chemistry, etc.

(*c*) Extensive experience in the use of special diagnostic and therapeutic instruments, such as cystoscopy, ureteral catheterization, urethroscopy, fulguration, pyelography, functional tests, etc.

(*d*) Roentgeography:

1. Primarily of the genito-urinary tract, that is, combined urologic and roentgen studies, such as pyelograms, cystograms, etc.

2. Secondarily, some instruction in roentgenography as relates to the genito-urinary tract, such as bone metastasis in malignant disease, bone changes in arthritis, etc.

(*e*) Ample facilities for research and experimental urology.

(*f*) Preoperative and postoperative care of urologic patients.

(*g*) During the period of training, at least six months should be spent as a resident urologist with extensive opportunity to perform major urologic surgery, or to act as an assistant to one experienced in urologic surgery.

(*To be continued*)

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Graduate Medical Course.—A graduate course in medicine and surgery has been established at the John A. Andrews Memorial Hospital connected with Tuskegee Institute, Alabama, beginning Monday, April 4, 1921, and continuing for four weeks. No arrangement is provided for a shorter course.

CALIFORNIA

State Medical Society Meeting.—The annual meeting of the Medical Society of the State of California will meet at Hotel Coronado, San Diego, May 10 to 12, inclusive.

Los Angeles County Medical Association.—The fiftieth anniversary of the organization was celebrated at a banquet, with Drs. Walter Lindley and Joseph Kurtz—the only surviving charter members—as guests of honor. The officers of the association for the present year are: Dr. Walter V. Brem, president; Dr. Hill Eastings, vice president; Dr. Harlan Shoemaker, secretary. At a regular scientific meeting held March 3, Dr. Edwin O. Jordan, Chicago, spoke on "Observations on the Epidemiology of Influenza."

DELAWARE

Care of Mental Defectives.—As a result of surveys in New Castle and Sussex counties made by the U. S. Public Health Service in collaboration with the children's bureau, the state officials engaged in the care of mental defectives have become intensely interested in the establishment of a bureau of mental hygiene in connection with the state board of charities. First steps in carrying out a program for the institutional care and community supervision of the mental defectives resident in the state, have been taken by the appropriation by the legislature of $60,000 for improving the care and treatment of the mental patients in the state hospital at Farhnhurst. A training school for nurses specializing in neuropsychiatric diseases will be opened; reconstruction aid in both occupational and physicotherapy will be engaged, and additional physicians will be employed.

DISTRICT OF COLUMBIA

Personal.—Dr. Charles W. Richardson received the honorary degree of Doctor of Science recently from the George Washington University at its convocation.

FLORIDA

Personal. — Dr. J. H. Hodges, Gainesville, has been appointed superintendent of the Florida Farm Colony for Epileptic and Feebleminded at Gainesville, to succeed Dr. Loren A. Greene, resigned.

Health Laboratory at Orlando.—A laboratory to serve the needs of central Florida will be established at Orlando by the state board of health. The counties of Orange and Seminole, and the Orlando Chamber of Commerce have agreed to provide the necessary quarters and to furnish all facilities, with the exception of the laboratory equipment.

GEORGIA

Personal.—Dr. James A. Thrash has been appointed health officer of Columbus, to succeed Dr. B. J. Fitzmorris.

New County Society.—The Lamar County Medical Association was recently organized with the following officers: president, Dr. John M. F. Barron, Milner; vice president, Dr. Clarence H. Willis, Barnesville, and secretary-treasurer, Dr. John M. Anderson, Barnesville.

ILLINOIS

Personal.—Walter D. Thurber, who has been the managing director of the Illinois Tuberculosis Association for the past five years, has resigned to accept a similar position with the Maine Public Health Association.

Tuberculosis Clinics.—All day teaching clinics on the diagnosis and treatment of tuberculosis are announced for Murphysboro, Chester and Anna. These clinics will be held during March and April with Drs. George Thomas Palmer of Springfield and J. W. Pettit of Ottawa in charge. In each case the program will be carried out under the joint auspices of the local medical societies and tuberculosis associations.

Epidemic Poliomyelitis.—The state department of public health, through its division of child hygiene and public health nursing, has recently called the attention of the medical profession to the epidemic poliomyelitis situation in Illinois. It points out that while little has appeared in the public prints since 1916 concerning this disease, it is nevertheless still present in epidemic form and that control measures are more imperative now than formerly. In carrying out its plan for the after-care of the victims of poliomyelitis through the twenty-three clinics established in as many cities throughout the state, the division constantly comes in contact with patients afflicted with this crippling disease. It appears that about one case in three is recognized and reported. Physicians who desire information or assistance are invited to communicate with the department or to bring their patients to any one of the established clinics.

Chicago

Health and Sanitation Show.—The Health and Sanitation Exposition, held in the Coliseum, November, 1920, will be held on the Municipal Pier as a part of the Pageant of Progress during 1921. The pageant will be open to the public from July 30 to August 14.

Health Department Studies Problems of Sewage Disposal.—Dr. Gottfried Koehler, assistant commissioner of health, will accompany the drainage district officials on a trip to Kansas City and other Western cities to study methods of sewage disposal. It is believed that the time is near at hand when Chicago will be forced to stop using the drainage channel for this purpose.

Furrier's Dermatitis.—The Chicago Department of Health laboratories are investigating nineteen cases of furrier's dermatitis, reported during the last few weeks. In each case the poisoning was due to fur neck pieces or boas. It is believed that the poisoning in these cases was due to the paraphenylendiamin group of dyes. Some few cases of secondary infection were found, caused no doubt by the itching and scratching.

Testimonial Banquet to Dr. Rawlings.—On March 9, a testimonial banquet was tendered Dr. Isaac D. Rawlings director of the Department of Public Health of the State of Illinois, by some 1,100 health workers from the city department of health, the Municipal Tuberculosis Sanitarium and the state department of health. Dr. Rawlings was presented with a beautiful portfolio and a Tiffany design bronze desk set from his old associates and friends in the department of health.

Child Hygiene Studies.—The division of child hygiene of the Chicago Health Department is making a survey of schoolchildren having discharging ears or suffering from deafness to determine the relationship of diseased or enlarged tonsils and adenoids to such ailments. The division of child hygiene is also actively exploiting toxin-antitoxin as an agency for the prevention of diphtheria as a routine measure and without the use of the Schick test on all children under 10 years of age. Last year 34,059 treatments were given to schoolchildren in the kindergarten and first grade. So far no child thus treated has had diphtheria.

INDIANA

Appropriation for Soldiers' Home.—The Southworth Bill carrying an appropriation of $225,000 for a new hospital and kitchen at the Indiana Soldiers' Home, Lafayette, has been passed by the senate.

KENTUCKY

Continuation of Health Department Guaranteed.—Scott County has appropriated $5,000 which is to be supplemented by $2,500 each from the state and the Rockefeller Foundation for the maintenance of a full-time health department. They also appropriated $2,500 for the current expenses of the John Graves Ford Memorial Hospital.

LOUISIANA

Personal.—Dr. Roy B. Harrison, New Orleans, has been elected secretary and treasurer of the state board of medical examiners.

MAINE

Personal.—Dr. Olin S. Pettingill of the sanatorium at Hebron has been appointed superintendent of the new Essex County Tuberculosis Hospital at Danvers, Mass., which will be opened about April 1.

MARYLAND

Plans to Enlarge Local Quarantine.—The plans of the U. S. Public Health Service to forestall an invasion of typhus and cholera from Europe include provision at the Quarantine Station at Baltimore for the detention of from 1,000 to 1,400 immigrants.

Medical Unit Organized.—Major Howard C. Bailey of the Medical Corps, U. S. Army, has been detailed to the Johns Hopkins Medical School and will be in charge of the Reserve Medical Officers' Training Corps there. He will be added officially to the faculty in the fall. Forty-six students have enrolled.

Personal.—Dr. Carlisle S. Lentz, who recently resigned as an assistant superintendent of the Johns Hopkins Hospital, has accepted the superintendency of the University Hospital at Augusta, Ga. Dr. Lentz has been connected with the Johns Hopkins Hospital for the last seven years.——Dr. Eli K. Marshall, Washington University, St. Louis, has accepted the position of professor of physiology at the Johns Hopkins University Medical School.

Meetings.—At the weekly lecture at the Johns Hopkins School of Hygiene and Public Health, February 28, a new phase of medicine, the training of men as industrial physicians to prevent and remedy unhealthful working conditions in manufacturing plants, was discussed by Dr. David L. Edsall, professor of clinical medicine in the Harvard Medical School. ——A joint meeting of the American Congress on Internal Medicine and the Baltimore City Medical Society was held, February 21, at Osler Hall. The presiding officer was Dr. Frederick Tice, Chicago, vice president of the congress, and addresses were made by Dr. Lewellys F. Barker on "Tetany" and by Dr. Frank Smithies, Chicago, on "Nonsurgical Biliary Tract Drainage, Its Diagnostic and Therapeutic Value."

MASSACHUSETTS

Personal.—On February 1, Dr. Herman A. Osgood was appointed consultant roentgenologist and chief of the roentgen-ray department of the Boston Dispensary.

Evening Clinic.—A special evening clinic was started, March 2, in the gynecologic department of the Boston Dispensary of which Dr. Malcolm Storer is chief, for the special study of dysmenorrhea and sterility. This clinic is under the direct charge of Dr. Samuel R. Meaker.

MICHIGAN

Program Presented by State Society Members.—At the meeting of the Kent County Medical Society, held in the St. Cecilia Building, Grand Rapids, February 23, the proctology team of the Michigan State Medical Society conducted a symposium on "The Medical and Surgical Aspects of Chronic Constipation."

MISSOURI

Inheritance of Whisky.—Whisky obtained for medicinal purposes by special permission of the federal government cannot be inherited as part of the personal estate of a deceased physician, but must be sold under a special permit to a druggist and the money refunded to the estate, according to a ruling of Mr. Shrader P. Howell, prohibition officer for the state of Missouri.

MONTANA

Physicians Ask Law for Use of "Nonbeverage Alcohol."—Dr. J. C. F. Siegfriedt, a member of the state senate, has introduced a bill providing that when a physician has a permit under the national Volstead act to use alcohol for medical purposes he may file this permit with the state secretary of Montana and obtain and lawfully use the alcohol for rubs or whatever is necessary to aid in the recovery of the patient.

NEW JERSEY

Physicians Cooperate in Child Hygiene Work.—The New Jersey State Department of Health is receiving the active cooperation of physicians throughout the state in connection with the Baby Keep-Well stations in sixty-five communities. These consultation stations supplement the work of the child hygiene nurses in the home.

Permit to Erect Abattoir Revoked.—The Atlantic County Medical Society passed resolutions opposing the erection of an abattoir within the city limits of Atlantic City, and also advised the state board of health of its action. Other local organizations joined in the protest and the city commission revoked the packing company's permit to build.

NEW YORK

New York Quarantine Paid For.—A government check for something over $1,500,000 has been received by the treasurer of New York State in payment for the quarantine station on Hoffman Island. Dr. Leland E. Cofer is to be retained as health officer of the post.——Dr. Royal S. Copeland, health commissioner of New York City, states that during the week ended February 21, 6,355 persons seeking to enter the city were examined by the health department and 272 were found infested with vermin.

Amendment to Compensation Law.—The Burlingame bill amending the workmen's compensation law to provide medical treatment for injured employees at the expense of the employer and empowering the commission to fix minimum fees for surgical and medical attention, at a hearing on March 2, met little opposition. The state industrial commissioner opposes the measure and suggested that a committee be appointed to study the medical question so far as it related to workmen's compensation. A number of physicians and representatives of the state federation of labor spoke in favor of the bill.

New Narcotic Bill.—The Smith-Ferron bill, recently introduced into the legislature, would abolish the present narcotic drug commission and strengthen the Harrison act through its enforcing clauses. It places the drug addict under the control of the local health officers and local communities. Under the proposed bill it becomes the duty of the local health officer to provide a place for the drug addict who may become a public charge. The restrictions placed on physician prescribing narcotics by the Whitney bill are removed, but no physician is permitted to prescribe a narcotic drug for self-administration, but must in every instance administer the drug himself.

New York City

Personal.—Dr. Smith Ely Jelliffe was made an honorary member of the Société de médecine mentale de Belgique at its recent reunion.

Epidemic Encephalitis.—For the week ended February 26, there were reported to the health department thirty-nine cases of epidemic encephalitis with seven deaths. Since January 1 there have been 247 cases and sixty-four deaths.

Cancer Campaign.—During the week of March 7, the Society for the Control of Cancer, the New York Department of Health, and the board of education are conducting an educational campaign aiming to instruct the public regarding the necessity for early diagnosis and treatment in all conditions that may possibly be malignant. Lectures will be given in a number of the public schools and literature will be distributed.

Women Gain Control of Medical College.—The Alumnae Association of the New York Medical College and Hospital for Women announce that the state board of regents has removed the trustees of the college, thus taking the control of the institution from the men physicians and placing it in the hands of the women. It is reported that the present board of trustees questions the legality of this action and that the future control of the hospital building probably will become a matter of litigation.

NORTH CAROLINA

Bill to Enforce Treatment for Tuberculosis.—A bill has been proposed giving the courts full and complete control of persons in New Hanover County afflicted with tuberculosis. The minimum time provided by the measure for treatment to be ordered by the court is sixty days and the maximum, until discharged by competent authority of the institution in which the patient is treated.

OKLAHOMA

Public Health Nurse's Institute.—Under the direction of the Oklahoma Public Health Association, a public health nurse's institute was held at Oklahoma City, February 18-19. These meetings are held three or four times a year and are attended by nurses from all over the state. Coordination and development of public health work in the state, health legislation, women's and children's legislation, school nursing demonstrations, open-air school inspection, exhibition of health films, and nurse's round table were features of the program.

OREGON

Medical Library Bequeathed.—The University of Oregon Medical School has received a gift of the medical library of the late Dr. Kenneth A. J. Mackenzie. Dr. Mackenzie was dean of the medical school from 1912 until his death in March, 1920, and it was in accordance with his expressed wish that his library consisting of 700 volumes was presented to the school. With the addition of Dr. Mackenzie's library, the medical school now has a reference library of more than 5,000 volumes.

PENNSYLVANIA

Health Bill Introduced.—A bill, introduced in the senate by Dr. S. J. Miller, chairman of the senate committee on health and sanitation, authorizes the state commissioner of health to call upon hospitals receiving appropriations from the state to furnish rooms for the use of the state department of health in the establishment of clinics.

Ruling on Diagnostic Clinics.—In a recent opinion given Secretary of the Commonwealth Woods, Deputy Attorney-General Hull held: "The principle is laid down that a corporation may not be formed for the practice of medicine, but may be for the purpose of owning, constructing, maintaining and leasing buildings, furnishings, equipment, apparatus and facilities for use as a medical and surgical clinic, laboratory and hospital.

Philadelphia

Personal.—Dr. Alfred Gordon has been elected to membership in the Société de neurologie de Paris.

Prize for Roentgen-Ray Research.—In honor of Dr. Charles Lester Leonard who died in 1913 a martyr to research with the roentgen ray, the American Roentgen Ray Society offers a $1,000 prize for the best piece of original research in the field of roentgen ray, radium or radioactivity. The competition is open to any one living in the United States, or its possessions, Canada, Mexico, Central and South America and Cuba. The research work must be submitted in writing in the English language not later than July 1. The winner will read his paper at the annual meeting of the society in September. Dr. Henry K. Pancoast of the University Hospital is a member of the committee in charge of the competition.

RHODE ISLAND

Memorial Tablet Erected.—A brass tablet in honor of the late Dr. George Dallas Hersey has been placed in the Rhode Island Medical Society library building at Providence by the members of the society. The tablet faces the main entrance of the library and bears the inscription, "Si Monumentum Requiris Circumspice" (if you seek his monument, look around). Dr. Hersey, who served as librarian of the society from 1880 to 1912, was instrumental in the collection of the 25,000 volumes comprising the present library.

WISCONSIN

Proposed Hospital Legislation.—Two bills have been introduced in the legislature by Representative George R. Jones providing that all hospitals, excepting private institutions, must make no discrimination in the admittance of patients by reason of the patients' physicians not being members of the medical staffs, and further providing that any hospital where such discrimination is made shall be subject to state taxation.

CANADA

Medical Association Elects Officers.—Lambton County (Ont.) Medical Association held its annual meeting on February 10. Dr. Charles W. Sawers, Watford, was reelected president, and Dr. Charles H. Smith, Petrolia, secretary.

Hospital Notes.—For the third time in the past ten years, on February 23, fire destroyed a large part of the Ontario Hospital for the Insane, Hamilton, Ont. Two hundred and fifty-five patients in that part of the building were all removed and placed in safety.

Personal.—Dr. Robert F. Ruttan, head of the department of chemistry, McGill University, Montreal, has been appointed to succeed Dr. Duncan G. MacCallum, as administrative chairman of the Honorary Advisory Council for Scientific and Industrial Research in Canada.

Manitoba Doctors Suspended by Medical Council.—Sixteen Manitoba doctors have been suspected from one week to six months, by the medical council of that province, for prescribing whisky. One of the doctors suspended is said to have given 10,000 prescriptions within one month.

Hospital Chairman Honored.—The prospective retirement of Sir Joseph Flavelle from the chairmanship of the board of trustees of the Toronto General Hospital was made the occasion of the unveiling of a tablet in the hospital, in memory of his nineteen years of service in the interests of the Toronto General Hospital.

GENERAL

League of Red Cross Societies.—The third annual meeting of the board of governors, League of Red Cross Societies, will be held in Geneva on March 28, 1921.

Conference on Typhus.—State and federal officers from several of the large Atlantic ports met in Washington, D. C., February 28, at the call of Dr. Hugh S. Cumming, Surgeon-General of the Public Health Service, and discussed the occurrence of typhus cases among immigrants from Europe.

Ohio Physician Becomes President's Physician.—The nomination of Dr. Charles E. Sawyer, Marion, Ohio, to be brigadier of the U. S. Army was sent to the Senate, following his appointment by the President as an officer in the Medical Reserve Corps, and an immediate summons to active service by the Secretary of War. On confirmation of the nomination, Dr. Sawyer will be assigned as military aid to the President and will act as the President's physician.

Request for Typhus Appropriation Fails.—Congress was asked in the closing days of the session to appropriate $1,291,300 for fighting typhus fever, to be distributed at Atlantic ports as follows: Boston Quarantine Station, $219,470; New York Quarantine Station, $485,620; Baltimore Quarantine Station, $287,620; Philadelphia Quarantine Station, $296,620. The subject was presented to Congress too late for action and it will go over to the special session.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lutheran, Hahnemann and Women's hospitals, Philadelphia, each $5,000; Lutheran Hospital for Young Men, and Northern Dispensary, each $1,000; and Kensington Dispensary for the Treatment of tuberculosis, Polyclinic and American Oncologic hospitals, each $250, by the will of James M. Mohr.

St. Mary's Free Hospital for Children and the United Hospital Fund of New York, each $2.500, by the will of Mrs. Ellin Prince Speyer.

St. John's Guild, $5,000; Dr. Fischer's Infantorium, Columbus Day, and Alice Chapin Adoption nurseries, Placing Out Department of New York Nursery and Child's Hospital, Brooklyn Nursery and Infant's Hospital and the Creche, Englewood, N. J., each $2,500, gifts of Edward Hatch, Jr., New York.

Tri-State Medical Association Meet.—At the Carolinas and Virgina, held at Spartanburg, S. C., under the presidency of Dr. John Peter Monroe, Charlotte, N. C., February 16-17, Dr. Lewellys F. Barker, Johns Hopkins University, delivered an address on "Blood Pressure" and Dr. William Sharpe, New York, one on "Cranial Fractures." The 1922 session was voted to convene in Norfolk, Va. The following were elected officers: president, Dr. William Wallace Fennel, Rock Hill, S. C.; vice presidents, Drs. Hugh R. Black, Spartanburg, S. C., John T. Burrus, High Point, N. C., and Karl S. Blackwell, Richmond, Va.; secretary-treasurer, Dr. James K. Hall, Richmond, Va.

License Lost.—Dr. Widmer E. Doremus of Newark states that his license, No. 1722, issued to him by the New Jersey Board of Medical Examiners, Aug. 6, 1903, has been lost. The license was registered in Essex County, Aug. 11, 1903, and in Hudson County about the same date. After Dr. Doremus' entry to the government service in 1917, his office effects were moved to a storage warehouse and the loss of the license was not noted until the office was reopened in September, 1919. Presumably, the license was lost en route either to or from the warehouse. Licensing boards are warned to be on the lookout for this license which may be presented by one not having the right to use it.

Dates Changed for International Congress of Ophthalmology.—The International Congress of Ophthalmology, to be held under the auspices of the American Ophthalmological Society, the American Academy of Ophthalmology and Oto-Laryngology and Fellows of the Section on Ophthalmology of the American Medical Association, is a congress independent of and in no way affiliated with the International Congress of Ophthalmology which has convened from time to time in the past, the last session of which was to have taken place in St. Petersburg in 1914. The dates for the present International Congress to be held at Washington, D. C., have been changed from April 18-21, 1922, as previously announced, to April 25-28, 1922.

Visit of Colonel Smith.—Lieut.-Col. Henry Smith of the Indian Medical Service is on leave of absence pending retirement from that service and will come to the United States the latter part of April, 1921, to address several city, state and national medical societies at their conventions. Colonel Smith is best known as a cataract surgeon but he is first a general surgeon and executive medical officer having devoted over thirty years as such in the densely populated districts of Jullundur and Amritsar Punjab, India. He has been invited to address society meetings at Toronto, Chicago, Columbus, New York, Boston, Swampscot, St. Louis, Dallas, Denver, Tacoma, Seattle, San Francisco and elsewhere during the months of May, June and July, 1921.

Hospital Bill Successful.—The elaborate program of $18,600,000 for government hospitals was successfully carried out in the last hours of Congress and the bill became a law with the President's signature. This legislation was passed in response to the urgent demand of the American Legion, and Public Health Service for adequate hospital and medical equipment to take care of disabled service men. The law authorizes the immediate expenditure of $6,100,000 in the improvement of existing hospitals and $12,500,000 for the construction of new hospitals. The original plan of constructing five large hospitals at various points throughout the United States, each costing $2,500,000 was set aside, and the law as passed places the entire arrangements in the hands of the President and Secretary of the Treasury who may select locations and construct new hospitals as the needs of the situation require. Without doubt, this hospital program is the largest work of the kind ever undertaken by the government at one time.

LATIN AMERICA

Sanitary Conference of the American Republics.—Our South American exchanges devote much attention to the Sixth International Sanitary Conference of the American Republics, which was held at Montevideo last December. Sixteen countries were represented, namely: Argentina, Drs. J. Llambías and G. Martínez; Bolivia, Dr. J. Montellano; Brazil, Dr. R. Leitão da Cunha; Chile, Dr. A. Atria; Colombia, Dr. P. García Medina; Cuba, Dr. M. Lebredo; United States, Drs. J. H. White and G. M. Guiteras; Guatemala and Honduras, Mr. E. M. Martín; Mexico, Dr. J. J. Etchepare; Panama, Mr. A. A. Martínez; Paraguay, Drs. A. Recalde and F. Abente Haedo; Peru, Dr. C. E. Paz Soldán; Salvador, Mr. G. A. Ruiz; Uruguay, Drs. A. Ricaldoni, J. Maratirené, J. Mainginou, J. Scoseria, A. Berta, A. Gaminara, J. A. Rodríguez, R. Schiaffino, in addition to the members of the organizing committee; Venezuela, Dr. G. Delgado Palacios. The president of Uruguay attended the first session, which was presided over by the secretaries of state and of national industries. The chairman of the organizing committee, Dr. Ernesto Fernández Espiro, was made permanent chairman of the conference. Drs. James H. Oliver and Julio J. Etchepare acted as secretaries. Between sessions the delegates visited prominent institutions, such as the school of medicine, hospitals, sanitariums, laboratories, etc. The delegates were much feted both by the authorities and privately. Some of the reports submitted were very elaborate. The report of the Uruguayan delegation made a volume of over 250 printed pages. Among the most important resolutions adopted was one presented by the Brazilian delegation to the effect that a special session of the seventh congress should be devoted to a sanitary and social study of tuberculosis, venereal diseases and leprosy, and one presented by the American delegation for the reorganization of the International Sanitary Bureau of Washington, D. C. The next conference will be held at Havana in February, 1923. Dr. Mario Lebredo, who represented Cuba in the sixth conference, was appointed chairman of the organizing committee for the seventh conference.

FOREIGN

Cabinet Minister in Greece a Physician.—The profession in Greece hailed with delight the recent appointment to the position of minister of public instruction of Dr. T. Zaymis, who for twenty years has been the incumbent of the chair of surgery in the University of Athens.

Publication of Scientific Work in Munich.—Arrangements have been made with the printing establishment of a former government office by which the university students are to give four hours a day to help in printing the scientific works that have long been waiting for a publisher. This will cut out the profits of the middlemen while giving the students a chance for self-support.

German Children in Sweden.—It is said that during 1920 14,400 German children were given hospitality in Sweden, through the mediation of the Swedish Red Cross, at an expense of 8,640,000 crowns. In addition, between 4,000 and 5,000 students, teachers and children were invited by private parties or corporations. A number of the children were asked to stay through the winter.

Belgian Physicians Decorated by Italian Government.—The Italian government has conferred the cross of the Order of the Crown of Italy on Drs. Snyers, Delcominette and Gulikers of Liége and Dr. Delsemme, in token of appreciation of the services rendered to Italian prisoners of war left in Belgium in such a *triste état*, it is said, by the retiring Germans.

University Chair for Drugless Cult.—Our German exchanges state that a chair for *naturheilkunde* is to be created at Jena as the organized drugless practitioners have demanded. The *Deutsche medizinische Wochenschrift* explains the prompt response to this demand, as the social democrat party is the patron of this cult. The *Nederlandsch Tijdschrift* comments on it, Quod licet bovi, non licet Jovi, adding that things are about the same in the Netherlands, the central board of public health seriously considering recently whether the laws on prophylaxis of contagious diseases should not be amended to conform to the wishes of three irregular practitioners, *kwaksalveristen*.

Council on Pharmacy and Chemistry in the Netherlands.—The organization of this official institution was mentioned some weeks ago. It is modeled to some extent on the Council on Pharmacy and Chemistry of the American Medical Association, and was described in these columns, Nov. 6, 1920, p. 1279. It has inaugurated its work by appealing to the profession to suggest articles to be investigated first. It asks for suggestions up to a certain early date as to what problems and treatment are most pressingly important at present. The address of the council is Hugo de Grootstraat 32, Leiden. The official title is the Rijks-Instituut voor Pharmaco-Therapeutisch Onderzoek.

Typhus in Greece.—Dr. C. Kyriazidis, inspector-general for the public health authorities of Greece, relates that typhus first appeared in Greece in 1883 when fifty persons were affected. Two small epidemics were known during the rest of the century. The disease developed among refugees from Turkey during the war of 1912-1913, and during the recent war it developed in Macedonia, after the reoccupation by the Greek army, with a total of 1,328 cases and mortality of 14.5 per cent. The proteus X reaction was found positive in 70 per cent. of the typhus cases and never in other diseases. In 20 per cent. of the typhus cases agglutination was positive by the sixth day; in 27 per cent. by the seventh, and in 13 per cent. not until the tenth day. In ten cases a vaccine made from the proteus X seemed to shorten the course of the disease, the fever subsiding the third or fourth day after it had been given. The results were no better when this vaccine was combined with an antiexanthematous serum from the Pasteur Institute than when the proteus vaccine was used alone.

Postponement of International Congress.—The *Policlinico* brings word that the president of the Second International Congress on Comparative Pathology, Prof. E. Perroncito, has sent in the following announcement, which forms a sequel to the news item published recently in The Journal on page 600. He states, "It became evident during the work of organization of the congress that it is not possible yet to reestablish, not even in the field of science, the relations between and cordial cooperation of all workers in comparative pathology in the different nations, without which it is impossible to render truly fruitful the work of an international congress. Hence the committee of organization has decided to postpone the Second International Congress on Comparative Pathology, while continuing its efforts to link together again, without any exclusions, scientific relations between the various nations. As this is impossible to realize at a meeting in the coming April, as planned, the congress is postponed to some future period to be determined later." It was to have been held at Rome in April.

Deaths in Other Countries

Dr. **C. E. Daniels**, in his day a leading physician and professor of surgery and obstetrics at the University of Amsterdam, writer on medical history and internal medicine, aged 81.——Dr. **H. Haeckel**, professor of surgery at the University of Stettin, one of the authors of the familiar "Topographisch-Anatomischer Atlas."——Dr. **Grünhut** of Munich, aged 58.——Dr. **L. Silberstein** of the Blankenheim sanatorium, aged 58.——Dr. **P. Bucher** of Strasbourg, a well known neurologist and pediatrician, founder of the *Alsace française*, aged 51.——Dr. **C. Vestergaard**, of Denmark, prominent in the organization of the profession, aged 51.——Dr. **W. C. M. C. Thulstrup** of Copenhagen, editor of the *Illustreret Tidende*, aged 55.——Dr. **E. A. Escobar**, of Ocaña, Colombia.——Dr. **Mello Reis** of Rio de Janeiro, aged 72.——The cable brings word of the death of Dr. **Vittore Vella**, who died suddenly while performing an operation. He was surgeon in charge of the Lugano public hospital, on the Italian border of Switzerland.

Government Services

Army Medical Museum

To the end that the museum may operate efficiently and that preparation of specimens for exhibition be not unnecessarily delayed, Major-General Ireland urgently requested that the appropriation for the Army Medical Museum be increased by the Senate to $20,000. The bill as reported made an increase of $5,000 over the $10,000 allowed by the House.

Library of Surgeon-General's Office

In order that the work might be carried on with a reasonable degree of efficiency and desirable books purchased, the Senate military committee increased the appropriation for the library of the Surgeon-General's Office of the Army to $15,000. This is the only library in the United States that acquires practically all the current medical literature of the world.

New Hospital Ship

Equipped with every modern device for safety, comfort and care of the sick and wounded, the new hospital ship *Relief* is ready to join the Atlantic fleet. This is the first ship to be built from the keel up for military hospital purposes and, however far from home port, it assures the same facilities for diagnosis and treatment accorded in the municipal hospitals of large American cities. The *Relief* is also fitted as a medical supply depot.

School Hygiene Work Inaugurated

The U. S. Public Health Service has started a campaign of school hygiene work in the larger cities of the country. Local health officials have charge of the surveys in their municipalities, according to the plan of Surgeon-General Cumming, assisted by an official of the U. S. Public Health Service. The first city in which a comprehensive school hygiene survey is being made is Minneapolis. Surg. Taliaferro Clark of the Public Health Service is assisting the city director of hygiene.

Army Rejections Compiled in Report

Surgeon-General Ireland of the Medical Corps has issued a report on the statistics covering rejections of recruits for the Army because of physical disabilities. The report covers the month of January, 1921. A total of 28,681 applicants for enlistment were examined and the number rejected amounted to 3,914. Of the causes for rejection, neuropsychiatric diseases led the list with 505, general surgery and skin second with 386, cardiovascular third with 333. Other rejections were ophthalmologic, 376; otolaryngologic, 285; tuberculosis, 158; orthopedic, 168; dental, 77; venereal, 241; developmental, 191, and miscellaneous, 396.

Reduces Office of Surgeon-General

In compliance with the policy of the General Army Staff to reduce to a minimum the number of officers on duty in Washington, D. C., Surgeon-General Ireland of the Medical Corps has submitted recommendations for the reduction of his commissioned force. At the present time there are one brigadier-general, four colonels, twenty lieutenant-colonels and majors, and ten captains and lieutenants on the staff of the Surgeon-General making a total of thirty-five officers. If the proposed changes are made the decrease will number nine officers and the Medical Corps force on duty at the Surgeon-General's Office will consist of one brigadier-general, four colonels, fifteen lieutenant-colonels and majors, and six captains and lieutenants.

Public Health Activities in Virgin Islands

In reply to the statement in the December number of the *Public Health Nurse* that it was hoped the two public health nurses recently sent to the island would prove "an entering wedge for greater improvements in health," a U. S. Navy nurse writes to the *Army and Navy Register*, "Since 1917 nine carefully chosen Navy nurses have been constantly on duty in the Virgin Islands, working under supervision and in cooperation with naval medical officers." A nursing system has been put into operation in the island of St. Croix and a training school established for native young colored women. There is a large daily attendance at the dispensaries and the infant welfare department numbers several hundred infants up to the age of 2 years. Milk stations have also been established. Under supervision of the Navy nurses, a colored nurse is detailed at the leper colony and another at the insane and jail dispensaries.

Foreign Letters

LONDON

(*From Our Regular Correspondent*)

Feb. 21, 1921.

Improved Vital Statistics

Attention has already been drawn to a great improvement in vital statistics. Some further figures in the subject are of interest. Most of the principal infectious diseases show a constantly diminishing mortality. Thus, the London mortality for typhoid fever per million of population for the years 1869, 1879, 1889, 1899, 1909 and 1919 is, respectively, 350, 220, 125, 175, 70 and 20, and the morbidity rate has fallen in England and Wales from 38 in 1911 to 10 in 1919. The figure for London is 8. This of course, is explained by improved sanitation. In scarlet fever the morbidity remains large but the mortality dwindles. The figures for England and Wales are:

	Morbidity per Thousand Population	Mortality per Thousand Population
1871–1880	....	0.72
1881–1890	....	0.32
1891–1900	....	0.16
1901–1910	....	0.05
1913	3.58	0.3
1917	1.45	0.026
1919	2.29	0.032

Thus, the fluctuations in the morbidity find little reflection in the mortality, which falls steadily. Still more remarkable is the fall in infantile mortality, which includes several factors—measles, diarrhea, poliomyelitis, etc. In England and Wales the deaths per thousand births for 1905 were 128; for 1910, 105; 1911, 130; and for the succeeding years up to 1920 they were, respectively, 95, 108, 105, 110, 91, 97, 89 and 80. The last figure is the lowest on record. The figures for consumption are also encouraging. The morbidity per thousand of the population has fallen from 1912 to 1919: 3.03, 2.65, 2.20, 2.07, 2.1, 2.18, 2.17, 1.81; and the mortality per thousand of population has been, from 1913 to 1919: 1.004, 1.045, 1.161, 1.178, 1.25, 1.343 and 1. For the war years 1915-1919 the figures are higher than they would have been as they refer only to the civil population, the youth of the country having been withdrawn for the army. Finally, there is the crowning fact that the total death rate has fallen from 21.4 in the decennium 1871-1880 to 12.4 in 1920.

Protest by the British Medical Association Against the "Dangerous Drugs Regulations"

The British Medical Association has protested to the home secretary against the new "dangerous drugs regulations." The association admits the necessity for the control of such drugs and, indeed, on several occasions has urged this. It also recognizes that physicians must submit to certain restraints in prescribing, compounding and dispensing such drugs, but it considers that the regulations will have effects beyond those contemplated and that the medical profession will be hampered in its use of the drugs and, on the other hand, that the public will be inconvenienced by delay in obtaining medicines, and that the cost will be seriously increased. The following regulations are objected to: "Prescription must be in writing." Some physicians typewrite their prescriptions. It is difficult to see that this favors any improper use of the drugs, provided the other provisions as to date, address and signature are carried out. In hospital work it has been found advisable to print prescriptions when a stock mixture is ordered. "The prescription must be marked with the words 'Not to be repeated.'" This appears to be totally unnecessary, as it is fully provided for by other regulations. "A prescription for the use of the drugs must be given by a duly qualified physician, and must comply, etc." This appears to forbid every personal administration of the drugs by the physician or under his direct supervision unless he writes a prescription in each case. In hospital practice, particularly, this would be impracticable. This regulation should not apply to a physician dispensing his own medicines. It is customary to enter all prescriptions in a day-book, showing the name and address of the patient and the date. If this regulation is enforced, it appears that it will be necessary to keep four records of each transaction: (1) the customary record in the day-book; (2) the prescription for the scheduled drug under the regulations; (3) the record of the ingredients in a special book, and (4) the record in a special book for the special drug. The regulations seem to demand that every mixture containing any of the scheduled drugs must have marked on it the quantity contained in it. Nervous and apprehensive patients would hesitate and refuse to take medicines so labeled. Patients would become aware of the drugs they were taking. The objections to this are obvious and have even been recognized in the British pharmacopeia, which disguises some of the preparations of opium by giving them the name of some inert compound. Opium pill is called "Pilula saponis co.," and opium suppository, "Suppositoria plumbi composita." For physicians the regulations are unnecessarily complicated. One book might be substituted for the four books required. The entry of the drugs purchased on the day of receipt is not always feasible. Separate books are required for each set of premises. This would involve a set of books at every branch office and at every physician's private house apart from his main office, as it is necessary to keep a small supply of such things as opium and hypodermic tabloids ready for emergency. The government has been foolish enough to propound these regulations without consulting the medical or pharmaceutical professions. Hence their defects. Already the physician, and especially the panel physician, is hampered in his proper work—the treating of the sick—by having too much of his time occupied in the filling of certificates and the making of records. The government officials whose lives are devoted to such clerical work evidently have an exaggerated idea of its value.

Oversea Settlement

The report of the Oversea Settlement Committee for 1920 has just been published. The committee has learned with satisfaction that the government has decided to hold a conference with the dominion governments on the possibility of initiating a policy of state-aided settlement within the empire. It considers that the fact that numerous ex-service men are unemployed justifies special methods for their relief. But it realizes that it is impossible for the self-governing dominions to receive the unemployed of the mother country, even when they have fought for the empire, except when these governments are satisfied that the men can find suitable work. The government scheme for the grant of free passages has worked well, and it is to be extended for another year. Only a few of the emigrants have failed to find suitable work. The committee adheres to the view expressed last year that state aid should be granted for the settlement of women overseas. A well organized system of juvenile settlement exists in Canada, and a similar one is to be introduced into Australia. Western Australia is negotiating for the settlement of boys from Dr. Barnardo's Homes (homes for waifs and strays founded by the philanthropist Dr. Barnardo). Touching on the shortage of domestic servants, the report says that it is a national danger in Canada and at least as serious in Australia and New Zealand, where the birth rate is affected by the lack of women. The policy of empire settlement, it is pointed out, cannot be successful unless it serves the needs of the empire as a whole and develops the oversea dominions by introducing into them settlers British by birth and tradition. There is a tendency to neglect the fact that unless settlers are carefully selected they are not likely to succeed, and to view emigration as a means of mitigating unemployment, and not as means of building up the empire overseas. On the other hand, there is a disposition in the dominions to approach the subject with the object of meeting "labor" requirements. It is further pointed out that unless the emigrants are given a cordial reception from the people among whom they settle, they are not likely to succeed, and it is therefore recommended that settlement on land should be effected under an organized system of groups. The committee draws attention to the risks of unemployment and destitution to which British subjects are liable in South America.

Lodge Practice in Australia

The council of the New South Wales branch of the British Medical Association has completed negotiations with the friendly societies on the question of increasing the income limits which determine the right of lodge members and their dependents to medical benefit, and the question of increased remuneration. The following new terms have been agreed to: The prescribed income limits to be $1,300 and $1,820 instead of $1,040 and $1,560, as heretofore. The prescribed minimum rates are to be: (*a*) for medical attendance only: in Sydney metropolitan area, $5 instead of $4; outside Sydney, $160 instead of $130. (*b*) For medical attendance and medicine outside Sydney metropolitan area, $220 instead of $320. The fees for attending wives in their confinements or miscarriages are to be increased by $5, making the minimum fee $15.

PARIS

(From Our Regular Correspondent)

Feb. 11, 1921.

An Action for Malpractice; the Responsibility of Physicians

The medical profession has been greatly interested in an action for malpractice that was recently brought at Nimes. Two sisters by the name of Arnaud, aged 14 and 16, respectively, died about three months after the onset of typhoid fever, which followed the ingestion of oysters. The attending physician, Dr. Mazel, was summoned before the Court of Correction of Nimes to answer to a charge of homicide, due to negligence, for having by his imprudent acts been the indirect cause of the death of the two girls named, whom he had treated. The parents of the girls, in filing a civil suit, claimed 200,000 francs damages from the accused. In the meantime, an amnesty act was passed, of which Dr. Mazel took advantage. This act quashed the indictment, which thus became null and void. But the plaintiff would not consider himself beaten. He had been compelled to give up all hope of securing a criminal verdict, but he persisted in his civil suit for damages. The parents affirmed that the death of their daughters had been caused by a general infection that followed the appearance of multiple abscesses in the region of skin punctures made by subcutaneous injections of camphorated oil, strychnin, etc. These punctures had been made by a nurse who had not taken proper antiseptic precautions, and Dr. Mazel, by placing this nurse in charge of his patients, it was claimed, had rendered himself liable. At the trial it was shown that the nurse had not been installed through the instrumentality of Dr. Mazel. The great interest in the case shown by the medical profession is due to other reasons. Referring to the case, the late Professor Rauzier, of Montpellier, who had been called in bedside consultation to the two patients in question, said: "What would become of the medical profession if, whenever a disaster occurred in a family, the physician and not the disease were to be incriminated?" The fact is, it was shown that the multiple abscesses which the parents—and, not only the parents, but also the expert witness—had attributed to septic skin punctures were located, for the most part, in regions where no injections had been made and were, in reality, related to a peculiar, septic type of the disease.

In preparing his defense, Dr. Mazel had sought the advice of men who are well-known authorities on infectious diseases; more particularly, Professor Fernand Widal and Professor Netter. Both of these men expressed the opinion that multiple suppurations are often observed in protracted cases of typhoid fever; that they may arise entirely independent of any intervention, and, in the case of punctures, in spite of the most rigorous asepsis. Even though technical errors should have been committed by the nurse charged with performing subcutaneous injections, the physician could not be considered responsible, since, by reason of the fact that a certificate had been conferred on the nurse, the assumption was that he was entitled to place reasonable confidence in her. Netter stated that his personal experience confirmed the high mortality of typhoid fever resulting from oysters, and also the serious prognosis of typhoid in girls around the age of puberty. In such cases it is not uncommon to have death result even after intestinal lesions have healed. There is another interesting point. In his report, the expert witness had reproached Dr. Mazel for having increased, to a considerable extent, the number of punctures recommended by the late Professor Grasset, who had been called in consultation. He also reproached him for having introduced into the treatment, after the consultation with Professor Grasset, certain remedies that had not been recommended by the latter, such as caffein and strychnin. To this Widal objected, stating that, after a consultation, the attending physician in the case is always the judge of modifications to be made, in the course of the disease, in the treatment agreed on with the consultant whose counsel he had sought. Fortunately, the court was not swayed by the unfavorable report of the expert witness, but declared that the demand of 200,000 francs damages made by the parents was unwarranted, assessing the costs of the trial to the plaintiffs. This judicial proceeding has shown the danger of entrusting an expert medical decision to a single expert witness. The professional honor, the livelihood and the whole future of a physician may thus depend on the competence and conscience of one man. If the latter does not take his task seriously but acts with prejudice, following preconceived opinions instead of using all possible precautions suggested by scientific medicine, a physician may find his culpability wrongly affirmed by the expert witness. That was true in Dr. Mazel's case, for the court recognized the fact that the report of the expert was incomplete; that at the necropsy, which furthermore was held very late (eleven months after death), he had neglected to examine the heart, the intestine, the kidneys, etc. This proceeding, then, brings out more plainly than ever the necessity of appointing two expert witnesses to render an opinion in a medicolegal controversy. The third Congrès international de médecine légale, held at Brussels, declared in favor of the appointment of two expert witnesses in medicolegal cases, one to be appointed by the court and the other by the defense. The two expert witnesses would have equal authority, and, in case of disagreement, a third expert witness should be called in.

Standardization of Clinical Thermometers

A member of the chamber of deputies has called the attention of the minister of public instruction to the fact that there is a great dearth of clinical thermometers, which works a hardship on patients. He stated that the cause for this state of affairs lay in the defective organization of the service that tests and standardizes these instruments. He requested that the minister of public instruction put an end to the situation, to which communication the minister replied:

> At the time the law of Aug. 14, 1918, relative to the control of clinical thermometers, went into effect, it was to be foreseen that the number of these instruments that would be standardized would be very small. From May to December, 1919, the monthly average did not exceed 5,000 instruments. At the beginning of 1920, importations had increased quite perceptibly, in spite of partial restrictions that were enforced, and during the first months of 1920 the monthly average exceeded 15,000. According to information furnished by pharmacists, manufacturers and warehousemen, this figure would have been maintained if the policy in regard to restrictions on importations had not been modified. In view of the foregoing conditions, in order to insure proper functioning of the service, the administration demanded an additional appropriation of 120,675 francs, so that the personnel might be increased, thereby making it possible to bring the monthly output up to 30,000 thermometers, or 360,000 annually; but parliament adjourned in July without voting this appropriation. At the present time, this appropriation is listed among the supplementary appropriations submitted to parliament as of the year 1920. Since July, 1920, the importation of thermometers needed to meet the demand from all sources has been greatly facilitated by the changed attitude of the government, with the result that French commission merchants have taken advantage of the opportunity to lay in a large stock of German thermometers. The available supply of thermometers has thus increased rapidly, as may be seen by the following figures: July, 1920, 84,002; August, 73,482; September, 35,875; October, 91,064; November, 51,447. As a result of the increased importations, the service having charge of the standardization of thermometers has been getting farther and farther behind with its work. At the present time, the stock on hand of untested thermometers exceeds 25,000 instruments. In order to put an end to this situation, which is so fraught with danger to public health, it is important that the supplementary appropriation of 120,675 francs, which was demanded in 1920, be granted at once and that a considerable additional sum be likewise placed at the disposal of the administration for 1921.

VIENNA

(*From Our Regular Correspondent*)

Feb. 7, 1921.

An Outbreak of Exanthematous Typhus

Within the last few days, an explosive attack of typhus has occurred in this city. Thirty-two persons have been attacked, with four deaths. The first sixteen cases occurred in a group of artists who traveled from the Caucasus Mountains (between Europe and Asia) to this country, and stayed in Odessa for some time. Presently another group of nine persons fell ill, and it was easy to trace this infection to the above mentioned batch of arrivals. All persons that had been in contact with the patients were isolated, and their belongings and lodgings disinfected; meanwhile another seven persons were attacked, in a more sporadic way. The four deaths occurred in weak, underfed members of the group of artists. All necessary precautions were taken to stop further infection and to enlighten the population as to the relative absence of danger, if only the simplest rules of hygiene and cleanliness are strictly adhered to. It is interesting to note that not a single case occurred in regular inhabitants of this city, all patients being fresh arrivals from abroad. Even during the war, we were free from an epidemic of this kind, as lice are virtually unknown among our population.

Appointment of Professor Peham to the Chair of Gynecology

After a long interregnum, the clinic for gynecology and obstetrics is again occupied by an ordinary professor, who will thus take up the regular clinical teaching of students. Professor Peham, whose appointment to this position has been recently announced, was an assistant of Professor Chrobak, and is regarded as one of our best teachers and operators in this subject. Much comment has been raised by the fact that only one of our two vacant clinics has thus been disposed of.

Perhaps it is the secret idea of the government to let the other vacant clinic disappear silently, much in the same way, as the second clinic for psychiatry and the second institute for physiology have not been occupied for many months and are gradually passing into oblivion. This is no doubt due to the scarcity of funds, and to the fact that with the disruption of the empire the number of students is expected to diminish in a large degree, although thus far no such diminution is noticeable.

Intravenous Injections of Sugar in General Anesthesia and Diseases

At a recent meeting of the Vienna Medical Society, Professor Exner explained his experiments in modifying general anesthesia by injecting solutions of various concentrations and compositions into the system. After various preliminary trials on animals, he adopted the following method. A quantity of 40 c.c. of a 25 per cent. solution of glucose was injected intravenously ten or twelve hours before the patient was put under anesthesia. As a rule, ether was taken; in a few instances, a few drops of chloroform were added. The result was most encouraging. The chief features were the absence of the stage of excitation and the ease to get the patient under. Professor Exner selected only such patients as are known to be difficult to anesthetize, chronic alcoholics, patients with thyroid intoxication or valvular disease, and epileptics. The effect of the narcotic wore off quickly, and no untoward effects of the injection of about 10 gm. of glucose—for so much is contained in the dose given—was noticed. It is well known that diabetics are easy to anesthetize, and this observation was also one of the reasons prompting extensive experiments with sugar. The results obtained prompted the investigator to make his preliminary report sooner than was expected, so as to induce other surgeons to give the method a thorough trial. It will be possible only with a large material to ascertain whether there can be any saving of ether or chloroform by the preliminary intravenous injection of sugar. At the same meeting, Professor Stejskal, on whose original experiments these investigations are based, explained how he had come to suppose that a definite "centripetal current" in the tissues is produced by the intravenous injection of hypertonic solutions. A 20 per cent. solution of salt, for instance, has a similar effect, and Professor Stejskal succeeded in influencing beneficially patients with edema of the lungs, congestion of the liver and pneumonia, i. e., whenever it was necessary to produce rapid absorption of exudates and transudates. Acting on the facts thus elucidated, Dr. Prantner tried the injection of glucose (25 per cent.) in the treatment of dermatologic cases (lupus erythematosus, psoriasis and syphilis tarda). He has the impression that the intravenous injection caused a much more rapid effect of the remedies, especially iodin, which are absorbed quickly and can be demonstrated in the secretions after intervals varying between twenty and thirty minutes.

Prostitution and Syphilis in Vienna

Official reports of the police of this city give a clear insight into the extent of secret and public prostitution, which is a severe menace to public health. While the officially controlled women—about 5,000—are subject to a strict examination once every week at least, the clandestine prostitutes, of whom no less than 7,200 were dealt with in 1920, form a serious problem. The police have adopted a method of surprise—visits to the hostelries and hotels where rooms are let for hours to such couples. The women found there are invariably examined at the police station, and if found diseased are brought to a hospital. No less than 28 per cent. were found to suffer from acute venereal disease. This figure, however, has quite another aspect if the age of the females is considered, for more than 44 per cent. of the persons examined were under 21 years of age, those under 18 numbering 20 per cent. of the total. Of the latter, fully 50 per cent. were diseased, while the older persons were better off, only 20 per cent. of them having shown signs of active disease. The younger persons are the more dangerous ones for, as a rule, they are more attractive to the men, and on the other hand they have had little or no experience in keeping themselves free from infection, and do not know how to seek adequate help in case of illness. As a correlative to this report, the board of health published a few interesting figures as to the deaths caused by syphilis. In the years 1911 to 1919, altogether 963 persons died from this cause. The figures for the years beginning with 1911 were: 119, 107, 109, 147. In the year 1915 there was a marked drop to 97; then came 91, 90 and 79; in 1919 the figure went up again to 129. In the first group of years (1911-1919) fully 78 per cent. of the deaths were those of infants under 1 year of age, thus showing the extension of inherited congenital syphilis. From 1914 to 1918, in consequence of the drop of the birth rate owing to the war, the number of deaths from syphilis increased by 63 per cent. This shows clearly that syphilis among the parents increased markedly during the war. In these statistics, only such cases were considered as were manifestly due to syphilis: congenital syphilis or gummas of the brain, syphilitic meningitis, and syphilitic kidney or liver trouble. Cardiovascular disease, probably but not absolutely certain of syphilitic origin, was not considered. No doubt the number of deaths due in reality to syphilis—tabes, general paralysis of the insane, and aortic trouble assume a prominent rôle—is much higher than in the figures given.

Statistics of Contract Practice

The number of krankenkassen or contract practice clubs, to which certain persons must belong (as members) by law, was 887 more in the year 1919-1920 than during the war, if this country as it has been outlined by the peace treaty be considered. The number of their members was 1,248,625, of whom 41.2 per cent. were females. Of each 100 members, 39 became ill in the course of the year, with 48 cases of illness. In the three previous years, the figures were 26.1, 28.4 and 35.8, showing that the health of the members was constantly growing worse. The percentage of mortality in 1919-1920 was 1.57, against 1.05, 1.17 and 1.93 in the previous years. The percentage of labor cases—for maternity benefits are paid to insured female members—was 3.21 against 3.24, 2.59 and 2.28, a rapid rise being distinctly visible, while in the general birth rate of the population a similar rise took place. As regards the financial standing of these sick clubs, the cash balance amounted to 43,625,070 kronen, showing an increase of about 5 per cent. a year regularly for three years. The yearly income amounted to about the same sum (42,725,087 kronen), while the expenditure consumed about 85 per cent. of the income. The sick pay took up 55 per cent. of the income, fees of medical men and administration staff 18 per cent., medicine 12 per cent., and hospital charges 14 per cent. As the expenditures for medical assistance and medicine went up by 100 per cent. in the last four months, the krankenkassen had to raise their membership fees by about 25 per cent. Cooperation of all the clubs is being aimed at to secure uniform fees of the medical men, uniform sick pay classes and uniform membership fees all over the country.

Marriages

Frederick Augustine Rupp to Miss Claire S. Schellenberg, both of Lewistown, Pa., February 17.

Mary Alice Swayze, Bloomsburg, Pa., to Mr. John M. Sampson of Hinton, W. Va., February 9.

Harry Herr Smiley to Mrs. Jodie Williams Reed, both of Texarkana, Ark., February 19.

Deaths

William Fiske Whitney, Boston; Harvard University Medical School, 1875; aged 70; a member of the Massachusetts Medical Society; secretary of the medical faculty from 1883-1890; professor of parasitic diseases in the Veterinary School, from 1891-1901, and curator of the Warren Anatomical Museum of his alma mater since 1879; died, March 4.

Paul Green Pope ⊕ Grenada, Miss.; Vanderbilt University Medical Department, Nashville, 1916; aged 32; chief of the rural sanitation department of the state board of health; died at the Baptist Hospital, Memphis, Tenn., February 21, from a gas bacillus infection subsequent to an accidental gun-shot wound.

Julius Jackson Barefoot, Graham, N. C.; University of North Carolina, Chapel Hill, 1907; aged 36; a member of the Medical Society of the State of North Carolina; captain, M. C., U. S. Army, and discharged, Dec. 13, 1918; died, February 17, from pneumonia.

Alexander Henry Falconer, Louisville, Ky.; Louisville (Ky.) Medical College, 1897; aged 46; a member of the Kentucky State Medical Association; captain, M. C., U. S. Army, and discharged, March 20, 1919; died, February 19, from heart disease.

Willard Woodard Dicker ⊕ Chicago and Oak Park, Ill.; Rush Medical College, 1908; aged 36; assistant professor of medicine in his alma mater; at one time president of the Aux Plaines Medical Society; died, March 1, from pneumonia.

Daniel Joseph O'Connell, Brooklyn; Long Island College Hospital, Brooklyn, 1894; aged about 50; surgeon of the S. S. Advance of the Panama R. R. Steamship Line; died on board the ship at Buenaventura, Colombia, Dec. 26, 1920.

William Scott, Loveland, Ohio; Medical College of Ohio, Cincinnati, 1880; aged 72; at one time mayor, member of the board of education of Loveland, and president of the Clermont County Medical Society; died, February 21.

George F. King, Green Bay, Wis.; Milwaukee Medical College, 1912; aged 31; a member of the State Medical Society of Wisconsin; Captain, M. C., U. S. Army, and discharged, Jan. 27, 1919; died, February 7.

Benjamin Claude Dodds, Sanford, Fla.; College of Physicians and Surgeons, Memphis, Tenn., 1908; aged 39; a member of the Florida Medical Association; died, February 15, following an operation for appendicitis.

John Wesley Dehoff, York, Pa.; Hahnemann Medical College of Philadelphia, 1876; aged 72; for five years professor of obstetrics in the Southern Homeopathic Medical College, Baltimore; died, February 16.

Franklin Pearce Landers, Gadsden, Ala.; Atlanta (Ga.) Medical College, 1883; aged 64; a member of the Medical Association of the State of Alabama; died, February 23, following an operation for appendicitis.

Joseph Riegel Shiley ⊕ Lieut., M. C., U. S. Navy, Seattle, Wash.; Northwestern University Medical School, Chicago, 1911; aged 35; died at the naval hospital, Great Lakes, Ill., February 16, from lobar pneumonia.

Thomas Almon Jones, Hutchinson, Kans.; Rush Medical College, 1907; aged 42; a member of the Kansas Medical Society; founder of the Hutchinson (Kan.) Hospital; died in Pasadena, Calif., February 11.

Andrew J. Sanders, Aubrey, Texas; Memphis (Tenn.) Hospital Medical College, 1891; aged 59; was instantly killed, February 16, when the automobile in which he was riding was struck by a passenger train.

John Remington C. Thompson, Bridgeton, N. J.; Jefferson Medical College, 1888; aged 60; a member of the Medical Society of New Jersey; physician of Cumberland County; died, February 17.

Joseph Alexander Venable, White Bluffs, Tenn.; University of Tennessee, Memphis, 1896; aged 47; a member of the Tennessee State Medical Association; died, February 13, from heart disease.

William Joseph Jones, New York; Cornell University Medical College, Ithaca and New York, 1899; aged 47; for ten years instructor in materia medica in his alma mater; died, February 25.

Evan J. Groom, Bristol, Pa.; Jefferson Medical College, 1855; aged 87; a member of the Medical Society of the State of Pennsylvania; at one time coroner of Bucks County; died, February 20.

Abner M. Darling ⊕ Crystal Falls, Mich.; Keokuk (Iowa) Medical College, 1892; aged 57; died in St. Petersburg, Fla., February 23, following a colectomy for relief from impacted gallstones.

John I. R. Krozer, Baltimore; University of Maryland, Baltimore, 1848; aged 93; a member of the Medical and Chirurgical Faculty of Maryland; died, February 22, from pneumonia.

Frank A. McGuire, New York; University of the City of New York, 1877; aged 69; a member of the Medical Society of the State of New York; died, February 28, from heart disease.

Edward Moses Child, Brooklyn; University of the City of New York, 1877; aged 69; a member of the Medical Society of the State of New York; died, February 23, from heart disease.

James Scott Johnston, Boston; Harvard University Medical School, 1917; aged 31; lieutenant, M. C., U. S. Army, during the World War; died at Saranac Lake, N. Y., February 20.

Edward H. Garrett, Los Angeles; University of Southern California, Los Angeles, 1899; aged 48; a member of the Medical Society of the State of California; died, February 18.

Andrew Jackson Stevens ⊕ Malden, Mass.; Harvard University Medical School, 1869; physician and surgeon of the Malden Hospital; died, February 23, from pneumonia.

Katherine Johnson Jackson, South Livonia, N. Y.; Women's Medical College of the New York Infirmary for Women and Children, 1877; aged 79; died, February 24.

Will T. Atkins, Bates, Ark.; St. Louis College of Physicians and Surgeons, 1907; aged 53; died, about December, 1920, from carcinoma of the tongue.

Walter Perry Ferguson, Santa Ana, Calif.; Eclectic Medical Institute, Cincinnati, 1883; aged 79; a veteran of the Civil War; died, about February 10.

Spencer Howell Stuart ⊕ Hornell, N. Y.; Columbus Medical College, 1892; aged 53; died, February 16, from injuries received in an automobile accident.

William T. Fuller, Suffolk, Va.; Leonard Medical School, Raleigh, N. C., 1895; aged 54; a veteran of the Spanish-American War; died, February 5.

Walter Armstrong Cowie, Mikado, Mich.; University of Michigan, Ann Arbor, 1887; aged 57; died, about February 24, from pulmonary tuberculosis.

James Russell Taber, Brooklyn; College of Physicians and Surgeons in the City of New York, 1874; aged 69; died, February 21, from heart disease.

Albert M. Lichty ⊕ Salisbury, Pa.; University of Pennsylvania, Philadelphia, 1886; aged 61; died, February 27, from cerebral hemorrhage.

John H. Hayden, Muncie, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1885; aged 80; died, February 13, from pneumonia.

Cornelius B. Dunn, Camden, Ark.; Kentucky School of Medicine, Louisville, 1876; aged 73; a Confederate veteran; died, February 7.

Charles Mount Chandler, Salt Lake City; Eclectic Medical Institute, Cincinnati, 1894; aged 63; died, February 22, from heart disease.

Martin Weller ⊕ St. Johns, Mich.; University of Michigan, Ann Arbor, 1881; aged 66; died, February 18, from cerebral thrombosis.

Nelson P. Summer, Van Meter, Iowa; Columbus Medical College, 1887; aged 72; a veteran of the Civil War; died, February 5.

Andrew Maury Woodson, Birmingham, Ala.; University of Nashville (Tenn.), 1900; aged 46; died, February 13, from pneumonia.

Peter Ambrose Larkin ⊕ Uniontown, Pa.; Medico-Chirurgical College of Philadelphia, 1900; aged 56; died, February 13.

Thomas M. Hedges, Glendale, Calif.; College of Physicians and Surgeons, Keokuk, Iowa, 1865; aged 82; died, February 5.

Oscar H. Helbig, St. Louis; Humboldt Medical College, St. Louis, 1864; aged 86; died, February 7, from senile debility.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

MORE MISBRANDED VENEREAL NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the U. S. Department of Agriculture

Orion Pearls S and C Compound.—A quantity of this nostrum shipped in March, 1918, and consigned by the American Druggists' Syndicate, Long Island City, N. Y., was seized by the federal authorities on the charge that the product was misbranded. The Bureau of Chemistry reported that analysis showed it to consist of capsules containing essentially a mixture of oils and resins including cinnamon, santal, copaiba and probably buchu and sulphurated fixed oil. The stuff was falsely and fraudulently represented as effective and useful in chronic and acute gonorrhea and gleet, to stimulate the mucous membranes and stop the discharge in inflammation and catarrh of the bladder and urinary organs. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8129; issued Jan. 25, 1921.*]

Antiseptic Powder.—In January, 1919, a quantity of a product alleged to have been shipped by Henry S. Wampole Co., Baltimore, was seized on the charge that it was misbranded. Analyzed by the Bureau of Chemistry, it was reported to consist essentially of boric acid and alum, with traces of volatile substances including methyl salicylate and indications of menthol. The preparation was fraudulently represented as an effective remedy for catarrh and abnormal discharges such as rheumatic vaginitis, leucorrhea, gonorrhea, gleet, etc., and that it would preserve the health, strength and beauty of those who used it. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8131; issued Jan. 25, 1921.*]

Depurativo D. C.—Eighteen bottles of this product, alleged to have been shipped by R. A. Delgado Carbonell, New York City, to the island of Porto Rico, were seized in September, 1919, on the charge that the stuff was misbranded. The Bureau of Chemistry reported that it consisted essentially of potassium iodid, unidentified plant extractives, alcohol and water. It was declared misbranded, first, because, although it contained 3.4 per cent. of alcohol, the package or label failed to bear a statement to this effect. Further, the following therapeutic claims were, among others, declared false and fraudulent:

> "Guaranteed for the treatment of syphilitic diseases, ulcers, herpes, bubo, rheumatism, erysipelas, debility and impoverishment of the blood."
>
> ". . . positively infallible in treating all diseases of the skin and blood."
>
> ". . . a true destroyer of syphilis whatever may be its form or state."

In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8132; issued Jan. 25, 1921.*]

Gonocol.—In December, 1916, G. J. Fajardo, New York City, shipped to Porto Rico a quantity of a product labeled in part "Gonocol The National Drug Co., Philadelphia, Penna." The Bureau of Chemistry reported that analysis showed it to consist essentially of a watery solution of zinc sulphate, hamamelis water and a small amount of alcohol with 0.38 grain iodin and 0.36 grain protein to each fluid ounce. The claim on the package that "Each fluid ounce represents three grains Proteo-albuminoid compound of Iodin" was false and misleading. Furthermore, it was fraudulently represented that the preparation was indicated in all conditions of the urethra accompanied with a discharge. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8150; issued Jan. 25, 1921.*]

Bouchard Pills.—Martin Rudy, Lancaster, Pa., was alleged to have shipped in January, 1918, a quantity of "Bouchard Pills" which were declared misbranded. The Bureau of Chemistry reported that these pills consisted essentially of iron sulphate and resins with a small amount of oil of cubebs. Some injection tablets, contained in the same package, consisted essentially of zinc sulphate and potassium permanganate. The product was fraudulently represented as effective for the prompt relief of gonorrhea, gleet and discharges from the genito-urinary passages. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8140; issued Jan. 25, 1921.*]

Perlas Urinales-Antisepticas.—In March, 1919, G. J. Fajardo, New York City, shipped to Porto Rico, a quantity of a product labeled in part "Perlas Urinales-Antisepticas Distribuidas por Lawrence-Townley Co., Nueva York." The Bureau of Chemistry reported that the contents of the "pearls" were essentially methylene blue, cubebs and nutmeg. The product was fraudulently represented to be valuable in chronic cases of gonorrhea and blennorrhea, in all cases of stricture, and effective in the treatment of all catarrhal affections of the bladder and for all forms of cystitis. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8152; issued Jan. 22, 1921.*]

Metilol.—Six dozen bottles of "Metilol" being offered for sale in Ponce, P. R., in September, 1919, were seized on the charge that they were misbranded. The preparation was labeled in part: "Metilol Johnson The Logan Pharmacal Co., Philadelphia, U. S. A." The federal chemists reported that examination showed these tablets to consist essentially of hexamethylenamin, nutmeg and cubebs. It was fraudulently represented as an efficient urethral antiseptic and an ideal anti-blennorrhagic specific for the rapid suppression of purulent discharges. Various other equally fraudulent claims were made. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8155; issued Jan. 22, 1921.*]

Montauk Santal Comp.—A quantity of this preparation alleged to have been shipped by G. J. Fajardo, New York City, to Porto Rico, was seized on the charge of misbranding. The capsules, according to the report of the Bureau of Chemistry, were found to contain an average of 3.62 minims of a mixture of oils with approximately 37.5 per cent. of sandalwood oil. It was declared misbranded, first, because, while the label declared the capsules contained 5 minims of sandalwood oil each, they contained only about 3.62 minims each. Furthermore, the product was fraudulently represented as an effective treatment for gonorrhea. In November, 1919, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 8162; issued Jan. 22, 1921.*]

Physician and Social Worker.—The physician who has charge of a case must, of course, retain the full medical responsibility for it and give to the social worker the medical indications or directions. In the social work appear many problems about which the physician is often little informed. Therefore it is important that the dispensary social worker have a well-recognized right of initiative, provided always that she reports her findings of facts and her suggestions to the physician. No plan for a patient should be adopted unless it is based on the medical opinion and the social facts jointly, as respresented by the physician and the social worker together. —Dispensaries, Davis and Warner.

Correspondence

"THE DOCTOR'S DEFENSE"

To the Editor:—The letter of Dr. F. S. Reilly (The Journal, February 26) with the above title deserves comment because it emphasizes an important objection to group medicine—namely, the danger of cliquism. As Barker has said: "There is nothing, perhaps, more conducive to bad feeling in the profession than the belief that coteries of physicians have set themselves up as superior and exclusive associations that try to monopolize practice. Even when groups are composed of competent, sincere, well bred and fair dealing members, they may excite the envy or the resentment of other groups or of individual practitioners."

Dr. Reilly evidently believes that any argument which presents the advantages of group practice is necessarily an attack on the general practitioner. Nothing could be farther from the truth. The opinion I expressed was that the specialist is quite as much in need of the cooperation offered by group methods as the general practitioner.

No reorganization of our methods could ever supplant the family physician. He is a necessary and vital factor in the public welfare. But his burden must be lightened. No man, however resourceful, however comprehensive his training, can hope to be self-sufficient in the practice of medicine today. It is hoped by many that group methods may help to bridge the ever widening gap between the individual practitioner and the "wonder temple" of the pure science of medicine which Dr. Reilly so ably describes. For those who cannot see the gap there is no hope.

There are no doubt groups which have not dealt fairly with the other physicians of the community. Such a group will be made to realize sooner or later that its policies have doomed it to mediocrity, if not to failure. The group which steadfastly maintains an attitude of sincerity and absolute fair dealing with other physicians, even in the face of evident antagonism, cannot but succeed; while the independent practitioner who is broad enough to utilize the facilities offered him will ultimately leave his irreconcilable confrère far behind.

V. N. Leonard, M.D., Duluth, Minn.

"THE ETIOLOGY OF COMMON WARTS"

To the Editor:—The recent interesting reports in The Journal on the investigation of the etiology of common warts by Kingery (Feb. 12, 1921, p. 440) and Wile and Kingery (Sept. 27, 1919, p. 970) prompt me to call attention to a clinical combination which is undoubtedly familiar to many dermatologists, but which has received little or no mention in medical literature. I refer to the hyperkeratotic verrucose growths that develop as a result of the infection of ordinary corns with verrucae. During the last eighteen months, I have encountered four cases of this type, and in every instance the troublesome little tumors developed following the partial removal of the parent clavus by a chiropodist. The lesions are, of course, located on the typical "corn areas," and in addition to being extremely sensitive and painful, are very difficult to eradicate.

When the outer layers of epidermis are removed, by means of salicylic acid or a similar keratolytic, the little tumors resemble in some respects plantar warts ("papilloma of the sole," first recognized and accurately described by Dubreuilh of Bordeaux, and Bowen of Boston), but the accompanying hypercornification often is puzzling and misleading, and the peculiar, tenacious, semisolid or moist, towlike central portion of the little growths is even more so. My first case superficially resembled a synovial lesion of the skin, and it is probable that the identity of the two disorders occasionally is confused.

With regard to treatment, I have found a salicylic acid paste (20 per cent.), for the removal of the cornified mass, followed by radium, to destroy the verruca, best, although it is possible that fulguration or some destructive chemical agent could be substituted for the radium. Under any circumstances, the wart must be completely eradicated, otherwise recurrence is certain.

Richard L. Sutton, M.D., Kansas City, Mo.

"NEPHRITIS IN CHILDHOOD"

To the Editor:—In The Journal, February 19, Dr. James, in discussing nephritis in childhood, cites the case of a child aged 10, with systolic pressure 139 and diastolic 110, stating that this child had aortic regurgitation. To me this hardly seems possible, the pulse pressure being only 29. May I ask what signs and symptoms led to the diagnosis of the aortic lesion? At the same time I would like to ask just what Dr. James considers a normal blood pressure in childhood, as he states that the cases in this table are not too high. In my limited observation of blood pressure in children under 10 years of age, I have found the readings to be much lower than those cited in his Table 3.

J. W. Shuman, M.D., Sioux City, Iowa.

[The letter of Dr. Shuman was referred to the author of the article, Dr. R. F. James, Boston, who writes:

To the Editor:—The signs and symptoms which led to the diagnosis of aortic regurgitation are given in the report of cases, Case 13, page 508, paragraph 2, of my article. As regards the normal blood pressure, I would refer to the following literature:

1. Judson, C. C., and Nicholson, Percival: Blood Pressure in Normal Children, Observation on Two Thousand Three Hundred Cases, *Am. J. Dis. Child.* **8**: 256 (Oct.) 1914.
2. Berkley, H. K., and Lee, J. M.: Hypertension in Nephritis in Childhood, with a Study of Ninety-Three Cases, *Am. J. Dis. Child.* **13**: 354 (April) 1917.
3. Morse, J. L.: Diseases of Children, Case Histories, Ed. 3, pp. 29-30, Paragraph 3.
4. Kerley: Practice of Pediatrics, 1914, p. 396.

The above literature was used in making my estimate.]

THE CLINICAL PATHOLOGIST AND THE LABORATORY TECHNICIAN

To the Editor:—I have read with considerable interest the communication of Dr. Gradwohl in The Journal, January 8, and of Dr. Boyd, February 19. I feel that in many respects the argument of Dr. Boyd is the better. But both have serious faults. Dr. Gradwohl assumes, so it seems, that the term "technician" is applied to a person whose training has been purely technical, and that such a technician is to be standardized by an examination that will take into consideration training and temperament. Nevertheless, he also seems to assume that such a technician is to be merely the assistant of a medical laboratory worker. If his attitude is correct, then standardization is unnecessary, for routine technicians can be perfectly well trained by the director to do the work to which they are assigned. It may be, of course, that a laboratory which reports on all manner of examinations—serologic, chemical, bacteriologic and pathologic, to say nothing of roentgen ray—has but one medical man in its organization, and that he depends entirely on technicians for all his work. In such a case the director must have the services of very generally skilful technicians, who should certainly have had a minimum of medical preparation—say, for instance, completion of the laboratory courses of the first two years of medicine. Special skill such technicians acquire readily.

Dr. Boyd, on the other hand, assumes, it seems, that what are called "technicians" are to be in charge of laboratories, and that they are to be standardized by graduation from medical schools of acceptable standards. If, as Dr. Boyd assumes, a technician is to be in charge, is to act as a director of a clinical laboratory, then he is quite right that the technician should be a graduate in medicine. Nevertheless, he should be much more than that. In fact, he should not only be a medical graduate, and skilful technically, but he should be a person of somewhat wide experience, directly or indirectly, in clinical work. The ordinary graduate in medicine is almost as unsuited for directing clinical laboratory work as is a trained nonmedical technician. Both lack clinical experience and therefore perspective.

The fundamental trouble with the present situation has, however, little to do with what either Dr. Gradwohl or Dr. Boyd says. It lies in the attempt of the laboratory to make diagnoses. The making of diagnoses is not the function of a laboratory except in comparatively few instances. The function of the laboratory is to give the clinician data on which to make a diagnosis—to add something to the clinical history which will help to exclude or include possibilities in diagnosis.

The clinical pathologist should be looked on as a consultant and not as a technician. When this point of view has been accepted, we shall worry less about the quality of the technician, and scrutinize more carefully the character of the clinical pathologist.

PAUL G. WOOLLEY, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TOXICITY OF APOTHESIN AND OTHER LOCAL ANESTHETICS

To the Editor:—I ask for information relative to the toxicity of apothesin, a local anesthetic manufactured by Parke, Davis & Co. I note that apothesin has not been accepted by the Council, but in New and Nonofficial Remedies it is on the list of articles "described but not accepted." The toxicity is given as absolute toxicity less than cocain (as 20 is to 15). Since H. C. Wood (the elder) in his "Principles and Practice of Therapeutics" gives the amount of cocain that can be safely used locally as three-fourths grain, this would limit the amount of apothesin in local anesthesia to about 1 grain. Last Saturday I referred a patient to a surgeon for extensive resection of a hemorrhoidal area. This was done under local anesthesia, a total of 15 grains of apothesin being used in 1: 100,000 solution of epinephrin chlorid, the operation requiring an hour and ten minutes to complete. There was no evidence of toxic action of the drug at the time or sixty hours after the operation. I am informed by this surgeon, who does much work under local anesthesia, that he frequently uses from 6 to 10 grains of apothesin for an operation, and has never noted any toxic action of the drug.

GEORGE M. ECKEL, M.D., Hot Springs, Ark.

ANSWER.—The statement of H. C. Wood, cited by our correspondent, was made about twenty years ago at a time when the use of epinephrin with cocain and other local anesthetics had not become general. Wood's statement was based on the fact that severe, and even fatal, accidents had been observed in numerous cases following the injection of small doses of cocain.

The relative absolute toxicity of the several local anesthetics refers to that shown when the drug is injected intravenously at once. The toxicity diminishes rapidly with diminution in the rate of entry into the blood stream; hence when procain or apothesin in combination with epinephrin is injected subcutaneously, the vasoconstriction caused by the latter substance delays absorption and lessens the toxicity; this is also true of cocain, but the diminution in toxicity is somewhat less than with procain. Matas (THE JOURNAL, July 31, 1920, p. 318) states that he has observed no ill effects with weak solutions—from 0.5 to 1 per cent.—of cocain with epinephrin, and calls attention to numerous deaths that have occurred with stronger solutions.

That apothesin is not entirely free from danger is indicated by the testimony of various observers cited by the committee of the Section on Laryngology, Otology and Rhinology of the American Medical Association (*Laryngoscope*, July, 1920, p. 443). The following is taken from that report:

Effects from apothesin 1 per cent., neurotic woman, pulse became very feeble, convulsion, unconscious two hours (Lewis).

Apothesin injection 2 per cent., complete collapse, unconsciousness, intermittent contractions of all muscles, Cheyne-Stokes breathing for one hour (Lockhard).

Tendency to syncope in few cases (Royce).

Paleness, increased heart action, three cases became unconscious for two minutes, two cases vomited (Campbell).

The report states that there is a remarkable similarity in the clinical effects and animal experimentation, and that the greatest danger in the use of the local anesthetics lies in too rapid injection or entering a vein.

A death following spinal anesthesia in which 3 grains of apothesin were used is reported by Jay Ireland (THE JOURNAL, Jan. 3, 1920, p. 19). The injection was made with the patient in the recumbent position, and while toxic symptoms referable to the anesthetic, apparently, appeared promptly, death did not result until after the lapse of ten days; hence it is open to serious doubt whether this death can be attributed wholly to the apothesin. In another case (THE JOURNAL, Aug. 28, 1920, p. 605) in which death followed immediately after the intraspinal injection of 1¼ grains of apothesin, there is no doubt that the anesthetic was the cause of death.

It should be remembered that the chief source of danger with the local anesthetics when used in suitable doses arises from individual peculiarities not understood at present. If small doses are used such patients usually escape with minor toxic manifestations, but with large doses death sometimes follows promptly; hence the committee lays stress on slow injections.

FUMIGATION FOLLOWING CONTAGIOUS DISEASES

To the Editor:—I desire to know, in detail, the effective methods of fumigation. I will appreciate your opinion concerning the effectiveness of fumigation following the major contagious diseases.

Health Officer. MILTON O. NYBERG, M.D., Wichita, Kan.

ANSWER.—We take it that our correspondent has especially in mind methods of gaseous disinfection. Disagreeable odors may be masked by various methods of fumigation, even by the oldfashioned method of burning paper or feathers; but the actual germicidal effect of many odoriferous substances amounts to little or nothing. Much experimentation with gaseous disinfectants has eliminated from practical consideration all but formaldehyd and sulphur dioxid.

Formaldehyd will destroy bacteria, including the familiar pathogenic forms, on the surface of objects in an atmosphere containing at least 60 per cent. of moisture and at a temperature above 50 F. It is not efficient in cold, dry rooms, and lacks penetrating power under all circumstances. The cubic space should be known and the room should be thoroughly sealed by pasting strips of paper over all cracks. The Department of Health of the City of New York has used:

Paraformaldehyd	30 gm.
Potassium permanganate	75 gm.
Water	90 gm.

The chemicals are mixed in a deep pan holding about a liter (placed for safety in a larger vessel), the water is added and the mixture is stirred. The amount of formaldehyd evolved is considered sufficient to effect surface disinfection in about four hours in a room of 1,000 cubic feet capacity.

Sulphur dioxid is a less potent germicide than formaldehyd, and possesses other disadvantages. It is, however, a better insecticide, and under certain conditions is used for destroying rats, fleas and other vermin.

The efficacy of formaldehyd room disinfection in actually preventing the spread of infection has been seriously questioned in recent years. There is ground for believing that the share of inanimate objects in spreading disease is not as great as at one time supposed. The available evidence indicates that pathogenic bacteria discharged from the body die off rather quickly under the influence of drying, oxygen and sunlight. The slight impetus given to the destructive process through the use of gaseous disinfectants does not appear to be practically of high value. At all events, the virtual abandonment of routine gaseous disinfection in a number of cities has not been followed by any measurable increase of communicable disease.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

Hawaii: Honolulu, April 11. Sec., Dr. Guy C. Milnor, 401 S. Beretania St., Honolulu.

Idaho: Boise, April 5. Director, Mr. Paul Davis, Boise.

Minnesota: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

New Mexico: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

Rhode Island: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

West Virginia: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

Delaware November Examination

Dr. Henry W. Briggs, president, Delaware State Board of Medical Examiners, reports the written and practical examination held at Wilmington, Dec. 14-16, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 6 passed and 2 failed. One candidate was licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University	(1919)	79.9
Temple University	(1918) 76.8, (1919)	80.5, 84.5
University of Pennsylvania	(1919) 88.5, (1920)	86
FAILED		
Temple University	(1919)	73.9
University of Pennsylvania	(1917)	74.4

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Maryland Medical College	(1911)	Virginia

Maryland December Examination

Dr. J. McP. Scott, secretary, Maryland State Board of Medical Examiners, reports the oral and written examination held at Baltimore, Dec. 14-17, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 16 passed and 3 failed. Fourteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1920)	75
Johns Hopkins University	(1907) 84, (1918)	82, (1920) 78, 82, 85, 87, 88
University of Maryland	(1917) 80, (1920)	79, 82
Washington University Medical School	(1920)	85
Jefferson Medical College	(1920)	80
University of Pennsylvania School of Medicine	(1919)	79
University of Virginia	(1920)	82, 88
FAILED		
University of Maryland	(1917)* (1920)*	
Temple University	(1917)*	

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
George Washington University	(1912)	Dist. Colum.
Baltimore Medical College	(1891)	Texas
Johns Hopkins University	(1914)	New Jersey
Maryland Medical College	(1910)	Maryland
University of Maryland	(1885) Minnesota, (1897)	W. Virginia, (1902) Minnesota, (1919) West Virginia
University of Michigan	(1916)	Michigan
St. Louis College of Physicians and Surgeons	(1904)	Missouri
Woman's Medical College of the New York Infirmary for Women and Children	(1899)	S. Carolina
Meharry Medical College	(1897)	S. Carolina
University of Vermont	(1911)	Vermont
Medical College of Virginia	(1912)	W. Virginia

* No grade given.

Book Notices

Common Infections of the Kidneys with the Colon Bacillus and Allied Bacteria. Based on a Course of Lectures Delivered at the London Hospital. By Frank Kidd, M.B., B.C., F.R.C.S., Surgeon to London Hospital. With an Additional Lecture on the Bacteriology of the Urine by Dr. Philip Panton, Clinical Pathologist, London Hospital. Cloth. Price, $7.25. Pp. 331, with illustrations. New York: Oxford University Press, 1920.

The author's method is to study certain cases over a considerable time with special means, then to go through the cases and gather together the accumulated facts, and draw such deductions as the facts seem to warrant. This is the second book in a series, the first dealing with common diseases of the male urethra. The title of the present book is a little misleading because it deals with infections of the bladder, prostate and testicle as well as with infections of the kidney, all presumably due to the colon bacillus and allied organisms. It must be said, however, that there is no criterion presented that will permit one to accept the bacteriologic methods employed in the examinations as trustworthy and exhaustive. Nevertheless, the book is a valuable one from the practical point of view because it deals mainly with concrete cases which are fully described, the parts dealing with direct local treatment containing many useful hints to the practitioner. It is of special interest to note that the author has not had satisfactory results in the cases considered with vaccine treatment. The view is advanced that the infections here considered, as well as many others, are in reality autoinfections, infections caused by bacteria that live in other parts of the body and ordinarily do not cause any damage. In the course of his arguments in favor of this view, the author ridicules bacteriologists because, he says, they attempt to sterilize the world, especially in America, "where they attempt to sterilize everything in common use." In another place occurs this statement: "Preventive medicine, headed by the Americans, has gone off in a vain attempt to sterilize our surroundings, to run away from germs, etc." Such vagaries do not tend to inspire confidence in the author's grasp of the principles of bacteriology and pathology.

Laboratory Manual of the Technic of Basal Metabolic Rate Determinations. By Walter M. Boothby, A.M., M.D., and Irene Sandiford, Ph.D. Section on Clinical Metabolism, The Mayo Clinic, Rochester, Minnesota, and the Mayo Foundation, University of Minnesota. Cloth. Price, $5 net. Pp. 117, with illustrations. Philadelphia: W. B. Saunders Company, 1920.

This book is divided into three sections covering a general discussion of the subject, the details of technic and the methods of calculation. The authors analyze the development of the subject briefly and then give in detail the method of determining the basal metabolic rate, utilizing the Benedict gasometer and the Haldane apparatus. There is an extensive bibliography and an appendix explaining the tables and the methods of calculation; also reproductions of charts for recording data. The book is a valuable one for all those interested in work in this progressive field of modern medicine.

Diagnostik und Therapie der Magenkrankheiten. Von Prof. Dr. I. Boas. Seventh edition. Paper. Price, 138.50 marks. Pp. 671, with 76 illustrations. Leipzig: Georg Thieme, 1920.

Professor Boas' textbook on the diagnosis and treatment of diseases of the stomach has been considered one of the most complete books of its kind. The eighth edition bears out this opinion. It is unfortunate, however, that with rare exceptions, Boas has neglected to consult the reports of American, English and French authors of the last five or six years. Thanks to the work of Carman, Case, Cole and other American radiologists, the use of the roentgen ray in diagnosis of lesions of the gastro-intestinal tract has been placed on a firm foundation. The author comments favorably on the use of the roentgen ray in detecting hour-glass stomach and advanced lesions of the gastro-intestinal tract. He states, however, that when clinical examination is carried out completely, the roentgenologic examination will rarely change the diagnosis. He also warns against laying too great stress on roentgen-ray diagnosis. His nonrecognition of American authors is likewise seen in his failure to mention fractional gastric contents analysis, although he does refer to the duodenal tube as the Einhorn tube. Despite the work of Moynihan and others, in which the association of pain with hyperacidity has been shown to be due to duodenal ulcer, Boas still continues to believe in the existence of simple hyperacidity as the cause of the trouble.

Outline of Common Skin Diseases Including Eruptive Fevers. By T. Casper Gilchrist, M.D. Also Diet Plans For Children in Use in the Department of Pediatrics, The Johns Hopkins Hospital. Third edition. Cloth. Price, $1.25. Pp. 40. Baltimore: Students' Book Store, 1920.

This represents the revised notes which have been used in the Johns Hopkins dispensary for fifteen years, and is intended primarily as a guide to diagnosis. Included are methods of examination, regional distribution, a classification of the commoner dermatoses according to primary lesions, and brief notes on the eruptive fevers. The booklet is primarily of the "short cut to diagnosis" type.

Medicolegal

Lawful Procedure to Protect Against Infectious Diseases—Habeas Corpus

(Application of Travers (Calif.), 192 Pac. R. 454)

The District Court of Appeal of California, First District, Division 2, in discharging a writ of habeas corpus and ordering Evelyn Travers, who had been charged with vagrancy, returned to the care of the health officer of the city and county of San Francisco, says that, in view of the record, the petition (which was made by her attorney) for the writ was without foundation. Because of the wide divergence of the statements of fact, it became necessary for evidence to be taken. The matter was referred to a commissioner appointed by the court. The testimony of medical experts on the part of the health officer was direct and positive concerning the infection of the woman by two distinct, infectious and communicable diseases most frequently transmitted through participation in social vice. The evidence of medical witnesses called on behalf of the petitioner was to the effect that when they made examinations the recognized tests failed to show the presence of the specific diseases in question. There was unquestionable evidence that by certain preliminary treatments the tests in cases of admitted infection might be rendered negative of proof for a short period during which an examination might have been made. The court is of the opinion that the finding of the commissioner that the two forms of disease in question were present at the time of the issuance of the writ was sustained by the evidence and was conclusive.

It is a matter of common knowledge that the federal government, the state government and the municipal government are engaged in an effort to prevent the spread of the two diseases in question. The law provides for the isolation of persons suffering from infectious and contagious diseases. Such laws have been upheld in a multitude of cases, and the safety of the community depends on the proper enforcement of health and quarantine regulations. On habeas corpus proceedings the first question, and usually the only one, presented is as to the existence of the power of restraint. In this case the power to isolate persons suffering from the particular diseases, or either of them, cannot be seriously questioned.

An effort was made to show that the police judge had stated that in every such case the woman was sent to be examined by the clinical officer of the public health department of the city, and, if she passed, the case was dismissed. Thereupon it was stipulated by the district attorney that such was the invariable practice, not, however, for the purpose of forcing the women so charged to submit to examination, but to enable the police judge to show leniency to them. Whatever might be said concerning this method of releasing persons charged with vagrancy merely as a matter of leniency, in this particular case it could not be made the basis of a charge of duress. The woman, if satisfied of her innocence, might have submitted to trial and judgment. If she was guilty [of vagrancy] and had been sentenced, she might have been examined even against her will. She chose the easier of the two courses open to her.

It is considered proper in this connection to add that if a person arrested on the charge of vagrancy should appear to be suffering with another disease—smallpox, for instance—and the proceedings followed which took place in this case, the evil consequences to the community might have been frightful to contemplate. Persons petitioning for habeas corpus, particularly when such petitions are made on behalf of another, should be well assured of the facts represented to the court as true. In the present instance the petitioner no doubt erred or was misinformed, but such errors, fraught with danger to the community, should not be made. This statement is considered necessary to prevent anything in this opinion being considered as authority for unwarranted applications for the release of persons properly quarantined under lawful regulations of the public health department.

Annulment of Marriage for Concealment of Mental Condition

(Smith v. Smith (N. Y.), 184 N. Y. Supp. 134)

A Special Term of the Supreme Court of New York, Kings County, holds that the plaintiff was entitled to have his marriage to the defendant, who had become incurably insane, annulled because, when he asked her at the time of his proposal of marriage if there was anything going to come up between them to make life unhappy, she answered "No," and was silent concerning the facts that a brother and sister had been treated for a mental disease in a hospital for the insane, that the sister was still confined in such hospital, and that she had herself been treated for a mental or nervous disorder in an institution in Canada. The court says that persons who have agreed to marry owe an affirmative duty to inform each other of all facts material to their contemplated marriage, not alone because such facts may affect the decision of the contracting parties, but also because the state and the community have an interest by reason of the property rights involved and the possible issue of the union. If either party is unfitted by age, physical condition, mental incapacity or legal disability from being joined in lawful wedlock, that party should not remain silent; there is a clear duty to speak, as such facts are of the very essence of the contract of conjugal union. Silence implies marriageability. The plaintiff having asked the defendant at the time of his proposal of marriage whether there was anything that would make life unhappy, he was entitled to a frank and full disclosure of the defendant's condition. The defendant's purposely withholding information of her own disease of brain or nervous system, and of her insensate brother and of her mentally deranged sister, who was then in an asylum for the insane, was a concealment of material facts constituting a sufficient fraud practiced on the plaintiff to absolve him from the contract and warrant the annulment of his marriage to the defendant.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 21.
American Association of Anatomists, Philadelphia, March 24-26.
American Assn. of Genito-Urinary Surgeons, Richmond, Va., May 2-3.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Arizona Medical Association, Tucson, April 15-16.
Arkansas Medical Society, Hot Springs, May 3-5.
Georgia, Medical Association of, Rome, May 4.
Kansas Medical Society, Wichita, April 26-28.
Louisiana State Medical Society, New Orleans, April 19-21.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-28.
New Mexico Medical Society, Albuquerque, April 28-30.
New York, Medical Society of the State of, Brooklyn, May 3.
North Carolina, Medical Society of the State of, Pinehurst, April 26-28.
Ohio State Medical Association, Columbus, May 3-5.
South Carolina Medical Association, Columbia, April 19-20.
Tennessee State Medical Association, Nashville, April 12-14.
Western Electro-Therapeutic Association, Kansas City, Mo., April 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

January, 1921, **1**, No. 1

Development of Japanese Blood-Fluke, Schistosoma Japonicum Katsurada, in Its Final Host. W. W. Cort, Baltimore.—p. 1.

*Action of Light on Leukocyte Count. J. H. Clark, Baltimore.—p. 39.

Experimental Study of Intracranial Parasitism of Human Lung Fluke, Paragonimus Westermanii. S. Yokogawa and S. Suyemori, Formosa.—p. 63.

*Relationship of Infection by Hookworm to Incidence of Morbidity and Mortality in 22,842 Men of United States Army at Camp Bowie, Texas, from October, 1917, to April, 1918. C. A. Kofoid, Berkeley, Calif. and J. P. Tucker, Cleveland.—p. 79.

*Recent Experimental Studies on Yellow Fever. H. Noguchi, New York.—p. 118.

Action of Light on Leukocyte Count.—Direct radiation of rabbits' ears for short periods (one hour) by an iron arc through different filters has shown that the region of far ultraviolet (wave length shorter than 300 microns) has practically no effect on the absolute number of polymorphonuclears, but produces a very marked lymphocytosis, lasting about three weeks. The near ultraviolet (from 330 to 390 microns) has a marked depressing effect on the lymphocytes, and, to a less degree, on the polymorphonuclears. The region between 450 and 650 microns has a stimulating action on both lymphocytes and polymorphonuclears, particularly on the former. The wave lengths longer than 650 microns (the red and infrared), produce no effect on the blood beyond the drop in lymphocytes which occurs immediately after exposure to light of any kind.

Hookworm Infection.—An examination of one stool for hookworm ova from 22,842 men at Camp Bowie, Texas, made by Kofoid and Tucker disclosed 3,079, or 13.5 per cent., reported positive. The positives show an increase over the so-called negatives, of 27.9 per cent. in men sick, 88.6 per cent. in sick calls, and 76.5 per cent. in hospital admissions. The same general direction of differences between men with and without hookworm appear in data obtained from the majority of individual companies making up two infantry regiments. Positives for hookworm show an apparent increased susceptibility for tonsillitis, laryngitis, bronchitis, pneumonia and measles. The mortality in ten heavily infected organizations, with hookworm above 10 per cent., was 1.5 per cent. In seven more lightly infected organizations, with hookworm below 10 per cent., the death rate was 0.8 per cent. Morbidity and mortality from many causes, and the incidence of mortality from pneumonia, show a general correlation with the incidence of infection by hookworm, being higher, as a rule, wherever that infection is high. The deaths from pneumonia in one regiment with 30 per cent. hookworm infection were 2.6 per cent., as compared with 0.8 per cent. in the remainder of the division in which the infection by hookworm was 10.7 per cent. An increase of 284 per cent. in infection by hookworm in this regiment, as compared with the rest of the camp, is accompanied by a 325 per cent. increase in mortality by pneumonia. Troops from the hookworm area in army camps generally show a higher incidence of pneumonia and measles than do those from other regions. The incidence of these diseases is heavier in men from more heavily infected states, than in those from more lightly infected states.

Studies on Yellow Fever.—A brief review is given by Noguchi of experimental studies on yellow fever made during three expeditions, the first to Guayaquil, Ecuador, in 1918, the second to Merida, Mexico, in 1919, and the last to Piura, Peru in 1920.

American Journal of Physiology, Baltimore

Feb. 1, 1921, **55**, No. 1

Physicochemical Studies on Bioluminescence. VI. Physical and Chemical Nature of Luciferase of Cypridina Hilgendorfii. S. Kanda, Tsuyazaki, Japan.—p. 1.

Studies on Visceral Sensory Nervous System. IV. Action of Certain Drugs on Lung Motor Mechanisms of Reptilia (Turtle, Snake). A. B. Luckhardt and A. J. Carlson, Chicago.—p. 13.

Id. V. Cardiac and Vasomotor Reflexes Induced by Visceral Stimulation in Amphibia and Reptilia. A. J. Carlson and A. B. Luckhardt, Chicago.—p. 31.

Respiratory Quotient and Its Uncertainty. J. A. Fries, State College, Pa.—p. 53.

*Relative Heights of Eating and Drinking Arcs in Pigeon's Brain, and Brain Evolution. A. O. Shaklee, Galveston, Tex.—p. 65.

*Studies in Blood Pressure Estimation by Indirect Methods. III. Movements in Artery Under Compression During Blood Pressure Determinations. J. Erlanger, St. Louis.—p. 84.

Eating and Drinking Arcs in Brain.—A study was made by Shaklee of the eating and the drinking reactions of three pigeons after cerebral ablation, one for seven weeks, one for nearly five months, and the other for almost twelve months. An attempt is made to show how use and disuse may be potent factors in determining the location of brain centers, and certain laws of brain evolution and of education, suggested by the findings in the light of present day knowledge, are tentatively formulated. The findings are made the basis of a new statement of the functions of the cerebrum and of the subcerebral brain.

Studies in Blood Pressure.—Methods are described by Erlanger for recording photographically the movements of points on the exposed artery of the dog while and where it is being decompressed as in making blood pressure observations in man. The findings are discussed.

American Journal of Syphilis, St. Louis

January, 1921, **5**, No. 1

*Latent Infections with Demonstration of Spirochete Pallida in Lymphoid Tissues of Rabbit. W. H. Brown and L. Pearce, New York.—p. 1.

*Strain in Spirochetes. B. P. Thom, New York.—p. 9.

*Syphilis as Etiologic Factor in Nodular Cirrhosis of Liver. L. J. Owen, St. Louis.—p. 20.

Studies in Standardization of Wassermann Reaction. XV. Influence of Temperature and Duration of Primary Incubation on Anticomplementary Activity of Organ Extracts (Antigens) and Serums. J. A. Kolmer and M. E. Trist, Philadelphia.—p. 30.

Id. XVI. Influence of Temperature and Duration of Primary Incubation on Velocity and Amount of Complement Fixation in Syphilis with Different Organ Extracts (Antigens). J. A. Kolmer, A. M. Rule and and E. M. Yagle, Philadelphia.—p. 44.

Id. XVII. Comparative Study of Methods for Conducting Primary Incubation for Complement Fixation in Syphilis with Technic Recommended for a Standardized Test. J. A. Kolmer, T. Matsunami and M. E. Trist, Philadelphia.—p. 63.

Specific Inhibitory Reaction of Cholesterinized Antigens in Wassermann Test. W. A. Hinton, Boston.—p. 81.

Primary Syphilis; Early Diagnosis. C. G. Lane, Boston.—p. 87.

Certain Factors Connected with Toxicologic Testing of Arsphenamin. G. C. Lake, Washington, D. C.—p. 96.

*Statistical Report on Incidence of Congenital Syphilis. L. T. Royster, Norfolk, Va.—p. 131.

Syphilis: Latent Infections.—Six rabbits which had recovered from generalized syphilis were used by Brown and Pearce as the basis for determining whether such animals were still infected and something as to the location of the spirochetes in cases of latent infection. One of the animals was inoculated four years and three months prior to the examination, another nine months, and the others seven months. At the time the examinations were made, all of the animals showed a suggestive adenopathy which was most evident in the popliteal nodes. In addition, two of them showed slight lesions of an indifferent character in which no spirochetes could be demonstrated by dark-field examination. The others showed no lesions. The latent period of infection was of three months' duration in five of the animals and six months in one rabbit. A popliteal node was removed from each of the animals and used for a test inoculation of two normal rabbits. Infection was produced in all cases, the incubation period varying from thirty-one to forty-four days, which is practically the same as that given by lymph node inoculations during active stages of infection and shorter than that obtained from blood inoculations, except in the most active stages of infections. From these facts, it is concluded that rabbits which have recovered from clinical manifestations of syphilis may harbor virulent spirochetes almost indefinitely even though no further manifestations of infection should occur. Moreover, the infectivity of material from the popliteal nodes, taken in conjunction with other evidence of an affinity of spirochetes for lymphoid tissues, is interpreted as indicating that the lymphoid tissues of the body, in general, are probably the chief reservoirs of the virus during latent periods of syphilitic infection.

Strain in Spirochetes.—Thom is convinced that there is no such thing as "strain" in spirochetes. Individual idiosyncrasy, if properly investigated, will account for all the seeming vagaries of the disease. In other words, the selective action of *Spirochaeta pallida* when introduced into the body is governed entirely by the manner in which the tissues of the host react to the invader.

Syphilis as Cause of Nodular Liver Cirrhosis.—Among 1,200 necropsies analyzed by Owen he found that 8.5 per cent. of all adults had cirrhosis of the liver, and of these, 80 per cent. were of the nodular type. There were three instances of typical syphilitic cirrhosis, characterized by deforming bands of scar tissue. One instance of obstructive cirrhosis with suppurative cholangitis caused by calculi lodged in the common duct, and one instance of primary carcinoma of the liver with cirrhosis were noted. The clinical histories were studied and a table has been made showing factors which might have had a part in bringing about the liver condition. Associated lesions possibly resulting from the same causes as cirrhosis are enumerated.

Incidence of Congenital Syphilis.—Of 1,000 children coming to a free clinic, on whom Wassermann tests were made, 12.5 per cent. gave a positive reaction, colored, 15.47 per cent.; white, 7.04 per cent.

Archives of Dermatology and Syphilology, Chicago

February, 1921, **3**, No. 2

*Dissemination of Spirochaeta Pallida in Experimental Syphilis. F. Eberson, St. Louis.—p. 111.
Visceral Syphilis: Syphilis of Spleen. U. J. Wile, Ann Arbor, Mich. —p. 117.
Visceral Syphilis: Syphilis of Pancreas. U. J. Wile, Ann Arbor, Mich. —p. 122.
*Secondary Syphilitic Infection. C. M. Williams, New York.—p. 126.
Physical Basis of Radium Therapy. G. Failla, New York.—p. 133.
*Digestion of Keloids, Cicatrices and Buboes with Pepsin-Hydrochloric Acid. E. Ahlswede, Hamburg, Germany.—p. 142.
(A) Von Recklinghausen's Disease in Negro; (B) Curvature of Spine in Von Recklinghausen's Disease. R. S. Weiss, St. Louis.—p. 144.
Fibromyxoma—Probably a Linear Nevus. E. J. Eichenlaub, Washington, D. C.—p. 152.
Case of Multiple Idiopathic Hemorrhagic Sarcoma (Kaposi). K. P. Front, Los Angeles, Calif.—p. 155.

Dissemination of Spirochaeta Pallida.—*Spirochaeta pallida* has been isolated by Eberson from the blood stream of experimentally infected rabbits, seven, ten and thirty days after intratesticular inoculation, at times corresponding to twenty-six, twenty-three and three days prior to the appearance of any initial lesion. The regional lymph glands of rabbits have been found to contain active virulent *Spirochaeta pallida* seven days after inoculation of the rabbit's testicle and twenty-six days before any primary lesion had appeared. The spleen has been shown to contain the spirochete more than two months after the inoculated testicle had healed entirely and has been found free from spirochetes by repeated puncture and direct inoculation of the excised testicle into other rabbits. For confirmation of experimental work and for the diagnosis of suspicious syphilitic material which cannot be studied microscopically, it appears that the method suggested by these studies might be employed to advantage. With early invasion of the lymph glands and blood stream established definitely during the incubation period of syphilis in animals, the theory of a life cycle of *Spirochaeta pallida* is weakened considerably. The absence of organisms, as judged solely by microscopic findings, is not convincing proof that a change of form has taken place within the animal body. That this spirochete is found unaltered both in morphology and in virulence in the blood and glands Eberson thinks is sufficient to render the theory untenable.

Secondary Syphilitic Infection.—In Williams' case a typical infection was treated according to accepted methods in August, 1916. Three Wassermann tests between September and Dec. 15, 1918, were said to be negative. Nov. 19, 1919, the patient returned with a penile sore of four weeks' duration, occurring on the site of the original primary lesion. The Wassermann reaction was negative November 19, and again on December 3. Darkfield examination made November 19, revealed no spirochetes, presumably on account of the use of an antiseptic dressing. Microscopic examination December 12 revealed both *Spirochaeta pallida* and the Ducrey bacillus.

Digestion of Keloids.—The solution used by Ahlswede consisted of: pepsin, 10 c.c.; muriatic acid, 1 c.c.; phenol, 1 c.c.; distilled water to make 200 c.c. Phenol was added in order to prevent possible putrefaction of the decaying tissue. Compresses of absorbent cotton soaked in this solution were applied and then covered with an impermeable cover in a large number of cases. The cosmetic effect on scarring after burns was excellent. In many cases of fresh scars no trace was left after a systematic application of the digesting method. These successes led to the local treatment of ulcus durum. The induration was digested by similar compresses. These were cases in which after a thorough arsphenamin treatment the initial sclerosis had healed perfectly, yet a certain obstinate hardness remained which would not give way to the strongest antisyphilitic treatment. Ahlswede also treated cases of adenitis caused by different infections, such as buboes following soft chancre. Almost every patient treated showed a regression of the inflammation within from two to three weeks without an incision being necessary. The general treatment of all masses and packets of tuberculous glands in children, especially those of the throat and neck was next undertaken. In these cases, pepsin compresses represented a good substitute for surgical treatment, the more so as the incision of tuberculous glands is not in all cases free from risk.

Archives of Internal Medicine, Chicago

Feb. 15, 1921, **27**, No. 2

*Cardiorespiratory Mechanism in Health and Disease. R. G. Pearce, Akron, Ohio.—p. 139.
Effect of Irradiation of Suprarenal Region in Rabbits with Roentgen Rays. G. P. Grabfield, Boston, and T. L. Squier, Ann Arbor, Mich. —p. 168.
*Tendency of Carcinoma of Pancreas to Spread by Blood-Vascular Invasion. F. D. Adams, Washington, D. C.—p. 175.
*Bronchial Asthma: Response to Pilocarpin and Epinephrin. H. L. Alexander and R. Paddock, New York.—p. 184.
*Angina Pectoris; An Electrocardiographic Study. F. A. Willius, Rochester, Minn.—p. 192.
*Studies on Renal Threshold for Glucose. K. Goto and N. Kuno, Tokyo, Japan.—p. 224.
*Effect of Antisyphilitic Treatment on Colloidal Gold Reaction. M. Warwick, Minneapolis.—p. 238.
*Sinistrality in Relation to High Blood Pressure and Defects of Speech. C. Quinan, San Francisco.—p. 255.
Significance of Embolic Glomerular Lesions of Subacute Streptococcus Endocarditis. G. Baehr, New York.—p. 262.

Cardiorespiratory Mechanism in Health and Disease.—It is shown by Pearce that in normal men the volume of alveolar ventilation and the volume of oxygen absorbed increase proportionately at moderate levels of physical exertion. The volume of the cardiac output likewise varies directly with metabolism and alveolar ventilation at moderate levels of work. At levels of work in which the cardiac output is less than theoretically demanded, the factors of safety found in gaseous carrying power of the blood, the increased venous pressure due to increased tone of muscles, etc., and the power of the body to superventilate the lungs—come into play. When these added factors can no longer compensate for the disproportionately small bloodflow, effort cannot be sustained, and a lower level of body activity must be found. This study of the cardiorespiratory metabolic function had as its prime object the development of methods which might be used in the clinic for the interpretation of cardiorespiratory disease. The method developed is still poorly adapted for general clinical work, but nevertheless, has given data which afford a broader viewpoint of the subject of cardiorespiratory dynamics. The method has emphasized the importance of the singleness of the function of the circulation and respiration in the nutrition of the body and has shown the need of a closer appreciation of the fact in the teaching of the normal and pathologic physiology of these systems.

Spread of Carcinoma of Pancreas.—Eight cases are analyzed by Adams. Two cases which on microscopic examination proved to be scirrhus carcinoma showed no metastases, but in the remaining six cases, a secondary involvement of the liver was present in all, and regional lymph nodes were affected in all but one. The lungs of five of the six patients were involved, the stomach was in four and the duodenum in four cases, the two latter apparently by direct invasion rather than by metastasis. In three cases there were metastatic foci in the suprarenals and in a fourth case direct invasion of the left suprarenal occurred. The brain was examined in only two cases; secondary growths were found in both. In these two cases there was a generalized carcinomatosis, involving almost every organ. The features on which emphasis is laid are: (1) the tendency of these tumors to invade the blood stream locally; (2) the occurrence of generalized carcinomatosis by blood dissemination, and (3) the signs caused by secondary growths in two patients which obscured the clinical picture. There was definite evidence of dissemination by way of the blood stream in two cases of adenocarcinoma, and in two others there was invasion of the portal vein or its branches, in which, however, no generalized distribution of tumor foci occurred.

Bronchial Asthma: Response to Pilocarpin and Epinephrin.—In a series of twenty cases of bronchial asthma in which a general examination with routine laboratory aids and drug tests, no constant associated condition was found. The most frequent finding was abnormally increased sensitiveness to pilocarpin. The majority of cases reacted also to epinephrin with an abnormal rise in blood pressure and other characteristic signs — pallor, tremor, sometimes rigor — denoting increased sensitiveness to this drug. A relation between low blood pressure and excessive epinephrin reaction was apparent, while the smaller number of cases with normal or high blood pressure gave regularly normal reactions. Cases reacting excessively to epinephrin were found to be relieved by 0.25 c.c., a much smaller dose of the drug than is usually employed.

Electrocardiography in Angina Pectoris.—A study of 155 cases of angina pectoris is reported on by Willius. Nineteen patients had recognizable aortic lesions, four of which were of syphilitic origin. Seven patients had aortitis, four had aortic regurgitation, five had aortitis and aortic regurgitation, two had aortic stenosis, and one patient had an aneurysm of the descending aorta. Seven patients having syphilis did not have clinical evidence of aortic disease, although the heart was invaded by disease. Two patients had mitral stenosis. The remaining 134 patients had indeterminate pathologic lesions. No electrocardiographic findings pathognomonic of angina pectoris were noted. Significant T wave negativity occurred in one third of the electrocardiograms. Abnormalities in T wave contour affecting both the positive and the negative wave are significant. Abnormal Q R S complexes in all derivations of the electrocardiogram occurred in 14.2 per cent. of the records. The cardiac mortality of the complete group was 46.7 per cent., definitely contrasted by the higher mortality attending those patients having significant T wave negativity (70.3 per cent.) and abnormal Q R S complexes in all derivations (62.5 per cent.) of their electrocardiograms.

Renal Threshold for Glucose.—Investigations were made by Goto and Kuno on fifty-five healthy subjects. It was found that thirty-three eleminated sugar after having taken 100 gm. glucose, but that the quantity eliminated was very small. Twenty-eight of the thirty-three showed no abnormal hyperglycemia and in some cases the renal threshold for glucose was clearly low. It is clearly evident, when the threhold for glucose is lowered, that the lower the threshold the more easily sugar is eliminated in the urine after a carbohydrate diet. If the threshold is severely affected, then sugar will be excreted in the urine even when the sugar in the blood is normal or very slightly higher than normal. Since the renal threshold for glucose is sometimes lowered even in some normal persons, careful attention should be paid to the diagnosis of so-called mild diabetes, in which slight glycosuria is present after meals, and in which no clinical symptoms are noted. To diagnose mild diabetes and renal glycosuria, it is necessary to examine not only the excretion of the sugar in the urine, but also the sugar in the blood after the glucose test has been made, and to study carefully the renal threshold for glucose.

Effect of Antisyphilitic Treatment on Colloidal Gold Reaction.—Warwick states that the colloidal gold reaction shows a tendency to decrease under the influence of antisyphilitic treatment, but may remain unchanged or even increase in intensity. The more pronounced the colloidal gold curve, the less it is affected by treatment. On the other hand, the lower curves are more readily brought down to normal. The colloidal gold reaction does not parallel or follow the clinical symptoms of the progression or regression of the disease. If the colloidal gold curve changes after treatment, it increases or decreases in intensity and occasionally drops back into another zone, but is usually a symmetrical curve and does not become atypical. The Nonne and Wassermann reactions tend to parallel the colloidal gold curve in its behavior to treatment and in the provocative reaction.

Sinistrality and High Blood Pressure.—The literature of the subject is reviewed by Quinan and he presents the results of an investigation of left-handedness in relation to high blood pressure and speech defects. Among 600 men examined forty-two sinistrals were found. High arterial tension was found to occur more frequently in left-handed than in right-handed people. Evidence is submitted that left-handedness is hereditary, and that it indicates a defective organization of the central nervous system. Hence it is concluded that hereditary predisposition is a definite factor in the etiology of high blood pressure, and that high arterial tension is suggestive of constitutional inferiority. As compared with dextrals, stammering occurs in sinistrals with a frequency from three to seven times greater.

Boston Medical and Surgical Journal

Feb. 24, 1921, **184**, No. 8

Seminal Vesiculitis: Its Local and General Manifestations. J. H. Cunningham, Boston.—p. 189.

*Primary Disease of Pelvic Lymph Glands. An Unrecognized Gynecologic Condition. J. T. Williams, Boston.—p. 194.

*Fascia Used to Mobilize a Stiff Knee Resulting From Gun Shot Wound. L. A. O. Goddu, Boston.—p. 198.

Defective Delinquents in Army of Occupation of American Forces in Germany. How They Are Treated in Disciplinary School. L. V. Briggs.—p. 202.

Primary Disease of Pelvic Lymph Glands.—Primary enlargement of the pelvic lymph glands Williams claims is a distinct clinical entity not generally recognized in gynecology. He cites three cases. The diagnosis is to be based on a pelvic mass definitely not connected with the uterus or its appendages, giving rise to pain and tenderness referred to the iliac fossa of the affected side, with or without elevation of temperature, and with or without psoas spasm on the affected side. The white count in the few cases so far observed has been only slightly elevated.

Fascia Lata Used to Mobilize Stiff Knee.—Goddu used a piece of fascia lata to replace a destroyed portion of the knee joint capsule. The entire skin fascia and capsule were adherent, as well as patella. All adherent tissue was lifted up from the bone and the joint exposed. A portion of the articulating surface of the femur was destroyed. The final result was entirely satisfactory.

California State Journal of Medicine, San Francisco

February, 1921, **19**, No. 2

*Size of Women: Special Reference to Height. C. D. Mosher, Palo Alto, Calif.—p. 53.

Relationship Between Trauma and Malignant Disease from an Industrial Viewpoint. W. Ophuls, San Francisco.—p. 54.

How Can Medical Service be Improved. M. R. Gibbons, San Francisco. p. 56.

Bilateral Nephrolithiasis. G. W. Hartman and S. A. Goldman, San Francisco.—p. 59.

Urinary Incontinence and Its Operative Repair. J. R. Dillon, San Francisco.—p. 61.

Industrial Medicine. R. T. Legge, Berkeley.—p. 64.

Industrial Surgeon, What He Is—What He Can Be—What He Should Be. G. M. Barrett, San Francisco.—p. 68.

Deformities of Hand Acquired After Accidents. A. Gottlieb, San Francisco.—p. 72.

Examination of Employees in Industry. C. A. Dukes, Oakland.—p. 74.

Roentgen-Ray Treatment of Uterine Hemorrhage. L. C. Kinney, San Diego.—p. 76.

Heat Most Practical and Promising Treatment in Uterine Carcinoma. J. F. Percy, San Diego.—p. 78.

Nasal Catarrh. C. A. Phelan, San Francisco.—p. 81.

Advance in Business Methods. P. A. Jordan, San Jose.—p. 84.

Size of Women.—A popular belief seems to be prevalent that women are increasing in size. This idea has, apparently, received some confirmation from the study of 4,023 of the women who entered Leland Stanford, Jr., University during the past thirty years which shows that the average height of the women of today has increased from 1 to 1.1 inches. There is also a definite increase in the average weight.

Colorado Medicine, Denver

February, 1921, **18**, No. 2

Special Points in Surgery of Gallbladder and Ducts. G. W. Crile, Cleveland.—p. 28.
Correlation of Psyche and Gastric Function. J. L. Mortimer, Denver. p. 32.
Ophthalmoscopic Pathology. E. Jackson, Denver.—p. 34.
Relationship Between Ocular and Dental Disease. W. H. Crip, Denver. —p. 37.
Mastoiditis in Acute Otitis Media. W. C. Bane, Denver.—p. 38.

Journal of Mental and Nervous Diseases, Lancaster, Pa.

January, 1921, **53**, No. 1

*Acute Meningitis and Tuberculous Meningitis. L. Morquio, Montevideo, Uruguay.—p. 1.
*Syphilis and Regeneration. B. P. Thom, New York.—p. 8.
Three Types of Spinal Cord Injuries in Warfare. H. Viets, Boston.—p. 18.

Tuberculous Meningitis.—Eighty cases of tuberculous meningitis seen by Morquio have followed grip or have appeared a short time after it, grip having been the cause only occasionally. One patient had had pneumonia a month before. Meningitis appeared suddenly and death occurred within forty-eight hours. Another patient convalescing from pneumonia was taken ill suddenly within a week, and twelve hours later he was dead. At the necropsy supuration of the meninges was found. The pus contained only the pneumococcus. In two cases the meningococcus was associated with the pneumococcus. In some cases only the streptococcus was present. In the tuberculous cases, the tubercle bacillus was found in 80 per cent. of the cases. The mortality in these cases was 100 per cent.

Syphilis and Regeneration.—Thom is firmly of the opinion that syphilis is largely responsible for idiocy and imbecility. The child may be born of syphilitic parents; it is apparently healthy, but in reality the syphilis is asymptomatic. The child may show normal development up to the age of 10 or 12; then, without apparent cause, its mentality begins to deteriorate. The first sign may be mental fatigue.

Journal of Urology, Baltimore

January, 1921, **5**, No. 1

*Trauma as Factor in Etiology of Hydronephrosis (Pyelectasis). F. C. Herrick, Cleveland.—p. 1.
Urologic and Venereal Idiosyncrasies Presented by Negro. G. H. Day, Louisville, Ky.—p. 19.
*Physiologic and Pharmacologic Studies of Prostate. III. Effect of Prostatectomy on Behavior of Albino Rats. D. I. Macht and W. Bloom, Baltimore.—p. 29.
*Vas Puncture as Means of Cure for Chronic Seminal Vesiculitis: Report of Fifty-Five Cases. R. E. Cumming and J. E. Glenn, Washington, D. C.—p. 43.
*Treatment of Gonorrheal Complications by Combination of Antigonococcus Serum and a Temperature-Raising Agent. J. Reenstierna, Stockholm.—p. 63.
Value of Pyelography in Diagnosis of Neoplasms of Kidney. J. A. C. Colston, Baltimore.—p. 67.

Trauma as Factor in Etiology of Hydronephrosis.—As a name fitting the condition termed hydronephrosis, Herrick suggests pyelectasis because it fits and is descriptive. The term pyonephrosis should be retained, for in this condition the entire kidney is involved in the infective process. Pyopyelectasis expresses dilatation with pus as a contents, and together with hemopyelectasis and uropyelectasis accurately describes well recognized clinical conditions. In order to find the relation of trauma to other factors, Herrick has worked out a classification of the etiology of pyelectasis. The action of trauma toward producing pyelectasis is considered under the heads of (1) renal mobility; (2) ureteral fixation; (3) accessory structure; (4) hemorrhage; and (5) scar formation.

Relation of Prostate to Mental Efficiency.—The observations made by Macht and Bloom lead to the conclusion that the endocrine function of the prostate gland bears no relation to the mental efficiency of animals.

Vas Puncture to Cure Chronic Seminal Vesiculitis.—Cumming and Glenn treated fifty-five cases by Belfield's method—filling the diseased vesicles, through vas puncture with a 5 or 10 per cent. collargol solution. The end results were: forty patients were returned to duty within three weeks, apparently permanently cured. The remaining fifteen patients, who required treatment of prostate and urethra also, were cured within six weeks, with one or two exceptions. The series included four cases of gonorrheal arthritis.

Antigonococcus Serum in Treatment of Gonorrheal Complications.—Reenstierna now prepares a polyvalent antigonococcus serum by means of intravenously immunizing rams with living gonococcus cultures. In the case of the usual infection of the mucous membrane (of the urethra, the cervix, the excretory ducts of Bartholin's glands, the conjunctival sac, etc.), in short, in the so-called open gonorrhea, no decrease in the number of gonococci could be ascertained. As regards the gonorrheal complications (closed gonorrhea), e. g., arthritis, epididymitis, prostatitis, diseases of the eyes and adnexes, infiltrations of the Bartholin glands and periurethral infiltrations, in most cases painful symptoms had obviously decreased or completely disappeared after five or six hours, sometimes earlier. This improvement was either temporary or it progressed, on repeated injections, more or less rapidly to a partial or complete cure. Only a few cases were quite refractory. Reenstierna has added to the serum a certain quantity of some temperature-raising agent—dead cultures of typhus bacilli. With this preparation, based on the double principle of action of antibodies and fever, trials have been made in more than a 100 cases of different gonorrheal complications (particularly arthritis, epididymitis and prostatitis). The most serious cases of fresh arthritis have after one or two injections gone to complete cure in from one to two weeks. In many cases, in which the gonococcus vaccine had had no effect at all (not even after some ten injections), a treatment with serum has been followed by an obvious improvement at once. In some few cases, neither a previous treatment with gonococcus vaccine nor a later treatment with gonococcus vaccine nor a later treatment with serum has been of any use (secondary infection?). Most often cases of prostatitis have been cured in one week. The same rapid response was noted in epididymitis. A large gonorrheal cutaneous abscess in the perineal region healed after a single injection in one week. The untoward effects of the serum treatment are chills and high fever after the injection, considerable tenderness at the site of injection (the gluteal muscles, persisting for some days, and at times a passing tenderness in the inguinal lymphatic glands.

Kansas Medical Journal, Topeka

February, 1921, **21**, No. 2

Cesarean Section Under Local Anesthesia; Report of Three Cases. W. E. Mowery, Salina.—p. 39.
Poliomyelitis. E. O. Ebright, Wichita.—p. 41.
Melancholy and Melancholia. K. A. Menninger, Topeka.—p. 44.
Sanatorium Treatment of Pulmonary Tuberculosis. J. A. Milligan, Garnett.—p. 50.
Endocrinopathy as Related to Some Diseases of Obscure Etiology. F. A. Carmichael.—p. 52.
Law for the Doctor. Physician's Right of Recovery of Emergency Service Rendered Unconscious Person. L. Childs.—p. 56.

Medical Record, New York

Feb. 26, 1921, **99**, No. 9

Relation of Medical Profession to Community. G. G. Ward, Jr., New York.—p. 337.
*Diaphragmatic Hernia. J. Hajek, New York.—p. 339.
History of Discovery of Duodenal Intubation. J. C. Hemmeter, Baltimore.—p. 341.
Speaking of Specialists. I. C. Philbrick, Lincoln, Neb.—p. 345.
Concept of Roentgen-Ray Pathology. VII. Craniopathies. A. J. Pacini, Washington, D. C.—p. 348.
Fallacies in Diagnosis and Treatment of Some Genito-Urinary Conditions. P. S. Rosenblum, Philadelphia.—p. 352.

Diaphragmatic Hernia. — The diagnosis of strangulated diaphragmatic hernia was made by Hajek in this case. The patient died. On opening the thoracic cavity the left lung was found to be compressed, occupying the apical cavity only. The remaining portion of the chest cavity was occupied by the stomach, markedly distended, the splenic flexure of the colon, about 2 inches of the transverse, and 2 inches of the descending colon, covered with a portion of the omentum. The left dome was poor in musculature and very thin. In the left lumbar costal area was a smooth-edged opening, lined with a tendon-like structure, which blended into the surrounding tissues and admitted five fingers freely. The hernia was in a sac formed by peritoneum and pleura.

Michigan State Medical Society Journal, Grand Rapids

February, 1921, **20**, No. 2

Myxedema. T. A. McGraw, Jr., Detroit.—p. 27.
Neurotic Patient. I. H. Neff, Detroit.—p. 30.
Rôle of Basal Metabolism in Diagnosis and Treatment of Hyperthyroidism. H. A. Freund, Detroit.—p. 35.
Focal Infection. C. A. Teifer, Muskegon.—p. 37.

Minnesota Medicine, St. Paul

February, 1921, **4**, No. 2

Compulsory Health Insurance and Medical Profession. F. L. Hoffman, Newark, N. J.—p. 63.
Acute Gonorrheal Urethritis. L. W. Bremerman and M. McKellar, Chicago.—p. 68.
*Cysts of Pancreas. E. S. Judd, Rochester, Minn.—p. 75.
Electrocardiograms in Thyrotoxic Conditions. G. C. W. Stein, St. Paul.—p. 82.
Organization of Medical Schools and Hospital Facilities for Graduate Medical Education. E. P. Lyon, Minneapolis.—p. 90.
Treatment of Early Pulmonary Tuberculosis. W. J. Marcley, Minneapolis.—p. 96.

Cysts of Pancreas.—The basis of Judd's paper is a series of forty-one cases of cysts of the pancreas. In thirty-eight cases operation was performed for the cysts, and in three cases the cysts were discovered during an operation for some other condition. In many of the cases it was difficult for the operator to locate the cysts with relation to the surrounding structures and to determine whether they were true pancreatic cysts or so-called pseudocysts. The exact nature of the true cyst could not be determined in many cases as it was impossible to demonstrate obstruction to the ducts such as would cause retention cysts and since in most cases the destruction of the tissues within the cysts was so great that we could not know whether the tumors were cystadenomas or simple cysts. In only two cases were the tumors malignant or associated with malignancy of the pancreas. There was one dermoid cyst. It contained hair and one tooth. The cyst arose in the tissue in the body and tail of the pancreas. It was possible to remove the entire cyst and affect a cure. One true hemorrhagic cyst was found, although there was no history of trauma in this case; the condition appeared soon after confinement.

Neurological Bulletin, New York

January, 1921, **3**, No. 1

Clinical Endocrinology. W. Timme, New York.—p. 3.
Mental Hygiene and Education. B. Glueck, New York.—p. 34.
Brown-Sequard Syndrome Produced by An Old Cervical Tuberculous Spondylitis. I. J. Sands, New York.—p. 41.

Ohio State Medical Journal, Columbus

February, 1921, **17**, No. 2

Blood Chemistry and Other Laboratory Tests in Nephritis. J. J. Coons, Columbus.—p. 77.
Fallacy of Depending on Single Test for Kidney Function. S. Englander, Cleveland.—p. 82.
Ten Minutes with Urine. J. H. Dowd, Buffalo.—p. 85.
*Polycystic Kidney. F. C. Herrick, Cleveland.—p. 89.
Resume of Treatment of Eclampsia. M. A. Tate, Cincinnati.—p. 93.
Treatment of Sixty-Four Cases of Eclampsia. W. D. Inglis, Columbus.—p. 96.
Treatment of Eclampsia. C. E. Updegraff, Akron.—p. 99.
Operation for Empyema in Young Adults. F. E. Bunts, Cleveland.—p. 101.
Cesarean Section; Its Indications and Technic. A. J. Skeel, Cleveland. p. 103.
Ophthalmic Case Record System. B. King, Toledo.—p. 107.

Polycystic Kidney.—Herrick reports one case which illustrates the hereditary tendency of this pathologic condition. All previous cases in the family occurred on the mother's side as follows: mother's father died at 55; mother at 38; two aunts (mother's sisters) at 46 and 52, respectively; one cousin at 45; one brother at 35; one sister at 38. Of these eight cases, the diagnosis of six was proved by necropsy. Of the eight cases (including the patient) five were females and three males. The patient had lost three infant children, causes unknown, and had one daughter living and well. The main complaint in Herrick's case was indigestion. The gastro-intestinal symptoms were quite typical of duodenal ulcer. The urinary history was that of hematuria. Death occurred from pneumonia. Necropsy showed both kidneys to be polycystic. Three other cases are also reported. In one, the diagnosis of polycystic kidney was verified at the necropsy. In this case the chief complaint was dizziness, which is noted in the literature as a characteristic primary complaint. It was the major complaint in two of Herrick's cases.

Philippine Journal of Science, Manila

September, 1920, **17**, No. 3

New or Noteworthy Philippine Plants. XVI. E. D. Merrill.—p. 239.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

December, 1920, **37**, No. 141

Medicine and Surgery. L. E. V. Every-Clayton.—p. 193.
*Diagnosis of Torsion of Great Omentum. J. Swain.—p. 202.
Clinical Significance of Adsorption Phenomena. O. C. M. Davis.—p. 205.
Tuberculosis and Consumption in Relation to Public Health. D. S. Davies.—p. 211.

Torsion of Omentum.—Two cases are recorded by Swain. Clinically the symptoms were largely of an inflammatory character. The first case resembled an attack of cholecystitis and the second case resembled appendicitis.

British Medical Journal, London

Feb. 5, 1921, **1**, No. 3136

*Necessity of Orthopedic Training: Its Relation to Prevention and Cure of Deformities. R. Jones.—p. 181.
*Use of Vitex Peduncularis in Malarial Fever and in Blackwater Fever. J. C. S. Vaughan.—p. 186.
Dilatation of Heart. W. Samways.—p. 188.
Study of Pneumococcus and Streptococcus Groups in Their Relation to Influenza. W. R. Logan.—p. 189.
Fracture of First Rib. E. T. C. Milligan and R. E. Ford.—p. 191.
Case of Myoclonic Lethargic Encephalitis Simulating Hydrophobia. S. E. Denyer and D. E. Morley.—p. 191.
Cardiac Massage in Resuscitation. N. M. Dott.—p. 192.
Case of Delayed Arsenical Poisoning. G. St. George.—p. 192.
Tumor of Neck. J. W. Thompson.—p. 192.

Better Training in Orthopedics.—Jones emphasizes: the necessity of paying more attention to the education of students in orthopedic principles if they are to be efficiently equipped in after-life. The prevention of surgical tragedies is largely dependent on the general practitioner, and his usefulness is largely dependent on his academic training. Visit any out-patient department to be satisfied as to the prevalence of the uncured cripple—often the untreated cripple. They are seen in every corner of the earth. If we inquire into the causes of these failures, we find that many of them were not seen in the early stages; many were refused hospital accommodation; other admitted into wards had to be evacuated early because of the pressure on beds; others suffered because there had been lack of continuity of treatment; most of them had not been supervised by surgeons sufficiently interested in that type of work. It is evident, if we are to prevent deformity, we must teach the fundamental principles in such a way that the teaching will bear fruit in remote places. We must reach the practitioner because we have to trust to him for an early diagnosis, and he should at least know the possibilities of modern treatment. The most effective way to accomplish this is through the mind of the student.

Use of Vitex Peduncularis in Malaria.—Accepting the example of the natives, Vaughan treated cases of blackwater fever with infusions of the plant known botanically as the *Vitex peduncularis* Wall (variety roxburghiana). It is used in various way, chiefly as an infusion of the leaves or of the root bark or young stem bark, in fever of malarial type, and especially in blackwater fever. Two ounces of the leaf used fresh, or dried in the shade, is dropped into 40 ounces of boiling water, and is boiled in it for from five to ten minutes, and then allowed to soak in the water in which it has been boiled, for an hour at least. The resulting infusion, amounting to about 40 ounces, is poured off the soaking leaf and given as required in doses of from 8 to 10 ounces, distributed over twenty-four hours, or given over the day only, the patient resting all night undisturbed. The results, as a whole, show that, whereas there are cases that will quite readily yield to a 1 in 40 infusion, there are others that require a very much larger dosage. The actual experience with the use of both the infusion and the concentrated infusion has been that, whereas as proportion of cases have quite readily yielded to a dosage based on the infusion of 40 ounces of infusion from 1 ounce of leaf given over twenty-four hours of administration, and have yielded in some cases in twenty-four hours and in others in the course of seventy-two hours, there have been other cases which have not yielded even in seventy-two hours, but which have yielded at once when the dose was doubled or considerably increased by either giving a larger actual dose of the 1 to 40 ounces infusion, or by using a very much stronger infusion, even up to one of 4 ounces of leaf to the 40 ounce infusion, and there are others which have been even more obstinate. The results, however, have been uniformly encouraging. The drug seems to have no toxicity at all in the dosages employed. In almost all instances, Vaughan identified the parasite of malaria before commencing treatment.

Indian Medical Gazette, Calcutta

January, 1921, **5**:, No. 1

Malaria. S. D. Greval.—p. 1.
Hemorrhagic Type of Malaria. B. B. Hajra.—p. 2.
Novarsenobillon. R. Bose.—p. 4.
*Complete Extirpation of Pancreas with Absence of Glycosuria. G. Chand.—p. 6.
Relapsing Fever Epidemic in Seoni District (Central Provinces), February to May, 1920. S. C. Roy.—p. 7.
*Hemolytic Test in Kala-Azar. C. Ray.—p. 9.
*Permanganate Pills in Cholera. A. R. Mojumdar.—p. 10.
*A Developmental Defect of Unknown Origin. A. J. Noronha.—p. 10.
*Cachar Sore and Its Treatment. J. M. Sen Gupta.—p. 13.
Double-Headed Monster. S. Kahar.—p. 15.
Case of Full Term Pregnancy. S. N. Misra.—p. 15.
Dermoid Cyst of Parietal Bone. A. Bayley de Castro.—p. 16.
Male Infant Born with Two Lower Central Incisor Teeth. D. J. Asana.—p. 16.
Two Vesical Calculi of Peculiar Shape. V. V. Chabukswar.—p. 17.
Interesting Case of "Rabies." A. Paul.—p. 17.
*Case of Ovarian Cyst of Unique Dimensions. T. W. Harley.—p. 18.

Extirpation of Pancreas.—Chand's patient was aged 2 years. A very large cyst of the pancreas necessitated the removal of this organ in July 1919. The urine was examined before and after the operation, but no trace of sugar was detected. It is still free from sugar, even when the chief part of the boy's diet is carbohydrates.

Hemolytic Test for Kala.—Ray describes a test for kala-azar. The blood is taken in the same way as for the estimation of hemoglobin by Gower's hemoglobinometer, and mixed with distilled water. There is no hard and fast rule about the relative proportion of blood and water—2 drops of blood in 20 drops of distilled water seems to be quite satisfactory. Instead of being a clear, transparent solution, the blood kala-azar will show itself by its turbidity. On keeping the solution for some time, a white flocculent precipitate will appear all through the fluid, which on further keeping forms a marked deposit. The test is so simple that it can be done by the busy physician himself at the bedside. A test tube of small caliber, a capillary pipet and a little distilled water is all that is required. The test is said to be quite reliable.

Permanganate Pills in Cholera.—Mojumdar make the pills in the usual way with kaolin and petrolatum and instead of giving them a separate coating, he keeps them in a bottle containing kaolin in fine powder. The powder immediately forms a coating and, when subsequently dried, forms a thin crust. The pills are kept in the powder and used therefrom when necessary.

Developmental Defect.—In Noronha's case while the face is bigger on the right side, the trunk and limbs are larger on the left. The foot is abnormally large. There was nothing worthy of note that might be considered abnormal in connection with the motor system. There was a diminution of the tone of all the muscles of the body. The boy was slow in answering questions and also slow in understanding instructions. The sella turcica was normal in size. The bones of the right leg were distinctly larger than the left, but the difference in size was not so apparent in the case of the upper extremity. The heart was feeble, otherwise normal in position and size. The blood pressure was low, 98 systolic and 65 diastolic. The Wassermann test was negative. Benign tertian parasites were found in the blood. Beyond a slight transient bronchitis, there was nothing abnormal, except in the size and shape of the chest.

Treatment of Cachar Sore.—Cachar sore (Assam sore—locally known as Shantira) is a kind of unyielding ulcer. It appears more or less in epidemic form and affects cultivators and tea garden coolies specially. In a majority of cases the ulcer affects the leg, probably as a result of contamination by mud, the germ gaining entrance through an abraded skin or a slight wound. In a few cases, however, the upper lip with the mucous membrane of the nose has been found affected. Microscopic examination of the discharge reveals a type of bacillus which is present in enormous numbers. The true nature of this bacillus could not be determined. No other micro-organism could be detected. It starts as a small pimple, which in a day or two is surrounded by an areola. This increases in size rapidly and in a few days breaks out in an ulcer, with profuse discharge and offensive smell, associated with acute pain. Extension is very rapid. It resists all the usual methods of treatment of chronic ulcers, particularly when it is somewhat advanced. In the early condition some good may be achieved by touching the margin and surface of the ulcer with silver nitrate or strong phenol, followed by antiseptic dressings with mercury lotion, picric acid lotion, etc. Intravenous injections of from 2 to 4 c.c. 1 per cent. tartar emetic solution was extremely satisfactory. Four cases are cited.

Unusually Large Ovarian Cyst.—The weight of Harley's patient immediately before the operation was 246 pounds and immediately after the operation, 82 pounds, so that the weight of the tumor and its contents was 164 pounds. The patient died the day after operation of shock.

International Journal of Public Health, Geneva

January-February, 1921, **2**, No. 1

Influence of Postwar Conditions on Feeding of Children. P. F. Valagussa, Rome, Italy.—p. 1.
Public Health Before and After War. H. Westergaard, Copenhagen, Denmark.—p. 19.
Present and Future Social Hygiene in America. C. W. Eliot.—p. 24.
Organization of Campaign Against Syphilis in France. E. Leredde, Paris.—p. 28.
Early Treatment and Protective Inoculation in Tuberculosis. K. Shiga, Tokyo, Japan.—p. 34.
Development and Present Scope of Industrial Nursing in United States. F. S. Wright.—p. 43.

Lancet London

Feb. 5, 1921, **1**, No. 5084

Future of Poor-Law Infirmaries. A. G. Stewart.—p. 259.
*Cause and Relief of Pain in Gastric Ulcer. E. P. Poulton.—p. 263.
Induction of Abortion. J. Phillips.—p. 266.
*Incision for Appendicectomy. N. C. Lake.—p. 268.
*Operative Treatment of Prolapse (Procidentia) of Rectum in Adults. J. P. Lockhart-Mummery.—p. 270.
Disseminated Sclerosis Treated with Intravenous Arsenic. J. R. Perdrau and G. F. Stebbing.—p. 271.
Administration of Bile Salts in Infantile Marasmus. E. F. Kerby.—p. 272.

Relief of Gastric Ulcer Pain.—An important element in the pain of gastric ulcer Poulton says is due to distention of the stomach, and can be relieved by means of gastric and gastroduodenal tubes. Some evidence is brought forward that chronic gastric ulcer is due to intragastric pressure.

Incision for Appendectomy.—The inner rectus incision, with the rectus retracted out so that the whole of the abdomen can easily be explored, while at the same time the accessibility of the right iliac fossa is not seriously affected is favored by Lake. This incision is indicated in all cases except those in which the localization of an abscess can be guaranteed.

Operation for Prolapse of Rectum.—The principle of the operation made by Mummery is to restore the bowel into its normal place in the hollow of the sacrum and hold it there by firm adhesions. In order to obtain these dense adhesions he makes use of healing by granulation, and with this object in view the space posterior and lateral to the prolapsing portion of the rectum is packed with gauze and only allowed to fill up slowly so as to get the densest possible adhesions between the rectum and the sacrum.

Medical Journal of Australia, Sydney

Jan. 1, 1921, **1**, No. 1

Acute Perforation of Gastric and Duodenal Ulcer; Report of Twenty-Five Cases. J. L. McKelvey.—p. 3.

Jan. 8, 1921, **1**, No. 2

Cases of Acute Ruptured Ulcers of Stomach and Duodenum. H. Bullock.—p. 21.

Haemorrhagic Conditions in New-Born. I. E. Ashby.—p. 23.

Retrobulbar Neuritis and Dental Sepsis. E. T. Smith.—p. 25.

Anaphylaxis After Injecting a Specific Protein. B. C. Cohen.—p. 26.

Jan. 15, 1921, **1**, No. 3

Maternal Mortality in Childbirth. J. S. Purdy.—p. 39.

Jan. 22, 1921, **1**, No. 4

Accessory Food Factors and Their Influence on Nutrition. E. Dalyell.—p. 61.

Primary Round Celled Sarcoma of Stomach. J. N. Morris.—p. 66.

Quarterly Journal of Medicine, London

January, 1921, **14**, No. 54

*Estimation of Sugar Tolerance. H. Maclean and O. L. V. de Wesselow.—p. 103.

*Reaction of Spinal Fluid During Cerebrospinal Fever. C. Shearer and T. R. Parsons.—p. 120.

*Fatal Bronchiolitis and Bronchopneumonia Caused by B. Influenzae (Pfeiffer) During an Interpandemic Period. A. Malloch and L. J. Rhea.—p. 125.

*Spirochaetosis Icterohemorrhagica. J. A. Ryle.—p. 139.

Metabolism in Infantile Atrophy, with Special Reference to Respiratory Exchange. G. B. Fleming.—p. 171.

*Certain Effects of Peptone Injections in Septicemia. A. E. Gow.—p. 187.

Estimation of Sugar Tolerance.—The determinations of the sugar tolerance were made by McLean's method. In well marked cases of diabetes the results of the test, though of interest from a scientific point of view, were not important for purposes of diagnosis, though the authors emphasize the necessity of estimation of the blood sugar in excluding renal diabetes. In cases, however, in which occasional glycosuria is present, the significance of which remains in doubt, very valuable information may be obtained. The method makes it possible to gain an insight into the patient's capacity for dealing with carbohydrate more certainly, and more rapidly, than does a dietetic test, in which the appearance or absence of glycosuria is alone considered. Such glycosuria is in itself no evidence of hyperglycemia, unless the renal threshold is known, and in some cases a definite delay in storage can be detected even though the blood sugar content does not rise above the renal threshold for glycuresis throughout the test. The sugar content of the blood is, in other words, better estimated directly, than indirectly through a study of the renal excretion. In detecting minor deviations from the normal, which may constitute the earliest warnings of the development of diabetes, the test appears to have a very definite use. In fact, the estimation of the sugar tolerance by examination of the blood sugar at varying intervals, after the ingestion of carbohydrate, is the only means by which a satisfactory graphic representation of the actual condition of the carbohydrate storing mechanism can be obtained.

Spinal Fluid in Cerebrospinal Fever.—In cerebrospinal fever it has frequently been noted that there is often a striking difference between the clinical symptoms shown by a patient suffering from this disease and the degree of infection or number of meningococci found in the spinal fluid on lumbar puncture. Shearer and Parsons suggest the possibility that in such cases the degree of acidosis is the controlling feature. If the spinal fluid contains less than the normal amount of glucose or other substance from which the meningococcus may form acid, or if the particular strain of the organism setting up infection has not the faculty of forming the usual amount of acid, the patient's fluid will show slight change in reaction, though large numbers of meningococci may be present. The absence of marked acidosis of the spinal fluid in such cases would account for the mild clinical symptoms. It may prove that those types of meningococcus responsible for fatal cases are always strong acid forming strains.

Influenzal Bronchiolitis and Bronchopneumonia.—Nine fatal cases of bronchiolitis and bronchopneumonia, due to *B. influenzae* of Pfeiffer, which were seen at a base hospital in France in 1916-1917, are described by Malloch and Rhea. Great dyspnea, marked cyanosis, rapid pulse, irregular temperature, the expectoration of large amounts of nummular sputum, and signs of a generalized bronchiolitis (with or without signs of consolidation), were characteristic of the disease. The diagnosis rested ultimately on the finding of Pfeiffer's bacillus as the predominating micro-organism in the sputum. At necropsy this organism was grown in pure culture from the terminal bronchi, and no other organisms were seen here, though various bacteria were found in the exudate of the larger bronchi. Two cases showed acute endocarditis due to *B. influenzae*, and in one of these the blood culture was also positive for the same organism. These cases did not occur in the form of an epidemic, but apparently were sporadic; they were relatively infrequent as compared with a large number of cases of lobar and bronchopneumonia treated in the hospital; and the clinical picture was not simulated by any of these latter cases.

Spirochaetosis Icterohemorrhagica.—A clinical analysis is made by Ryle of fifty-five cases of this condition which is also known as Weil's disease.

Peptone Injections in Septicemia.—The solution used by Gow in the treatment of several cases of puerperal septicemia and of infective endocarditis was prepared as follows: One half c.c. phenol was added to 100 c.c. hot, sterile, freshly distilled water. About 3 c.c. of this solution was added to 10 gm. Witte's peptone, and the peptone made into a thick uniform paste by stirring with a glass rod; the paste was made thinner and thinner by the slow addition of the remainder of the hot fluid. About 0.5 gm. sodium carbonate was added and the whole brought to the boil, and stirred the while. The hot solution was filtered through a sterile filter paper and funnel into a sterile 100 c.c. flask, and the filtrate heated for twenty minutes on the boiling water-bath. The flask, when cool, was sealed with a sterile rubber cap. As a rule, 8 or 10 c.c. of the 10 per cent. solution of peptone have been given at the first injection, and the dose was usually progressively increased by 1 or 2 c.c. The largest single dose was 18 c.c. In the cases of puerperal septicemia the injections were repeated at intervals of not less than forty-eight hours until the termination of the disease; in one case ten injections were required, the last being of 14 c.c. In only two of the injections was the 10 per cent. solution diluted with physiologic sodium chlorid solution and in those only to 20 c.c. If signs of profound toxemia—e. g., delirium, great restlessness, and anesthesia to needle pricks—are present, it is Gow's practice to give the peptone in 250 c.c. or so of Ringer's solution. Of five cases of puerperal septicemia, two fatal ones were fulminating. The patients died with general purulent peritonitis and pericarditis shortly after admission to hospital. No clinical improvement followed the injections in the cases of subacute infective endocarditis. An immediate rise in pulse frequency, fall in blood pressure, leukopenia, and diminution in the coagulation time of the blood, all of short duration, followed each injection. These phenomena were more marked in patients with leukocytosis. A "tolerance" to peptone, as regards pulse and blood pressure, is soon established, but it is short. The polymorphonuclear leukocytes show a rapid fall followed by a slower rise. The fall in lymphocytes is proportionately less, is relatively delayed, and may be preceded by a rise. The leukopenia is followed by a transient polymorphonuclear leukocytosis. The changes are similar to those following intravenous injection of coli-typhoid vaccine, but peptone is less "stimulating" to the bone marrow.

Archives des Maladies du Cœur, etc., Paris

November, 1920, **13**, No. 11

*Tricuspid Stenosis. E. Cottin and C. Saloz.—p. 481.

*Parietal Endocarditis. R. Lutembacher.—p. 491.

*Hematoblasts in Malaria and Ankylostomiasis. M. Leger.—p. 494.

Tricuspid Stenosis.—Cottin and Saloz report with necropsy findings a case of pure tricuspid stenosis in a girl of 17. The paroxysms of cyanosis and dyspnea, the presystolic thrill, the absence of duplication of the second sound, and the presystolic liver pulse confirmed the diagnosis, as also the absence of the thrill during the paroxysms of cyanosis. The heart showed no signs of malformation.

Parietal Endocarditis.—The parietal endocarditis had developed independent of any valvular lesion and without dilatation of the heart. Necropsy revealed partial thrombosis of the right auricle and of the opening into the inferior vena cava. The man of 60 had edema of the legs, with some ascites. No bacteria were found.

Hematoblasts in Malaria and Ankylostomiasis.—Leger describes the findings in five cases of malaria and two of ankylostomiasis in respect to the hematoblasts, comparing his findings with those of others. He remarks in conclusion that he is inclined to agree with Aynaud: "Nous ignorons tout du rôle du globulin dans l'organisme."

Bulletin de l'Académie de Médecine, Paris

Jan. 18, 1921, **85**, No. 3

*Vaccination Against Typhoid. A. Chauffard.—p. 84.
*Typhoid Fever Since the War. C. Achard.—p. 89.
*Locating a Submarine. Marage.—p. 99.
Improved Portable Sphygmomanometer. P. Menard.—p. 102.
*Liver Symptoms from Latent Appendicitis. C. Poenaru-Caplesco.—p. 105.

Vaccination Against Typhoid.—Chauffard opens a discussion on the advisability of vaccination of the civilian population, suggesting that the first vaccination should be at 15, the second at 18 and the third at 21. This individual prevention will effectually supplement the progress of hygiene in general, and typhoid will gradually be eradicated.

Typhoid Since the War.—Achard comments on the remarkable fact that only the women are having typhoid now, as all the men were vaccinated against the disease during their military service. In twenty-five cases in his service in the last fifteen months all were women except a few youths or elderly men, and one man of 28 who had been vaccinated against typhoid early in the war and recently developed a mild paratyphoid. Two other men had been fully vaccinated and they developed typhoid in a very mild form, *typhoïdette* as he calls it.

Locating Submarines.—Marage warns of the necessity for perfect hearing alike in both ears for the measures required to locate a submarine in the depths. Biologic physics has to be considered in many questions which at first seem to be only those of pure physics.

Liver Symptoms from Latent Appendicitis.—Poenaru-Caplesco remarks that notwithstanding the innumerable works on appendicitis there is still much to be learned about it. He has been impressed with the clinical picture presented by seventeen patients with apparent liver disease, rebellious to all treatment of the liver, but subsiding at once after appendicectomy. In one typical case described, the pains in the liver region, the vomiting and slight jaundice, sometimes a chill, yielded to treatment but kept returning, sometimes with high fever, and the man lost 25 kg. in weight. By exclusion, latent appendicitis was diagnosed, and there has been no liver derangement since the appendix was removed, and the man is in good health and has forgotten his liver. In the whole group there was occasional fever for one or two days, but no pain or other symptoms to attract attention to the appendix region. He calls these patients, false *hépatiques*, although there may be a predisposition on the part of the liver; this seems scarcely likely however on account of the complete recovery.

Bulletin Médical, Paris

Dec. 25, 1920, **34**, No. 62

*Dermatoses in the Emotional. L. Brocq.—p. 1159.
*Diffuse Acute Sclerodermia in Children. W. Dubreuilh.—p. 1163.
*Injury from Alkaline Treatment of the Scalp. R. Sabouraud.—p. 1165.
*Dermatitis of the Cheek. P. Ravaut and Rabeau.—p. 1167.
*Urticaria. C. Flandin.—p. 1170.

Dermatoses in the Emotional.—Brocq refers to congestion in the skin inducing a dermatosis in the emotional under the influence of some toxin. He emphasizes the importance of the emotional instability in such cases, and also of disturbances in menstruation. In a typical case described in an unmarried woman of 30, bad news induced an attack of urticaria. In one case after an unexpected piece of good news, an eruption developed which progressed to an exfoliating erythrodermia. The attacks sometimes develop after eating certain food or taking certain drugs, but the etiologic dominants are unmistakably the extreme emotionalism and menstrual disturbances, upsetting the balance in the sympathetic system. The congestion and the rapidity with which the skin lesions develop are special features of this group of cases. The congestion may affect the skin or any organ. These cases of *alternances morbides* often prove puzzling. The eruption may last only a few hours or days, a "straw-fire eruption." It may subside completely, but it sometimes progresses to vesicle production or exfoliation. When the localization of the trouble is in the stomach, intestine, appendix, or elsewhere, it is liable to be mistaken for an operative lesion. How many operations, he says, might have been avoided if this emotional congestion had been recognized in time, and how many patients of this kind have been exasperated when the conscientious physician tells them that there is nothing really the matter with them. The trouble is usually the other way, however; the physician assumes pulmonary tuberculosis when the apex is merely the seat of a transient congestion, alternating with skin manifestations. This class of patients sometimes present nervous disturbances which resemble those of serious pathologic conditions but which are only transient storms which harmlessly subside when the congestion wave sweeps on somewhere else in the organism, especially to the skin. In treatment he warns to ascertain any idiosyncrasy on the part of the patient to any drug or food. This requires long study of the case and that the patient should not change his physician. Many mistakes have been made by physicians, surgeons and specialists from the patients neglecting this rule.

In treatment the main thing is peace of mind, with physical repose in a suitable environment, free from annoyances. The diet has to be tentatively regulated but by no means restricted to a debilitating dietary. It may sometimes be useful to prescribe a starvation diet for a few days. He has had cases rebellious to all treatment modified by two or three days of restriction to water, combined with laxatives. An abundant diet has proved successful for vegetarians. This starvation diet had been responsible for much of the nervous impressionability. The physician has need of all his skill in treating this class of patients and modifying his plan according to circumstances. In the extreme case described, great benefit was derived from ovarian and suprarenal extracts. The skin has become the point of lesser resistance and it has to be strengthened and irritation kept away, the congestions diverted elsewhere. He has obtained good results with very small fractioned doses of tartrate of antimony and potassium, 2 mg. of the drug in 5 gm. of water, beginning with 2 teaspoonfuls a day and gradually increasing to 10. Quinin has been useful in some cases, in fractioned doses. In local treatment, talcum powder is usually the best treatment. For this he has the patient lie on a sheet on which 2 or 3 kg. of the powder have been spread and more is dusted on the skin, and the sheet is then wrapped around the body. This is the simplest dressing, and succeeds best in the majority of cases. If a softening application is desired he tries different cold creams or pastes, applying one on one side of the body and another elsewhere, to compare the benefit therefrom.

Diffuse Acute Sclerodermia in Children.—Dubreuilh has compiled eighteen cases, including five boys and thirteen girls, with this sclerodermia. It is usually preceded by a severe upset in the general health, fright or accident. The treatments employed have been very variable but do not seem to have displayed much influence. Thyroid treatment has been given in most of the more recent cases but has not seemed to modify conditions materially. The disease subsides equally completely with or without it. All the cases on record recovered in time, from four months to a year with an average of over seven months' duration.

Alkali and Falling of the Hair.—Sabouraud declares that the more he studies disease of the scalp the more he is convinced that dry skins keep their hair while the hairs are inclined to drop out on oily skins. Analysis of the cases shows, however, that the oily scalps are washed more frequently. Alkaline treatment has given good results in seborrhea, but he shows that the alkali injures the hair, renders it brittle, and entails trichorrhexis nodosa, which is not a disease of the hair but is the result of injury from harsh alkalis.

Recurring Dermatitis of the Cheek.—Ravaut and Rabeau report the case of a girl of 15 who had presented a chronic erysipelatous dermatitis of the cheek with repeated exacerbations every two months for two years, and then every month for two years. All treatments had failed until they applied sodium hyposulphite by intravenous injection and internally. This course of eighteen injections in ten months seemed to desensitize, and the tendency was overcome, and there has been no recurrence during the last eight months. The drug was injected in a 20 per cent. solution; 10 c.c. was the usual dose, but sometimes only half this. They have been using this treatment in different cases for two years and have never had any accidents; only in four or five cases was there a slight skin reaction suggesting that of sulphur. They have been recommending it recently to combat the by-effects of arsphenamin treatment, and have found it effectual in certain dermatoses especially furunculosis, certain eczemas, urticaria and strophulus.

Urticaria.—Flandin discusses the numerous causes that may induce urticaria. There seems to be a fundamental difference between the urticaria induced by albuminoids and that induced by crystalloids. The test of passive anaphylaxis is positive only with the albuminoids. No one has ever succeeded in transmitting drug sensitization to the guinea-pig, and the *crise hémoclasique* was never found in one person sensitized to antipyrin, although it proved possible to desensitize him by small doses. Digestive urticaria generally returns each time the harmful food is eaten after the primary attack. But there is a certain class of cases in which alimentary sensitization can be excluded. In many in this class eosinophilia is pronounced, especially during the attack of urticaria. This suggests the necessity for examining for helminths. Helminthiasis as a cause of urticaria is more liable to be overlooked as the urticaria may persist until the very last of the parasites have been destroyed. Urticaria may be the first sign of an unsuspected hydatid cyst. After exclusion of all other causes, the urticaria may yield to what he calls desensitizing autoserotherapy. He reinjects from 0.25 to 2 c.c. of the patient's own serum, drawn from a vein and reinjected subcutaneously. He has often seen the urticaria disappear almost completely after the first injection, but usually he repeats it and thus obtains a definite cure. The progress in the treatment of urticaria has thus been along the lines of pathologic experimentation. The pathogenic interpretations are allowing the classification of clearly defined groups, the treatment of which is becoming more rational.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 24, 1920, **44**, No. 40

Embryologic Study of Process of Obliteration of Ductus Arteriosus. G. Variot and F. Cailliau.—p. 1598.
Epidemic Hiccup. P. Lafosse.—p. 1604. Id. G. Railliet.—p. 1607.
Histologic Lesions in Case of Human Rabies. L. Marchand.—p. 1610.
*Epidemic Encephalitis. Denéchau and C. Blanc.—p. 1613.
*Case of Myasthenia. Lereboullet, Izard and Mouzon.—p. 1618.
Negative Radioscopic Findings in Case of Hydrothorax from Heart Disease. A. Gendron.—p. 1624.

Epidemic Encephalitis.—Denéchau and Blanc state that the disease proved fatal in 34 per cent. of their 31 cases, and 6 have been left with mental disturbance; in 5 this is a total amentia, persisting for the six to fourteen months to date. Tremor of the Parkinson type developed at the fifth month in 2 and persisted for two months; and beginning at the thirtieth day in one, and persisting for fourteen months to date. Atrophy of muscles is pronounced in 2 patients; 2 others presented the clinical picture of a brain tumor, but large craniectomy in one disclosed nothing but congestion of the brain. There was transient relief afterward, and the symptoms changed their character, typical myoclonia succeeding to the jacksonian epilepsy. They cite six other services where a similar mistake was made. The brief intervals between the seizures, a tendency to jerking, and the absence of Babinski's sign should warn against the assumption of a brain tumor. In the discussion that followed, Netter stated that Italy has recorded 4,000 cases with 1,013 deaths.

Myasthenia with Changes in Jaws.—The myasthenia is of thirteen years' standing in the case illustrated, but by extreme care the woman is able to lead still an active life. Intense decalcification of bones, changes in the upper jaw and teeth, and amenorrhea are other features of the case. The symptoms become accentuated under fatigue but subside during rest and under treatment with epinephrin and calcium chlorid.

Journal de Médecine de Bordeaux

Dec. 25, 1920, **91**, No. 24

Enlarged Glands Above the Epitrochlea in Native Africans. L. Verdelet.—p. 659.
*Dilatation of Cecum from Incontinence of Pylorus. Dargein.—p. 660.

Dilatation of Cecum from Incontinence of the Pylorus.—Dargein concludes from five cases personally observed that when the pylorus is incontinent, the cecum is liable to become distended from swallowed air or fermentation gases. The latter develop in excess owing to the incompleteness of the digestion in the stomach from the hasty evacuation. The cecum responds to the irritation from the inadequately digested food by spasm, thus setting up a vicious circle and entailing permanent dilatation, kinks, etc. Before resorting to surgical measures, medical treatment directed to the pylorus may render them unnecessary.

Jan. 10, 1921, **92**, No. 1

*The Spirit of Observation in Medicine. R. Cruchet.—p. 7.
Ocular Symptoms of Epidemic Encephalomyelitis. C. Fromaget.—p. 17.
*Committee Report on Epidemic Encephalomyelitis. R. Cruchet.—p. 20.

The Spirit of Observation in Medicine.—Cruchet's address on observation, which he calls *la base éternelle de la médecine*, was the inaugural lecture of the pathology course.

Epidemic Encephalitis.—Cruchet states that since March, 1918, there have been in the Bordeaux region 145 cases of epidemic encephalomyelitis confirming in every respect his description of cases in 1916-1917. His communication was presented at a public meeting of the local medical society, devoted exclusively to this disease. The mortality in the 145 cases was 18.6 per cent. but the disease subsides very slowly and the stage of convalescence lasts interminably. The mental depression persists, and several of the convalescents have had to be sent to asylums for the insane. Several children who have had the disease cannot be kept in the regular school as they have become restless and almost dangerous, unable to remember what they study, and demoralizing the other children by their disorderliness. The prognosis in the myoclonic and myorrhythmic forms is grave; in 12 cases, the condition still is desperate in 4, and 7 died. The ocular symptoms, on the other hand, rarely persist. Intraspinal serotherapy has proved useful in some cases, antitetanus, antimeningococcus or diphtheria antitoxin. Cruchet endorses this treatment. Fixation abscesses have also been frequently applied. Sabrazès injected intraspinally blood serum from the father in one case, and convalescent's serum in another. The other measures mentioned are hexamethylenamin by various routes, and silver salts by the vein. No instances of direct contagion were known in the whole list. In the discussion that followed, Berger commented on the present unprecedented prevalence of spinal cord disease in the absence of syphilis or tuberculosis: severe neuralgia, quadriplegia with atrophy, or a set of symptoms suggesting lateral amyotrophic sclerosis. The combination of symptoms in 6 cases mentioned was like nothing else he had ever seen. There was malaise at the onset, but no fever at any time. Cruchet has been able to trace 28 cases of the 53 observed 1916-1917; 28.5 per cent. have died and only 14.2 per cent. seem to have completely recovered. Eight pages are devoted to the symposium and Bordeaux publications on the disease.

Paris Médical

Jan. 29, 1921, **11**, No. 5

*Deformity of Fifth Lumbar Vertebra. P. Mauclaire.—p. 81.
The Pilomotor and Emotional Reflexes. André-Thomas.—p. 83.
*Intratracheal Injections. A. Balvay.—p. 89.

Deformity of Fifth Lumbar Vertebra.—Mauclaire refers to cases in which the deformity causes severe pain. It is remarkable, he says, that the pains usually develop suddenly and not until the twentieth or thirtieth year. In a recent case the sixth vertebra was the one involved. He describes five of these cases with pains, and relates that he operated in one but without any improvement of the pain. This patient was a woman of 45, and the lumbar pain was of eighteen years' standing. In another case a professional pianist had suffered from this painful sacralization and great improvement followed resection of the top of the hypertrophied transverse process. He cites several other successful cases from the literature. The best mode of access, he thinks, is by an incision on the median line with a transverse incision at the top. There are no important vessels in the region.

Intratracheal Injections.—Balvay gives an illustrated description of a special cannula with curved end which he introduces horizontally back to the throat, and then turns to push the tip down into the trachea. He gives roentgenograms of a rabbit injected in this way with 0.5 c.c. of mercury. The twentieth minute the fluid was still at the base but thirty-six hours later the entire lungs were scattered with the mercury, which had invaded even the apices. Only 2 or 3 c.c. of the fluid should be injected at one time, but he claims that this method is within the reach of any practitioner. The curve of the cannula must correspond exactly to the curve of the base of the tongue down to the larynx.

Presse Médicale, Paris

Jan. 22, 1921, **29**, No. 7

*Paralysis of Cervical Sympathetic. F. Terrien.—p. 61.
*Study of the Obese. A. Martinet.—p. 64.
Ethylhydrocuprein in Disease of the Eye. L. Chcinisse.—p. 66.

Paralysis of Cervical Sympathetic.—Terrien says that the complete clinical picture of paralysis of the cervical sympathetic, as observed in experiments on animals, is never encountered in the clinic. At least it was never encountered in the twenty-two cases he has compiled. There was miosis in all and enophthalmos in all but two, but there was hypotony of the eyeball in only two. Other eye and pupil symptoms, vascular and trophic derangement were observed in some, as he describes in detail, as also a number of phenomena at a distance, associated disturbances. The vascular symptoms soon subside but the ocular persist indefinitely.

Research on Obesity.—Martinet tabulates the findings in regard to the blood pressure, pulse, viscosity of the blood, and the albumin and sugar content of the urine in eight women and thirty-five men, all weighing 100 kg. or more. Obesity represented by this weight is almost always the index and the companion of more or less grave pathologic conditions, of which asystole and uremia, diabetes, gout, and lithiasis are the most frequent. Only four of the total forty-three showed merely simple plethora. The blood pressure was almost invariably above normal as also the viscosity of the blood. The parallelism was most striking between the weight, arterial pressure and the pulse in three cases charted. Obesity is evidently a morbid syndrome of varied pathogenesis, and hence treatment must be individualized to correspond. The degree of obesity can be estimated by dividing the weight by the height. For example, a man weighing 100 kg. and 1.82 m. tall, gives a quotient $\frac{100}{82} = 1.20$ which is not much above normal, while with a weight of 140 kg. and height of 1.6 m. the quotient is $\frac{140}{60} = 2.33$. The ratio between the pulse and the viscosity is an index of the evolution of the nutritional and circulatory derangement. In conclusion he reiterates his warning of the necessity for individualizing—"Il n'y a pas de cent kilos, il n'y a que des cent kilos."

Jan. 26, 1921, **29**, No. 8

*Angina Pectoris and Raynaud's Disease. L. Bard.—p. 73.
*Silver Salvarsan and Luargol. Danysz.—p. 74.
*Exclusion of the Pylorus. G. Georgesco.—p. 75.

Angina Pectoris and Raynaud's Disease.—Bard calls attention to the coincidence of disturbances in circulation elsewhere, with these two pathologic conditions. He reports a case in a man of 33 in which angina pectoris, Raynaud's disease, loss of one eye from disturbance in the circulation in the retina, and intermittent claudication occurred in turn. The first symptoms were an attack of angina pectoris after a bombardment, and the man died in a similar attack two years later. The existence of these four different localizations, all on the left side, points to a nervous origin for them all, and seems to exclude local endarteritis. The attack in the fingers was brought on by cold, the attack in the toe by walking, the angina pectoris by fatigue and emotions. The fatal outcome in this case shows that even attacks with a nervous origin may prove fatal. A spasm of the artery capable of producing total anemia in a finger may well arrest the action of the heart when the spasm attacks the coronaries. He recalls Jonnesco's recent suggestion to combat angina pectoris by severing the cervical sympathetic. The latter has actually applied this in one case, as mentioned in THE JOURNAL, Nov. 27, 1920, p. 1525.

Silver Salvarsan and Luargol.—Danysz recalls that he reported on the combination of silver and arsphenamin in 1913 under the name of luargol. His experiments with it showed it equally effectual in treatment of syphilis as arsphenamin, in a third of the dose.

Exclusion of the Pylorus.—Georgesco gives an illustrated description of his method of absolutely shutting off the pylorus by cutting a vertical incision down to the mucosa and then working a spatula under the mucous membrane of the rear wall, thus lifting up the entire mucous membrane unopened. He then crushes it across and ligates it twice, dividing it with the thermocautery between the two ligatures. The vertical incision in the anterior wall is then sutured horizontally. The operation is strictly aseptic as the mucosa has not been opened. The only contraindication is cicatricial changes rendering it impossible to loosen up the mucosa on each side of the incision. He has applied this technic in three cases with complete satisfaction.

Progrès Médical, Paris

Jan. 8, 1921, **36**, No. 2

*Pulsus Alternans and Uremia. J. Chalier and N. Contamin.—p. 13.
Notes from the Clinics of the Week.—p. 14.
*Signs of the Death of the Fetus. H. Vignes.—p. 17.

Pulsus Alternans and Uremia.—Chalier and Contamin analyze ten cases of chronic nephritis with pulsus alternans or uremia, or both. There was no parallelism between them; one may occur without the other, or one may be slight and the other intense. In two of the cases there was extreme uremia but no pulsus alternans. Bimanual palpation is instructive, compressing the humeral artery with one hand, with the other hand at the radial pulse. It is thus possible to arrest the weak beats while allowing the strong beats to pass. This, they say, confirms the diagnosis of the *alternance cardiaque.*

Signs of Death of Fetus.—Vignes regards the abrupt cessation of nausea or vomiting early in pregnancy as a presumptive sign of the death of the fetus; another sign is the beginning of functional activity in the mammary glands. A third sign is that the uterus is not so large as would correspond with the age of the pregnancy, and it does not increase further in size. If it grows smaller, this seems to be absolute proof of the death of the fetus. Another sign is the uterus growing of a harder consistency, as the fluids are absorbed. In advanced pregnancy the unusual size of the abdomen may indicate hydramnios, and this always menaces the life of the fetus. A further argument is a history of the death of the fetus in a preceding pregnancy, also the subsidence of previously noted manifestations of autointoxication, such as albuminuria, high blood pressure, etc. A soft, pasty consistency of the uterus is instructive, difficult to outline by palpation. He also examines for crepitation: the bones of the fetal skull rub against each other and slide up on each other as the tissues soften during maceration. The crepitation may sometimes be detected by palpation through the abdominal wall or the vagina. Retention of the dead fetus does comparatively little harm so long as the membranes are intact. But if the ovum has been opened, the fetus putrefies rapidly.

Schweizerische medizinische Wochenschrift, Basel

Jan. 20, 1921, **51**, No. 3

*The Offspring of Persons with Inherited Syphilis. Sidler-Huguenin.—p. 49.
*Enterostomy for Paralysis of the Intestines. J. Dubs.—p. 52.
*Treatment of Incarcerated Obturator Hernia. G. Ebnöther.—p. 57.

The Offspring in Inherited Syphilis.—Sidler-Huguenin has been examining the children of 250 persons whom he knew were subject to inherited syphilis. This included 50 families, and 28 per cent. of them were childless. He mentions further that among the 250 persons with inherited syphilis, only 9 lived to be 60 years old. The male sexual organ seems to be injured more than the female by inherited syphilis, judging from the lesser number of children in the families in which the father was the parent that had inherited syphilis. He could not find any characteristic symptoms of inherited syphilis in the 65 children of the second generation except in one case, and this was not certain. The normal roentgen-ray findings and the negative Wassermann tests testify against syphilis even in this case. Persons with inherited syphilis can thus be reassured that their children will not feel the effects of it, although there is more probability of childlessness than under normal conditions.

Enterostomy in Peritonitis.—Dubs reports that 25 per cent. were saved of the twenty-four cases he reports in which paralysis of the intestines developed after a laparotomy. The enterostomy in these cases was evidently a life-saving measure; all in this group of six recoveries were under 26. The enterostomy must be applied before the paralysis spreads to include a large area, that is, before the picture of ileus is complete. He adds that the relief of the pain and vomiting is so great that even in hopeless cases it may be advisable.

Treatment of Incarcerated Obturator Hernia.—Ebnöther declares that the prognosis for incarcerated obturator hernia need not be so grave as at present considered if treatment is applied first to the hernia from without and then by a laparotomy. He applied this in one case with success although the conditions were very unfavorable, with gangrene and with ileus for three days, in a woman of 56. The diagnosis was based on the local findings, the flexion, adduction and outward rotation of the thigh to relieve the pain in the hernia. Another sign was the neuralgia in the obturator nerve domain, that is, the inner side of the thigh from the knee to the hip joint.

Chirurgia degli Organi di Movimento, Bologna

December, 1920, **4**, No. 5-6

*Modification of Albee Technic in Pott's Disease. I. Scalone.—p. 505.
*Primary Epithelioma of a Finger. G. Razzaboni.—p. 511.
*Traumatic Aneurysms. F. Putzu.—p. 521.
*Treatment of Talipes Equinus. M. Salaghi.—p. 557.
*Fracture of the Humerus. D. de Francesco.—p. 565.
*Necrotic Gangrene of Hand from Cervical Rib. U. Pasini.—p. 602.

Bilateral Albee Implants.—The circumstances in Scalone's case prevented the application of Albee's exact technic in the man of 26. Scalone had to modify it by using an implant on each side, instead of one in the middle. The spinous processes were fractured so that they were utilized to reenforce the posterior median line of the spine, as with Hibb's technic. The advantages of this modification of Albee's procedure are that the implants can be buried deeper in the bone and in much better conditions for nourishment, as the tissues around have a more active circulation. No special instruments are required, as for the Albee technic, while the spine is rendered more solid by the double implant. These bilateral paramedian implants can be used even with large gibbus, while the Albee implant is liable to fracture under these conditions.

Epithelioma of a Finger.—In the first case reported by Razzaboni he supposed that he had eradicated the malignant disease by extensive excision of the small neoplasm on the finger. The woman returned a little over a year afterward with a metastasis in the supraclavicular glands. In a second case, the axillary and supraclavicular glands were already involved when the case was first seen. The anatomy of the deep lymphatics is illustrated, as it shows the necessity for removing the lymphatics tributary to those in the hand, and thus block the spread of the malignant disease. The incisions for this are at the base of the finger, in the inner side of the bend of the elbow, and a transverse lozenge-shaped incision at the anterior margin of the axilla, with an extension from the center of the anterior axilla to the neck.

Traumatic Aneurysms.—Putzu found both artery and vein involved in 40 per cent. of his twenty operative cases of aneurysm from war wounds. One man had suppuration and a tardy fatal hemorrhage, while gangrene in two compelled amputation, but the others healed by primary intention with good functioning. Review of the literature shows the rarity of a spontaneous cure of a traumatic aneurysm, and scarcely an instance is known of the spontaneous cure of an arteriovenous aneurysm.

Talipes Equinus.—Salaghi urges the advantages of transverse subcutaneous section of the Achilles tendon in treatment of talipes equinus. In one case described, the deformity was of thirty-eight years' standing, but the correction was complete and permanent. In connection with this operation he deplores the tendency to neglect the simple for complicated measures. He cuts the tendon and its posterior sheath through a 1.5 cm. incision, leaving the anterior sheath intact. Nothing further is needed except the plaster cast to maintain the correction.

Rotation in Fracture of the Humerus.—De Francesco describes the action of the muscles as aiding in moving the fragments of the bone, and the means to correct the tendency to rotation and other abnormal positions. Thirty-eight illustrations accompany the article.

Cervical Ribs.—An unsuspected cervical rib was finally discovered as the cause of the gangrene of the right hand in the man of 69. This is the third case of cervical ribs Pasini has encountered quite recently, and he warns that the small size of the supernumerary rib and its unusual situation may render even radioscopy findings negative or misleading.

Policlinico, Rome

Jan. 17, 1921, **28**, No. 3

*Anesthesia for Operations in Mouth. A. Vetri.—p. 77.
*Poisoning from Potassium Chlorate. P. F. Zuccola.—p. 82.
Hydrocyanic Acid in Deratization. O. Golini.—p. 88.

General Anesthesia for Operation on the Mouth.—Vetri refers to operations on children, extolling the advantages of introducing the anesthetic, after the first stage with the mask, through a catheter in the mouth introduced only to the pharynx. It does not interfere with operations on the mouth.

Potassium Chlorate Poisoning.—In Zuccola's case 6 gm. of potassium chlorate had been taken with suicidal intent, and a destructive action on the blood followed, with profuse hemorrhages from the digestive tract. Under transfusion of blood, conditions materially improved each time, but acute insufficiency of the kidneys developed after the fourth transfusion in the course of a week, and it proved fatal.

Riforma Medica, Naples

Jan. 1, 1921, **37**, No. 1

*Protein Therapy in Infectious Diseases. Durand.—p. 2.
*Mycosis of the Lung. F. Galdi.—p. 3.
Calculus in Urethra with Splinter in Bladder. G. Nicolich.—p. 8.
*Paroxysmal Vertigo. G. Gradenigo.—p. 8.
*Etiology of Epidemic Encephalitis. F. Micheli.—p. 9.
Operative Treatment of Acute Gastric or Duodenal Hemorrhage. E. Aievoli.—p. 12.

Protein Therapy in Infectious Diseases.—Durand gives the blood findings in two cases of typhoid treated by parenteral injection of milk. His experience has been much larger, but these are selected as typical specimens. Albuminuria was constant after the injections, and the leukocytes increased in numbers, especially the neutrophils. His impression is that the protein therapy seems to stimulate the generic defensive forces, mobilizing the specific antibodies.

Mycosis of the Lung.—In Galdi's case, the girl of 6 was well nourished, and tuberculosis could be excluded, but the left lung presented signs of large cavities, and *Aspergillus fumigatus* was found alone.

Vertigo of Central Origin.—The man of 62 had met with trauma of the head, and intense vertigo developed that night, evidently of vestibular origin. The impulse to fall was always toward the right. The vertigo was so extreme that he could not stand up and there was some paresis of the right arm. The attacks of vertigo returned at irregular intervals. Gradenigo ascribes this clinical picture to some small hemorrhage affecting the nucleus of the facial, vestibular and hypoglossal nerves. Notwithstanding the normal findings in the ear and nose, he had been given treatment by specialists on the assumption of otitis. The man is unable to stand on one foot, but there is no nystagmus, and whirling does not induce vertigo.

Etiology of Epidemic Encephalitis.—Micheli concludes from the reports on the subject and his own experience that this disease is a morbid entity, due to the localization in the cerebrospinal axis, by way of the nose or throat, of a specific virus somewhat like that of poliomyelitis. Like this, it is filtrable and, in special conditions of virulence and environment, may be visible. Experiments in his own service have confirmed that the virus in certain circumstances can be cultivated, depending upon the virulence, while in another environment this may not be possible.

Rivista Critica de Clinica Medica, Florence

Dec. 15, 1920, **21**, No. 35

*Cholesterinemia. III. P. Sisto.—p. 409.

Cholesterinemia.—Sisto tabulates the cholesterinemia findings in twenty-seven cases of disease of the liver or bile passages and seven of diabetes. This brings to 106 the number of cases in which the cholesterin content of the blood has been determined in the course of his research. His figures confirm the high cholesterinemia in diabetics; it was up to 5.9 per thousand in one case, but there did not seem to be any connection between this and the severity of the symptoms. In the cases of cholelithiasis or cirrhosis of the liver, the range was from 0.93 to 6.10 per thousand, but no connection with jaundice was evident, and normal findings were sometimes encountered with cirrhosis, but as a rule the cholesterinemia was highest in the more advanced cases.

Archivos Latino-Amer. de Pediatría, Buenos Aires

November-December, 1920, **14**, No. 6

Child Welfare Work in S. Paulo. C. Ferreira.—p. 481. Conc'n.
*Typhoid in Infants. Maria Teresa Vallino.—p. 491.
Infantile Mortality in Argentina. E. R. Coni.—p. 496.
*Epidemic Encephalitis. L. Morquio.—p. 500.
Radioscopy of Case of Megacolon. V. Escardó y Anaya.—p. 512.
*Abortive Measles. R. Berro.—p. 516.
*Anomalous Measles. J. Bonaba.—p. 519.
*Cystic Lymphangioma of the Shoulder. J. M. Jorge.—p. 526.

Typhoid in Infants.—In the first of Vallino's two cases the symptoms were those of meningeal disturbance for five weeks, and although the lumbar puncture fluid was clear, antimeningococcus serum was injected. Finally the spleen became enlarged and the skin showed spots suggesting typhoid, but the agglutination test was negative. The subsidence of the fever confirmed the suspicion of typhoid, and the agglutination test at last became positive and the child of 18 months recovered. In another child 2 years old the irregular fever was accompanied by enlargement of liver and spleen, and the disease continued for five weeks. By exclusion, typhoid was suspected, confirmed by agglutination. Vallino knows of only two other cases of typhoid in such young infants that have been published in Argentina.

Epidemic Encephalitis.—Morquio describes some typical cases with chorea, and queries whether Sydenham's chorea may not have to be regarded as a part of the epidemic encephalitis picture. Is it a disease of sporadic occurrence, always the same, or are there different entities influenced by special etiologic conditions? We must not forget, he adds, that infantile paralysis has had to yield to the pressure of facts which have demonstrated the existence of a specific virus capable of originating epidemic forms which we know today as epidemic poliomyelitis.

Abortive Measles.—Berro describes three cases in which unsuspected abortive measles without eruption gave rise to a typical case in a contact. In another case an ordinary infectious sore throat seemed to be the only manifestation of measles, and in a third case two of the three children in the family developed measles while the third had only the infectious sore throat which all had presented after an accidental exposure to cold.

Unusually Long Incubation of Measles.—Bonaba remarks on the perplexity of the physician when the symptoms persist for ten or fourteen days without any signs of the eruption, suggesting typhoid or other disease rather than measles. He describes three such cases, and emphasizes that during an epidemic of measles the disease should be suspected in all catarrhal conditions in children even if they keep up for two weeks without the eruption, and the children should be isolated to avert contagion of others.

Cystic Lymphangioma of the Shoulder.—The large protuberance back of the shoulder in the 9 days infant seemed to be unmistakable cystic lymphangioma, but its removal seemed difficult on account of the possible extension of the cyst in the depths. Consequently Jorge punctured repeatedly and the cyst gradually declined in size, and he commends this treatment when radical removal is out of the question. It proved equally successful in another case, a large cyst in the sacral region, a practical cure resulting.

Crónica Médica, Lima

September, 1920, **37**, No. 687

Neohippocratism. H. F. Delgado.—p. 293.
*Vagotonia and Sympatheticotonia in the Clinic. A. Mora Quimper.—p. 300.
The Ambard Formula. E. P. Manchego.—p. 304.
Laryngoscopic Signs of Aortic Aneurysm. J. Denegri.—p. 312.
Endless Dilatation for Stenosis of the Esophagus. J. J. Mostajo.—p. 313.
*Influence of Thyroidectomy on Formation of Immune Antibodies in the Dog. A. Garibaldi.—p. 315.
Congenital Hematocele of Superior Longitudinal Sinus. J. Goyanes.—p. 317.

Influence of Vagotonia in the Clinic.—Mora gives a summary of the recent literature on the autonomic nervous system. He remarks that the conception of vagotonia and sympatheticotonia has been accepted in theory but not in practice. It is very rare to encounter cases with complete antagonism. The clinic has not yet decided as to their clinical importance. The greater part of the symptoms from derangement of the autonomic nervous system proceed from the digestive apparatus and structures derived therefrom. The opinions are conflicting as to the share of vagotonia in gastric ulcer. Some patients reacted alike to atropin and epinephrin. Mora himself has encountered pronounced vagotonia in cases of habitual constipation. This has been confirmed by others, and atropin has been found useful in treatment of habitual constipation on this basis. The conception of vagotonia has been fruitful in visceral neurology. The complete syndrome is rare, but monosymptomatic forms are often encountered, and the balance between the vagus and sympathetic is often upset by some toxic or infectious process irritating the fibers of one or the other.

Influence of Thyroid-Parathyroidectomy. — Garibaldi's experiments on dogs seem to indicate that these glands play an important part in the phenomena of renovation of the blood and in the pathogenesis of certain hemolytic syndromes.

Gaceta Médica de Caracas, Venezuela

Oct. 15, 1920, **27**, No. 19

Unusual Presentation in Obstetric Case. J. Arráiz.—p. 243; Comment. D. Lobo and J. de D. Villegas Ruiz.—p. 245.
Progressive Muscular Dystrophy. E. P. de Bellard.—p. 246.

Semana Médica, Buenos Aires

Aug. 26, 1920, **27**, No. 35

*Syphilitic Disease of the Lung. P. I. Elizalde.—p. 263.
Test for Orthoforms. J. A. Sánchez.—p. 273.
Case of Epidemic Encephalitis. M. Critto.—p. 276. Id. Abella.—p. 283.
*Opalescent Effusions. A. Casaubon.—p. 277.
Two Cases of Ovary Grafting. De Rouville and Cohen.—p. 290.
The Biologic Theory of Brownian Movements. F. Ocaranza.—p. 290.

Syphilis of the Lung.—Elizalde discusses the pathologic anatomy and pathogenesis of syphilitic disease of the lung.

Opalescent Effusions.—Casaubon reviews the history of milky effusions and the various types with and without fat, describing two typical cases. In one the opalescent effusion was evidently due to fatty degeneration of the polymorphonuclears.

Archiv für klinische Chirurgie, Berlin

Oct. 22, 1920, **114**, No. 3

*Regeneration of Tendons. A. Salomon.—p. 523.
*Gastric and Duodenal Ulcers. A. Eiselsberg.—p. 539.
*Sarcoma in Bones in the Extremities. A. Escher.—p. 545.
*Transverse Resection of Stomach. Kleinschmidt.—p. 573.
Physical Principles for Draining Douglas Pouch. K. Propping.—p. 580.
*Reconstruction of Esophagus Without Tube. Kirschner.—p. 606.
*Experimental Pseudarthrosis. B. Martin.—p. 664.
*War Wounds of Lungs. W. Jehn.—p. 723.
*Transmission of Human Cancer to Mice. F. Keysser.—p. 730.
Vaccine Prophylaxis of Furuncles in Diabetics. G. Wolfsohn.—p. 737.
Deep Roentgen-Ray Treatment of Sarcomas. Colmers.—p. 749.
Cinematized Prostheses. R. Bestelmeyer.—p. 759.
Traumatic Epilepsy After War Wounds. Guleke.—p. 764.
*Low Rectal Temperature in the Amputated. A. Lublin.—p. 771.

Treatment of Gaps in Tendons.—Salomon's extensive research with fat, muscle and nerve implants confirmed the principle that a tendon will regenerate to bridge a gap when conditions are provided that favor instead of opposing the regeneration. He experimented with the Achilles tendon, and states that it seems to be immaterial whether fat, tendon or muscle tissue or silk is used for the implant. The main thing is to keep the tendon stretched as in normal conditions. This gives it the chance for spontaneous regeneration.

Gastric and Duodenal Ulcer.—Eiselsberg comments on the present trend away from gastro-enterostomy to more radical treatment of gastric and duodenal ulcer. His experience has converted him to the view that the Billroth II method is the preferable one for the present. In his series of 99 transverse resections of the stomach, with 2 deaths, the immediate results were better than with any other technic, but in 64 cases before 1918, there was recurrence of ulceration in 9, and a new operation was required in 4 of this group. The mortality in 98 Billroth II resections was 6 per cent.; many of these patients were in extremely advanced debility. Recurrences have been observed with this technic, but mostly in the form of peptic ulcer in the jejunum. If time proves that recurrences are common with this method, we may have to return to gastro-enterostomy, or perhaps gastrojejunostomy. The latter is certainly the best treatment with inoperable cancer at the cardia. After numerous trials of all modes of nerve blocking, etc., he has returned to local anesthesia of the abdominal wall, after giving morphin and atropin, and concludes the operation under ether. He has recently been applying the Billroth I with fine results.

Sarcoma of Bones in Limbs.—Escher has a record of seventy-one cases of this kind which he summarizes. A sarcoma on a finger or toe brings the patient early to the physician, so that it can be excised in its incipiency. With giant-cell sarcoma on a long bone, resection may be tried, but all other sarcomas require more radical measures, with exarticulation of the shoulder or partial resection of the pelvis, when the sarcoma is high up on the bone.

Transverse Resection of Stomach for Hard Ulcer.—Kleinschmidt reports on 360 operative cases, including 76 transverse resections with 12 deaths. Of 33 reexamined after an interval of two years or more, all were in good health with exception of one patient with symptoms suggesting "contracted stomach."

Successful, Simplified Antethoracic Esophagoplastics.—Dirschner remarks that to date only ten cases have been published of successful reconstruction of the esophagus by a subcutaneous antethoracic supplementary tube. He describes the various attempts in this line, and then calls attention to the possibility of connecting the stomach directly with the esophagus in the neck, thus doing away with the necessity for an interposed tube. His research on the cadaver demonstrated the feasibility of loosening up the stomach and drawing it up to the neck, outside of the chest, after cutting it loose from the esophagus. The stomach thus drawn out into sausage shape was easily sutured to the stump of the esophagus, and the skin sutured over the whole. He has operated in two cases by this technic, with complete success. In one case the woman of 34 is in the best of health to date. The other patient succumbed to postoperative pneumonia and infection of the wound, two weeks after the operation. The cases are described in detail and the various steps of the intervention are illustrated. The woman was fed through a tube into the stomach just below the junction with the esophagus, above the clavicle, until healing was complete. In two other cases the same operation was done for cancer, but neither patient survived for more than a few hours. Aspiration of the wound secretions proved its usefulness in one of these cases. Unexpected metastasis in one case and a technical blunder in the other explained these fatalities.

Experimental Pseudarthrosis.—Martin's extensive experience has confirmed the importance of injury of the periosteum and bone marrow in production of pseudarthrosis.

Projectiles in the Lungs.—Jehn says that of forty-five men with projectiles in the lungs, forty-two were completely cured by operative measures. The indications were recurring hemorrhages in some and abscesses in the others.

Transmission of Human Cancer to Mice.—Keysser reports what he says is the first unequivocal instance of the transmission of human malignant tumors to mice. He says that he has further demonstrated the conditions necessary to allow this to occur, namely, by maximal irritation and sensitization of the mouse tissues.

Rectal Temperature After Amputation of Thigh.—Lublin was surprised to find that the temperature was always the same or considerably higher in the axilla than in the rectum in the 122 men examined who had been amputated in the thigh.

Deutsche medizinische Wochenschrift, Berlin

Nov. 4, 1920, **46**, No. 45

Grawitz' Theory of Slumber Cells. F. Marchand.—p. 1237.
Determination of Hydrogen-Ion Concentration. L. Michaelis.—p. 1238.
*Heart Findings in Endocrine Pathology. H. Zondek.—p. 1239.
*Roentgen Treatment of Suprarenals in Diabetes. K. Dresel.—p. 1240.
*Familial Cerebral Infantile Paralysis. Kretschmer.—p. 1241.
Convalescents' Serum in Epidemic Encephalitis. E. A. Grünewald.—p. 1243.
*Volhard's Theory of Glomerulonephritis. W. Hülse.—p. 1244.
Acute Inflammatory Postscarlatinal Encephalomalacia. Bungart.—p. 1246.
Death After Administration of Mercury and Neo-Arsphenamin. R. Krüger.—p. 1247.
Esophageal Cancer Perforating into Trachea. Teschendorf.—p. 1249.
Significance of Exogenic Factors in Schizophrenia. L. Bürger.—p. 1251.
The Muscles as Mechanical Factors in Constitutional Disposition to Pulmonary Tuberculosis. G. Ichok.—p. 1252.
*Acute Hemorrhagic Pancreatitis. E. Glass.—p. 1254.
Sensitization in Roentgenotherapy. R. Lenk.—p. 1255.
Relation of Barometric Pressure to Disease. Apolant.—p. 1256.
Status Thymico-Lymphaticus and Its Relations to Other Diseases. F. Henke.—p. 1257.
Anuria. L. Casper.—p. 1259.

Heart Findings in Pathologic Conditions of the Ductless Glands.—Zondek states that in acromegalic patients, cardiac hypertrophy, especially of the left ventricle, is frequently observed; also a slight increase of blood pressure and mild disturbances of cardiac functioning. Apparently the tendency to abnormal growth associated with the hypophysis extends not infrequently to the heart. In five chondrodystrophic female dwarfs, from 1.12 to 1.15 meters tall, he found enormously large hearts (transverse diameter of 14 cm.), although subjective symptoms were absent, but the heart sounds and pulse were normal, and heart functioning was good, in the main, although blood pressure was much below normal (a maximum of 60 mm. of mercury). In three cases of atrophic myotonia with unmistakable signs of endocrine derangement, bradycardia of 60 beats to the minute, and lower, and weak heart sounds were noticeable. Heart functioning was good except for a slight tendency to dyspnea after exertion. There was dilatation of the left, and in one case especially, of the right heart, and, at the same time, superficial and sluggish heart action. In myxedema patients, aside from retarded pulse and a slight tendency to dyspnea, we find at times marked dilatation.

Reduction of Sugar in the Blood and Urine by Roentgen Irradiation of the Suprarenals in Diabetes.—The first of Dresel's three subjects was a diabetic without acetonuria, whose excretion of sugar in the urine on a diet containing 150 gm. carbohydrates was reduced to 15 gm. of glucose daily. The quantity of urine varied between 1,500 and 2,000 c.c., the percentage of sugar being therefore around 1 per cent. The lowest blood sugar value before irradiation was 0.183 per cent. June 6, the patient was given at 11 a. m. half of an erythema dose to the right suprarenal gland. The tube was applied close to the spine on a level with the head of the twelfth rib, and a field 8 cm. in diameter was irradiated. The Coolidge tube and the Veifa apparatus were used, with filters of 3 mm. of aluminum and 0.2 mm. of copper. The focal distance was 22 cm., with a 25 cm. spark gap. The intensity was 2.5 milliamperes. A skin erythema dose requires forty minutes. Immediately following the irradiation, the blood sugar rose to 0.260 per cent., but dropped in an hour to 0.215 per cent., and in two hours to 0.103 per cent., which is normal. The following day the blood sugar was still normal (0.110 per cent.). The excretion of sugar in the urine on the day of irradiation was only 7 gm. Two days after the irradiation the blood sugar was 0.139 per cent.; the sugar in the urine was 6.5 gm. The third day the patient was given the second half of the erythema dose at the same site. Immediately preceding irradiation the blood sugar was 0.137 per cent.; immediately afterward, 0.145 per cent.; two hours later, 0.107 per cent., and the next day, fasting, 0.087 per cent. The sugar in the urine had been reduced to 2 gm. To attain permanent results, if such are possible, it will doubtless be necessary to weaken the functioning of both suprarenals, as experience shows that when only one suprarenal is treated, compensatory hypertrophy of the other is likely to occur.

Infantile Paralysis.—Kretschmer reports three cases of familial cerebral infantile paralysis in three brothers, aged 20, 16 and 15, respectively. A sister, at the present writing aged 15, is perfectly well. In all three brothers a slowly progressing disease process set in at the age of 12 in each instance, characterized by spastic paraplegia or tetraplegia, formation of talipes and pes excavatus, partial atrophy of the optic nerve, retardation of speech and more or less marked signs of imbecility. All three brothers were entirely normal physically up to the onset of the disease. The oldest brother was normal mentally; the two younger brothers did not make good progress in school. Kretschmer is inclined, with Gowers, to regard these conditions as abiotrophic. He thinks they rest on a hereditary basis, although, in these particular cases, the parents gave no evidence of neurotic tendency.

Volhard's Theory in Regard to Acute Diffuse Glomerulonephritis.—Hülse refers to Volhard's theory of angiospastic ischemia, based on the fact that in acute nephritis not only the glomeruli but also the afferent vessels are found to be more or less deficient in blood. In explanation of the manifold pathologic changes in the kidney from the first stages of the acute diffuse nephritis to the final stage of secondary contracted kidney, he assumes an uninterrupted succession of events beginning with the spastic closure of the preglomerular vessels due to disturbance of functioning. Hülse says that, while there are some objections to the theory that have not been overcome, no critic of his theory has been able to supply anything more plausible. He has been undertaking a series of injections on the cadaver to test Volhard's theory, and from his experiments he concludes that it is absolutely certain that the cause of ischemia in the first stages of acute diffuse glomerulonephritis is to be found in functional and not in organic closure of vessels. What is at first a functional closure becomes later "anatomically fixed" through coagulation of plasma and growth of endothelium. He emphasizes that his investigations so far on the Volhard theory substantiate only the cause of ischemia. Whether the anatomic changes that occur in the vessels and the glomeruli in the course of diffuse glomerulonephritis are also a result of spastic closure of the vessels, is a subject for further investigation.

Acute Hemorrhagic Pancreatitis with Necrosis of Fat Tissue.—Glass states that the diagnosis "pancreatitis" should usually be made only tentatively. Great weight, as regards differential diagnosis, should be attached to the symptom persistent pain with paroxysmal exacerbations. Rigidity of the walls of the upper abdomen and more or less persistent hepatic dulness should be looked for. He attaches great value to early operation. Slitting the capsule is in most cases not necessary, but he demands thorough drainage of the pancreas from several sides; also thorough drainage of the small pelvis from an incision in the right lower abdomen for the purpose of rapid drawing off of exudate. He reports two cases in young women with recovery.

Mittheil. a. d. Grenzgebieten d. Med. u. Chir., Jena

1920, **32**, No. 4

*Experimental Research on Tetany, II. E. Farner and R. Klinger.—p. 469. Cont'n.
*Hirschsprung's Disease. F. Goebel.—p. 498.
*Diffuse Colloid Struma. A. Hellwig.—p. 508.
*Bilirubin in Human Serum. R. Botzian.—p. 549.
*Post-Operative Intestinal Diseases. W. Goldschmidt and A. Mülleder.—p. 567.

Experimental Studies of Tetany.—Farner and Klinger extended their investigations to cats, with excision, total or partial, of the thyroid and parathyroids in forty cats of various ages. Tetany, acute or chronic, followed in the larger number of cases; in some, no symptoms were observed; in some others, the acute attack could be modified by a suitable calcium diet, and a state of tolerance to the condition established, interrupted by occasional acute onsets. The development of accessory parathyroids does not protect against lethal tetany, nor does a rudimentary occurrence condition a severe chronic state. As for the thyroid, it was established that its total removal may give rise to acute tetany; if a functionating portion is left, the removal of all four parathyroid bodies may pass without acute manifestations. The therapeutic use of lime never failed in staying acute cases of undoubted tetany, but the effects last but one or two days, hence the treatment must be continuous. The experiments lead to the conclusion: "The function of the parathyroids, owing to chemical affinity between the protoplasm of their cells and toxic bases (guanidin and methyl-guanidin, which normally occur in the blood and are eliminated through the urine), attract the latter from the blood and neutralize their effects." Calcium chlorid in laboratory experiments was found to produce an insoluble precipitate with guanidin carbonate: this explains, they say, its beneficial therapeutic effects.

Spasm of Sphincter Ani as a Cause of Hirschsprung's Disease.—Goebel calls attention to the lack of evidence afforded by the excised intestine for the cause of the dilatation and hypertrophy of the colon, and therefore considered the possibility of presence of spasms either in the muscles of the upper colon or at the anus. The first possibility is excluded by the frequent continuation of the dilatation as far as the anal ring; the second assumption is supported by analysis of a number of Hirschsprung cases described since 1906. The data show that anal spasms may occur with such severity that they may be termed analogous to those that occur in cardiac and esophageal neuroses. The reflex irritation leads to lesions of a nature analogous to those of the colon in the Hirschsprung complex; and the local spasms of the sphincter at least may be designated as a contributing cause of the colon manifestations. Treatment therefore should aim to combat the tendency to spasm.

Diffuse Colloid Struma.—Hellwig investigated that form of the Basedow struma where the changes are limited to the adenoma nodules, and which is known to offer a better operative prognosis, in that the removal of the nodules relieves the condition at one stroke. The subject is considered historically and clinically. In 516 postmortems at Freiburg in 1919 were found 135 adenomatous, thirty-eight simple parenchymatous, and twenty-one diffuse colloid strumas (subjects 16-69 years). The colloid strumas were typically macrofollicular. Large follicles normally are found principally in growing and fullgrown subjects; in such as receive food rich in protein; in acute cases of diseases with high fevers; in the lively North-Germans; in frogs in warm regions; in bats in spring; during the state of pregnancy. Small follicles normally occur in old age; with food poor in protein; in wasting diseases; in apathetic Alpine dwellers; in mountain frogs fond of a cold habitat; during hibernation. The data indicate that the diffuse colloid struma represents a thyroid developed physiologically as a weapon against the hypothetic thyroid toxin and as a protective measure. Its development, however, contains the danger—owing to the irritability of the nervous system and the lability of the blood vessels—of an overproduction of thyroid secretion, or the development of hyperthyroidism.

Bilirubin in Human Serum in Health and Disease.—Botzian explains and criticizes the Van der Bergh quantitative test for bilirubin in human serum. He combines this with the diazo test in order to gain an insight into the periodical development of the various forms of jaundice. He found that normal serum contains bilirubin in a concentration of 1.5 units. A slight excess may occur without pathologic cause. In pancreas tumor this value may increase to 1:5,000 (13.7 units); in catarrhal icterus and in atrophy of the liver it reaches 1:10,000; and 50 units (equal to normal undiluted bile) are reached in infectious cholangeitis. The coloring of tissues requires long exposure; at 1:50,000, in latent icterus, bilirubin was found in the urine. The chief result of the studies were that abnormally large bilirubin concentration is a sign of considerable insufficiency of the right ventricle. In cancer of the stomach no abnormal increase occurs until the liver is involved. In pneumonia, an increase often is noticed. In hemolytic icterus there is a great variation of the bilirubin with no positive or at least a retarded response to the diazo test. Splenectomy in one case terminated an attack of icterus and reduced the bilirubin concentration to normal, but in four and a half months it rose to 4.1 units owing to compensatory proliferation of reticulo-endothelial tissues, and the hemolytic bilirubin was changed to "stasis bilirubin" with direct as well as indirect diazo reaction. In the venous and in the arterial blood of the spleen, in hemolytic icterus, identical bilirubin amounts were found.

Postoperative Intestinal Diseases, especially Colitis.—Goldschmidt and Mülleder found enteritis in 29.3 per cent. of cases after extensive operations on the stomach, the pathologic picture resembling that of dysentery. The material consisted of 203 cases, seventy followed by enteritis and ten by colitis. Ten cases are described in detail. A therapeutic use of hydrochloric acid is strongly recommended, and corresponds to the postoperative demand for acid food. Pepsin therapy is indicated.

Münchener medizinische Wochenschrift, Munich

Nov. 5, 1920, **67**, No. 45

*Operative Treatment of Joint Fractures. C. Ritter.—p. 1281.
*Deafness in Gout. A. Scheibe.—p. 1282.
*Ear Changes in Gout. H. Marx,—p. 1283.
Effect of Shepherd's Purse on the Uterus. M. Kochmann.—p. 1284.
Hypophysis and Raynaud's Disease. B. O. Pribram.—p. 1284.
*Urobilin in Duodenal Secretion. H. Strauss and L. Hahn.—p. 1286.
*Roentgenography and Stones of Appendix. F. Kleeblatt.—p. 1289.
Diseased Condition of the Second Metatarsophalangeal Articulation. A. Köhler.—p. 1289.
*Calcium Chlorid for Hemorrhages. W. Neumann.—p. 1290.
Part Played by Albumins and Globulins in the Wassermann Reaction. H. Felke.—p. 1291.
Infectious Thrombosis. W. Schütt.—p. 1292.
Pulse Phenomenon in Optic Disk in Extrasystole. Ascher.—p. 1292.
Spontaneous Entero-Anastomosis by Foreign Body. Kaiser.—p. 1293.
Use of the Cautery in French Internal Medicine. F. Schotten.—p. 1294.
Steinach's Rejuvenation Experiments. F. Freudenberg.—p. 1294.
Cataplexis (Sudden Paralysis). Drosch.—p. 1294.

Operative Treatment of Joint Fractures.—Ritter says that good bony union from operative treatment of joint fractures cannot be assured unless we can prevent the synovial fluid from exerting an influence on the fracture. He recommends enveloping the whole fracture with fascia or periosteum so that it lies entirely extracapsular. He refers more particularly to fractures of the patella, the olecranon and the neck of the femur.

Deafness in Gout.—Scheibe calls attention to a peculiar type of deafness that he has found frequently associated with gout. He discusses thirty-eight cases, which he divides into two groups. In the first group (eighteen cases) there was an acute onset of the deafness. It was for the most part unilateral, apparently due to an affection of the auditory nerve, and was characterized by dizziness, tinnitus and inability to hear deep tones. The second group differed from the first in that the patient did not complain of dizziness but often of buzzing in the ears. Some said they did not notice their deafness except in the presence of loud noise; as, for example, when many were talking at once, or when a rumbling wagon or train passed by. Some said they heard high tones; e. g., a bell, less well than others present. Several of the second group were tested near a rotating centrifuge; whereas normal persons could understand counting in a whisper at a distance of from 2 to 4 meters, the gouty patients could understand only at a distance of from 0.25 to 1.0 meter, though in a quiet room their hearing was virtually normal. The acute onset and the fact that the condition was unilateral in the first group suggest the deposition of urates in joints (that is, provided there is any connection with gout), whereas the gradual loss of ability to detect high tones, which characterized the second group, leads one to suspect a degenerative process in consequence of deranged metabolism. It was strange, however, that the deafness did not progress further. Whether the seat of the trouble was in the labyrinth, in the auditory nerve trunk or nearer to the nerve center, did not appear, as no histologic investigations have been made as yet.

Ear Changes in Gout.—In the first of Marx' two cases, the young man of 32 was referred to him on account of suspected mastoiditis. Behind the left ear, on the planum mastoideum, there was a circumscribed highly sensitive swelling together with marked reddening of the skin. The auditory canal and the tympanic membrane were entirely normal. Hearing was unimpaired. Temperature was normal and the patient felt well. Hot fomentations were prescribed. A definite diagnosis was deferred. When the patient returned the following day, examination revealed on his foot the typical picture of an acute attack of gout. The swelling behind the ear yielded to general treatment and applications of heat. The second patient was referred for an eventual mastoid operation. He had been taking treatment for some time for gout and rheumatism, and had been suffering for two days from severe pains back of the left ear. Examination revealed a hard, fixed swelling on a level with the linea temporalis behind the auricula. The skin was very red; otherwise normal. The tympanic membrane was pale and there was a small, old calcareous deposit; otherwise everything was normal. The general examination revealed changes due to gout, on hands and feet. There was no evidence of an acute process. The swelling quickly subsided under general treatment and local applications of heat. Marx assumes that in both cases there was an acute attack of gout with localization in the region of the mastoid process. These are the first cases of the kind that he has heard of.

Urobilin in the Duodenal Secretion.—Strauss and Hahn found that the bile excreted into the duodenum always contains urobilin. The volume of urobilin found in the duodenal secretion in diseases of the kidneys is not different from normal. The urobilin derived from the duodenal secretion contains bile acids as does the stercobilin occurring in the feces.

Appendix Stones and Roentgenography.—Kleeblatt has found that roentgenographic examination of the right lower abdomen is of great value in differentiating ureter from appendix stones. The therapeutic procedures required are different. The roentgenographic differential diagnosis of appendix stones and calcareous deposits in the mesenteric glands is also important, as the latter condition generally points to tuberculous processes, in which the indications for operation will depend on individual conditions, whereas demonstration of an enterolith, on account of the danger of stasis in the contracted portion of the appendix, with resulting inflammation and gangrene, is always a plain indication for operation.

Intravenous Injections of Calcium Chlorid in the Treatment of Hemorrhages and Diarrhea.—Neumann uses a 10 per cent. solution for intravenous injections of calcium chlorid, which he prefers to administration by mouth, if for no other reason, because the disagreeable taste is avoided, but he thinks the effect is also better. Calcium chlorid injections are indicated especially in hemorrhage of the lung, and the results are excellent. The effect of the calcium chlorid is not so transient as that of sodium chlorid, and it seems to go deeper. From 5 to 10 c.c. of the 10 per cent. solution injected from two to five times a day into the ulnar vein brings the hemorrhage to a standstill, in the majority of cases, within twenty-four hours. If the patient has no fever, he may be allowed to get up for increasingly long intervals. The tendency to hemoptysis is usually thus quickly overcome. Intravenous injections of calcium chlorid accomplish also good results in chronic and, at times, in acute diarrhea.

Svenska Läkaresällskapets Handlingar, Stockholm

Dec. 31, 1920, **46**, No. 4

*Personal Prophylaxis Against Typhus. C. Näslund.—p. 105.
Sources of Vitreous Humor. J. W. Nordenson.—p. 119.

Personal Prophylaxis Against Typhus.—Näslund was with the Swedish Red Cross ambulance sent to Poland last year to fight typhus. The prophylactic garment worn by each of the twenty members of the party was loose and comfortable but not clumsy, and the protection against lice was absolute during their two months of intensive handling of the almost innumerable typhus cases. The garment was in a single piece, the opening across the chest, and this opening was protected with a broad sheet of rubber tissue smeared with camphorated petrolatum. The hood had a 3 cm. border of nickeled metal around the face, experience having shown that lice are unable to pass this smooth and slippery brim. Rubber gloves to the elbow complete the outfit. These garments were hoisted by a crane into a cask to be disinfected with hydrocyanic acid. The article is illustrated.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 12 CHICAGO, ILLINOIS March 19, 1921

THE ACHIEVEMENT OF THE ARMY MEDICAL DEPARTMENT IN THE WORLD WAR

IN THE LIGHT OF GENERAL MEDICAL PROGRESS *

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WASHINGTON, D. C.

Whatever is due to the Medical Department of the United States Army for its achievement during the recent war may be credited to the training and experience of its regular personnel, on the administrative side, and to the generous and efficient cooperation of the physicians and surgeons of this country, on the professional side. When we entered upon this war, every military man in the country realized that we were unprepared for it. Not that the possibility of getting into a war of such dimensions had been ignored by officers of the Army, who in fact, with but small encouragement, had done everything humanly possible to be ready for the emergency; but the fact has developed that every modern war of magnitude requires national as well as military mobilization. When we got into the European war, every one was made to realize that the whole nation was at war, as had been true of all the countries then engaged in the tremendous struggle.

To be unprepared for war, under any conditions of space or time, seems to be the chronic state and fate of all republics and democracies, from Athens down. Anglo-Saxons, familiar with the dubious policy of "muddling through," are prone to regard this condition with cheerful cynicism, as a racial or national trait. But there is a sentence of the great Napoleon which sheds light on the matter, drawn as it was from an experience with military affairs unparalleled in history. "Three fourths of mankind," Napoleon said, "never do the necessary things until occasion arises, and just then it is too late." Human nature, in other words, is little inclined to put restraint upon itself and go through what seems tedious and disagreeable to attain an important end, except under compulsion, through training and discipline, or under stress of impending emergency, when, as Napoleon observed, it is usually too late. Left to themselves, our children would scarcely acquire any education worth considering. We owe that to the schoolteacher. And so it is with nations, once defined by an eminent statesman as "great simple-minded children." What scientific men have told us about crowd psychology and group psychology will but confirm this view, that even large nations, without the self-direction and self-discipline that comes from training, may be, in wartime, like helpless, defenseless children. Like the Athenians, we, too, have prided ourselves on our democratic mode of government, that "in election to public offices we consider neither class nor rank," that "we stand chiefly in fear to transgress against the public and are obedient to those who are for the time in office," that in war, "we trust not to secret preparation and deceit, but to our own courage in action." In the great war we have just passed through, our men in the trenches gallantly sustained the reputation of the American soldier. Our troops first got into mass action on the morning of May 28, 1918. Less than six months later, our share of the work was over. The proverbial luck of young nations was with us. But fortune is uncertain, and it behooves us to be more wary as we grow older. I hope to show, in this brief sketch, that, for the medical profession at least, war has been a very efficient schoolmaster.

MEDICAL ADMINISTRATION

On the side of medical administration, we entered the European war with much better preparation than had been the lot of our forces in either the Civil War or the Spanish-American War. Our memorable experience with typhoid fever during the Spanish-American War taught its lesson and pointed a useful moral. The lesson was the old and often reiterated lesson of the past, that infectious diseases are more dangerous to fighting armies than the bullets of the enemy. The moral was that what is called medical administration in armies must be permitted to work untrammeled, with the generous support of both the medical profession and the line of the army itself, if we are to operate against these diseases with the same efficiency that well-trained military forces operate against the enemy. When, at the close of the Spanish-American War, the lengthy investigation of the Dodge Commission explored the causes and prescribed the remedies for our deficiencies in medicomilitary administration, the matter was taken very seriously to heart by the late Gen. Robert M. O'Reilly, who devoted his whole administrative period as Surgeon-General of the Army to correcting these defects and to doing his uttermost to make our Medical Corps a highly efficient military machine.

Not to take up time with all the recommendations of the Dodge Commission, I will briefly say that what an army mainly requires, in peace or war, is personnel and material supplies, including food and shelter. With adequate equipment and efficient personnel, almost anything can be accomplished. On the side of matériel, General O'Reilly enabled us to equip our field hospitals and sanitary organizations more rapidly than they could be organized as to personnel. On the side of personnel, he created the Medical Reserve Corps, through which device the Medical Department acquired over 30,000 officers from the civilian profession for the recent war. In such matters as the introduction of antityphoid vaccination and the aid given to Professor Chittenden of Yale, in his experiments on the physiologic economy of nutrition, General O'Reilly upheld one of the time-honored traditions of the Army Medical Department from the days of Beaumont down, namely, the encouragement of scientific research.

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* Fourth Mary Scott Newbold Lecture, read before the College of Physicians of Philadelphia, Feb. 4, 1921.

When we entered the European war, our army existed mainly on paper, as "tables of organization," blank forms to be filled in as to personnel and matériel on occasion. In the Texan mobilization we had, for the first time since the Civil War, a mobilized division in the field. This required the organization of certain sanitary field units, and these detached nuclei proved to be starting points for the development of the complex system of sanitary formations required in the World War. As a result of the recommendations of the Dodge Commission, a full year's supply of medicines, hospital appointments and nonperishable stores, adequate for an army of about 300,000 men, had been accumulated and laid by; and fifty base hospital units had been organized by the civilian profession in different cities, through the Red Cross, and under direction of Col. Jefferson R. Kean.

On our entry into the war, then, we had already a fair start in the matter of equipment and medical supplies, for which Congress subsequently appropriated more than half a billion dollars for the use of the Medical Department during the war period. Largely through the mobilization of the Medical Reserve Corps, the personnel of the Medical Corps was increased by Nov. 30, 1918, to 30,591 medical officers, and 264,181 enlisted men, an organization one and one-third times the size of the whole Regular Army of Jan. 1, 1917. The commissioned Ambulance Service was increased from zero to 209, the commissioned Veterinary Corps from 62 to 2,002, the commissioned Dental Corps from 86 to 5,937, the commissioned Sanitary Corps from zero to 2,919, the Army Nurse Corps from 403 to 21,480. The Surgeon-General's Office at Washington, which, on April 6, 1917, consisted of the Surgeon-General, his staff of six officers and 149 civilian employees, became, at the height of the war period, an organization of thirty administrative units, with a personnel of 262 medical officers and 1,889 civilians. Yet, the total expenditures of the Medical Department up to April 30, 1919 ($314,544,000), were two hundred million dollars less than the actual appropriation for supplies, and only 2.2 per cent. of the total expenditures of the entire Army.

CARREL-DAKIN TREATMENT

Thus, by the time our troops got into active operations, we had the sinews of war, supplies and personnel, and the additional advantage of the sanitary experience already gained by our allies at the front. As you know, this was the first war in history in which the mortality from battle casualties exceeded that from communicable diseases. The first and most important changes in military surgery were therefore centered on wound treatment. In 1914, operative surgery was entirely aseptic. But, with the dirt and grime of trench warfare, over ground cultivated for centuries, and therefore swarming with pathogenic organisms, asepsis was no longer possible and the revival of the antiseptic surgery of Lister was almost a foregone conclusion. As described by Crile:[1]

> The early states of wound treatment on the Western Front were haphazard and experimental, a matter of dispute between "the claims of the value of various chemical agents against those of no chemical agent, of moist dressings against dry; of hot against cold; of frequent dressings against infrequent, and of no dressings against both; of sunlight and of electric light against occlusions; of immersion against hot air; of bacteriological control against clinical judgment; of vaccines, toxins and foreign proteins against normal reaction; of wound inoculation with harmless organisms against wound sterilization; of isotonic against hypertonic solutions; paste has competed with paste, bipp with ip; sap with both and chromic pastes with all."

Out of all this controversy and welter of opinions, there was at last evolved one of the great surgical discoveries of the war, the application to wound treatment of the principle of disinfection by the release of a gas from a liquid solution. Of this method, the Carrel-Dakin, Finney[2] says conclusively that "it is one of the most important and far-reaching contributions of the war to the armamentarium of the surgeon." As Keen[3] says:

> Lister taught us, above all, how to prevent infection; Dakin and Carrel, following Lister's principles, have taught us how to conquer even rampant infection. For nearly half a century we surgeons have been fighting firmly intrenched infection, but always in vain. It required the stern stimulus of war to enable us to win the victory.

Now, although the physicochemical principle involved was familiar to us in ordinary commercial chlorid of lime sterilization or in antiseptic throat pastils, the Carrel-Dakin method had a long foreground and thereby hangs a tale. In his Mütter lecture, delivered before this College in 1902, the late Col. Louis A. La Garde demonstrated that the pathogenic organisms in powder or on projectiles are not destroyed by the heat of firing but are carried directly into the wound. We have to reckon, then, with the fact that there is no such thing as a sterile battle wound. Now, the wounds from high explosive shells and other great missiles used in this war differed from those of any other war, not only in the frightful laceration of the tissues, but in the fact that the whirling, vibratory motion of the projectile completely devitalized such tissues, converting them into ideal culture mediums for the pathogenic micro-organisms carried into them. In the first year of the war, the base hospitals were full of such septic wounds, which had developed during the time required to transport the wounded back to base for treatment. Necessity is the mother of invention, and the necessity for the Carrel-Dakin treatment was created by a military principle. That principle was the rapid evacuation of the wounded from the firing line, with the utilitarian nonmedical aim of relieving the fighting forces of encumbrance and of returning those recovered from wounds to the firing line as soon as practicable. As humanitarian physicians, it grieved us to see our soldiers die from septic wounds, and it was our bounden ethical duty to save their lives; but as military officers, we could not afford to let them die, for the issue, at the time, was uncertain, and the odds were tremendous. To make this great salvage service efficient and effective, centers of triage were established and surgical service was pushed up to the front, so that the Carrel tubes could be inserted in the wounds before evacuation to the rear. The effect on wound treatment was miraculous. Part of Carrel's treatment was the mechanical cleansing and removal of débris and of loose devitalized tissues from the wound. From this, it was but a step to débridement, or complete excision of the devitalized tissues by the knife, a kind of mechanical asepsis evolved by Gale and Lemaître. Of 206 gunshot wounds treated in this way in Evacuation Hospital No. 2, Colonel Brewer records that 93.5 per cent. healed without infection or suppuration. It was these two principles of wound treatment which enabled us to return such large percentages of our wounded to the front for duty. Of the advantages which were ours in this respect, Brewer[4] has spoken forcibly:

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[1] Crile, G. W.: Tr. Am. Surg. Assn., Philadelphia **37:** 35, 1919.

[2] Finney, J. M. T.: Tr. Cong. Am. Phys. & Surg., New Haven, **11:** 15.

[3] Keen, W. W.: The Treatment of War Wounds, Ed. 2, Philadelphia, 1918, p. 75.

> It was fortunate for our men that we did not have to go through these two or three years of experimental work where so many died and so many suffered intensely, and where the results were so unfortunate. We were able to begin where they left off, and it is to the hearty and cordial cooperation of the French and British medical services that we owe this. Our men, as soon as they came over, our splendid surgeons that volunteered in such large numbers at the beginning of the war, were taken in by the French and British surgeons, given work to do, and everything possible was done to facilitate their work. As a result of that, last January when our forces began to go into the lines, and we established our advanced evacuation hospitals, we were able to employ surgical teams of not only some of America's most distinguished surgeons, but of those who had the inestimable advantage of having worked with the masters of surgery of the French and British armies.

I have dilated on these methods at the start, because we may not enjoy this advantage a second time, and because these surgical principles, the most important which came out of the war, need not be lost to civil surgery, but may indeed be of the highest practical value in industrial and railway surgery. The rest of our war surgery, even the orthopedic and maxillofacial, was mainly an extension of principles already well established.

PROBLEMS OF TRANSPORTATION AND TREATMENT

We sailed for France with General Pershing, May 28, 1917. The first duty of the Medical Department was to provide ways and means for hospitalization of the sick and wounded. This was a long and tedious process, never fully realized, but in process of realization at the end of the war, when our program was for 500,000 beds. May 15, 1918, thirteen days before our First Division captured Cantigny, there were 30,187 hospital beds available. On the signing of the armistice (Nov. 11, 1918), we had available in France for an army of a mean total strength of nearly two millions, 261,403 beds, in 153 base hospitals, 66 camp hospitals and 12 convalescent camps. The total number of patients in hospital on that day was 193,448, of whom 94,405 were sick, and 99,043 wounded. The total number of beds in the home territory was 121,883, with 69,926 patients, or a grand total of 353,887 hospital beds in France and the United States, as against a maximum of 118,057 beds for the Union forces in the Civil War. Most of the large hospital centers in France, such as Allerey, Bazoilles, Toul, Mesves, Mars and Savenay, were made up of units of 1,000 bed hospitals, barrack type, with a crisis expansion of 2,000, so that the total bed capacity of the centers was ultimately to be from 10,000 to 40,000. One of the centers had 22,500 patients when the armistice was signed. Through the courtesy of the French authorities, many separate buildings were acquired, such as the *casernes* at the Toul center (15,000 beds) or the hotels at the Vichy center (10,000 beds). Hospital construction in France was done by our Corps of Engineers, who had even to cut the timber and saw the lumber.

Although the humanitarian element in evacuation of the wounded is subordinated to its military purpose, yet the wounded soldier's chances of recovery are better furthered by business efficiency and military promptitude in evacuation than by misdirected sentiment or wrong-headed philanthropy. The underlying military motive is kindlier than the ancient or Turkish plan of having no medical administration in campaign whatever, leaving the wounded to die in their tracks. There were physicians who complained that they were utilized as packing clerks at the front, but it is just this sort of administration which brings the wounded man safely into the hospital, with a clear statement of the nature of his injury. Evacuation on the Western Front was a complex and sometimes desperate matter, often hampered by lack of transportation facilities, by the impassable condition of roads boggy with mud or crowded with other vehicles, and by the generally torn up condition of the combat areas. It required the prompt mobilization of every kind of vehicle, such as ambulances, motor trucks, lorries and other rolling stock attached to the sanitary formations which move forward with the fighting divisions, as well as the establishment of evacuation hospitals and rest stations on the line of communications and of base hospitals and convalescent camps in the zone of the interior, with their own type of transportation, including ambulance service, hospital trains, hospital barges and hospital ships. In spite of delays in construction, we had, on Nov. 11, 1918, twenty-one hospital trains of sixteen coaches each, about sixty hospital barges, and some 7,375 ambulances of heavy and lighter type. Up to Nov. 11, 1918, 129,997 sick and wounded had been evacuated by our hospital trains, and 197,708 in the fifty trains lent by the French, while from the embarkation ports there were evacuated by ship to the United States 15,853 patients up to Nov. 11, 1918, and 83,642 up to March 1, 1919.

To the sanitary administration on the Western Front, in other words, to the military application of preventive medicine, was due our relatively small disease incidence as compared with earlier wars, and this in spite of the long period of exposure before our troops got into action. The management of the sick and wounded records, the services of epidemiology, laboratories, food inspection and food economics, sanitary inspection and venereal prophylaxis were of the highest order of efficiency, and with these services the names of Siler, Zinsser, Emerson, Young, Keyes, Walker, in the war zone, and of Reynolds, Howard, Chamberlain and Russell in the home zone, will always be associated. In spite of repeated cabling we never got all the personnel and supplies needed in crucial situations, which had to be met and eked out by robbing one organization to supply another, and by the self-sacrificing full-time and overtime service of operating surgeons, nurses and hospital personnel. Many hospital nurses worked from fourteen to eighteen hours daily for several weeks running. Some surgeons worked from forty-eight to seventy-two hours without sleep. One roentgenologist dropped unconscious by his machine after operating it for forty-eight hours. Litter-bearers were sometimes so exhausted that they could not lift their hands above their heads. Promotions recommended for deserving medical officers were held up indefinitely, and did not reach them overseas until the cessation of hostilities, when they were, in the Napoleonic phrase, too late.

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[4] Brewer, G. E.: Monthly Bull., Chamber of Commerce, New York 10: 40-41, 1919.

RESULTS

So much for the means at our disposal. The results attained in hospital treatment were remarkable. Of the 2,039,329 men who reported in France, about 1,300,000 were combatant troops; and of these, twenty-eight divisions, or about 784,000 men, got into action. Our total casualties were 318,993, of which number 34,249 were killed in action, 50,714 died from disease, and 13,691 (6.11 per cent.) died from wounds out of 224,089 wounded, of whom 158,595, or 70.77 per cent., were returned to duty. We can best appreciate the advances made in wound treatment and the therapeutics of disease by comparing our results in hospital with those of the Civil War. Although our maximum total strength in the World War on Oct. 11, 1918 (3,551,447) was nearly four times greater than that of the Union forces on Jan. 1, 1863 (914,447), yet, covering the same relative period of time, 44,238 men (14.5 per thousand) were killed in action in the Civil War as against 34,249 (11.26 per thousand) of our troops in the World War; 246,712 (80.87 per thousand) wounded were treated in hospital in the Civil War, 224,089 (73.66 per thousand) in the World War; 31,978 (10.48 per thousand) died from wounds in the Civil War, 13,691 (4.5 per thousand) in the World War; 186,216 (61.04 per thousand) died from effects of diseases in the Civil War, and 50,714 (16.67 per thousand) in the World War. Thus, although the Union Army of the first two years of the Civil War was one-fourth the size of our mobilization in the World War, nearly 10,000 more men were killed outright in the Civil War, more than 22,000 more men were wounded, more than twice as many died from wounds in hospitals, and nearly four times as many died from the effects of disease.

As given by Lieut.-Gen. von Schjerning, the total losses of the German Army during the four years of the World War, with a mean average strength of 4,257,720, were 1,531,048 killed in battle, 4,211,269 wounded, and 155,013 died of disease out of 19,461,265 admissions to hospital. As given by General Sir John Goodwin, the total losses of the British army, exclusive of the Indian and African troops, were 569,143 killed in action, 170,509 died from wounds, 83,975 died from other causes, 1,025,808 wounded, and 143 missing. Including the Indian and African contingents, the total losses, including 929,812 deaths from all causes, 2,097,994 wounded and 3,467 missing, amounted to 3,051,273.

Judging from our own figures, and considering the terrible effects of heavy artillery and high-power explosives, our capacity to heal wounds has increased twofold and our ability to treat disease fourfold. We can form no judgments from the German figures, because they have not yet given the numbers who have died or recovered from battle wounds, while their figures of nearly twenty million admissions to hospital are not the same thing as the actual number of patients admitted. In ability to prevent disease we have made gigantic strides since the Civil War. Between Sept. 1, 1917, and May 2, 1919, we had 213 deaths from typhoid fever; had the Civil War rate obtained, we should have had 51,133 deaths, and had the Spanish-American War death rate obtained, 68,164. We had thirteen deaths from malarial fever in the World War; with the Civil War death rate, we should have had 13,591, and with the Spanish-American War rate, 11,317 deaths. In the World War we lost only forty-two men from dysentery; with the Civil War rate, we should have lost 63,898, and with the Spanish-American War rate, 6,382. Our mortality from tuberculosis in the World War was 1,220; with the Civil War death rate, it would have been 9,574. We lost only five men from smallpox in the World War, but with the Civil War death rate we should have lost 9,536. On the other hand, 41,747 soldiers died from pneumonia in the World War, while with the Civil War death rate this mortality would have been 38,962, and with the Spanish-American War death rate, 6,086. The high mortality in the World War is to be explained by the unusual malignancy of the pneumonias following the measles epidemic of 1917-1918 and the great influenza epidemic of 1918-1919. The most difficult problem facing both military and civil sanitarians is the prevention of the sputum-borne infections.

Our success in wound treatment was due to the high efficiency and promptitude of our surgical service in carrying out the Carrel-Dakin treatment and the method of wound excision with primary suture. The highest incidence of war wounds in our hospitals occurred during October, 1918, the period of the Argonne fighting, when 38.37 per cent. of admissions to hospital and 41.52 per cent. of deaths were from gunshot and other wounds. Our percentages of admissions and deaths from gunshot wounds, during our entire six months of fighting, were 33.42 and 54.29, respectively. Wounds from small arms and those incurred during air attacks had a higher case mortality than wounds from missiles, while recovery was the rule in cases of gassing. The case mortality from gunshot wounds was 8.26 per cent., that from gassing 1.73 per cent. Wounds from missiles were most frequent in the lower and upper extremities and the chest, being sustained in going over the top. The percentages of admissions and deaths from wounds of the lower extremities were about equal.

More men were killed outright through abdominal and pelvic injuries than through any other. More than twice as many were killed through head injuries as were admitted to hospital, and nearly seven times as many through wounds of the spine, abdomen or pelvis. All this is to be explained by the terrible mangling of the body from high explosive shells and projectiles of large caliber. Wounds of the spleen, intestine, pancreas, stomach, kidney, liver, esophagus and bladder show the highest case mortality, in the order named, both in the World War and in the Civil War. Men thus wounded seldom recovered, because the destruction of these viscera was beyond the reach of surgery; but although visceral wounds were almost hopeless in both wars, we have astonishing evidences of improvement in the treatment of gunshot fractures in the World War.

The comparative percentages of case mortalities in the Civil War and the World War are for gunshot fractures of the tibia and fibula as 26.19 to 13.74; of the humerus as 20.70 to 9.04; of the clavicle and scapula as 13.90 to 6.98; of the radius and ulna as 9.40 to 3.98; of the wrist as 12.10 to 1.80, and of the foot as 7.70 to 2.77.

CASUALTIES

The number of casualties among our medical officers in France from July 1, 1917, to March 13, 1919, was 442, and of these, 46 were killed in action, 4 were lost at sea, 212 were wounded, 22 died of wounds, 101 died of disease, 9 died of accidents, and 7 were reported missing in action. While our infantry sustained the greatest number of casualties, namely, 215.66 per thousand wounded, and 12.77 per thousand killed in action, the Medical Corps comes sixth on the roll of honor, following the artillery with 25.67 per thousand wounded in action and 1.62 per thousand killed. That the number of killed and wounded in our Medical Corps (258) is more than one half of its total casualties (442), and that the number who died from disease (101) is almost one fourth, is sufficient evidence of the readiness with which our medical officers exposed themselves to fire and ran the risks of infection in hospital. The first American soldier who was killed in France after our entry into the war was a medical officer, Lieut. William T. Fitzsimons, whose life was lost during an air attack on the base hospital group at Dannes Camiers, Sept. 4, .1917, and in honor of whom our Army General Hospital at Denver has just been named the Fitzsimons General Hospital.

PREVENTION AND TREATMENT IN HOME TERRITORY

In the home territory, excellent administrative work was done from the start in the all-important matter of raising personnel and supplies, and in providing adequate hospitalization and sanitation for our thirty-two army camps, some of which were great communities of between 40,000 and 50,000 population. The purchase of vast quantities of supplies, some of which had to be manufactured on a large scale for the first time in this country, the distribution and shipping of such supplies through supply depots, and the financial accounting for these was a large achievement, which will form an important chapter of our Medical History of the War. Some of the camps were badly chosen as to site, and the base hospitals in many of these camps were the last structures to be put up, so that division surgeons and the commanding officers of these camp hospitals had an up-hill fight of it during the measles and meningitis epidemics of the severe winter of 1917-1918, and even more arduous experiences with the epidemic of Spanish influenza of 1918-1919. In this war, we first learned to go after the sources of disease instead of waiting for it, through a gradual realization of the fact that the individual, particularly the individual carrier, is more dangerous than the disease itself. The isolation of contacts and suspects, as well as of carriers, in such communicable diseases as measles, meningitis and influenza, although not a new feature in military or civil sanitation, was first carried out on a large scale in this war.

The Division of Sanitation in the Surgeon-General's Office had work of the most varied kind, from the extermination of mosquitoes to the preparation of our statistical records. This part of our service profited much by the experience and wise counsel of such experts as Welch, Vaughan, Zinsser and Emerson, and it is no exaggeration to say that those who served with us acquired fresh ideals of group sanitation and group medicine through actual contact and experience with the hygienic requirements of large military communities, under constant discipline and of uniform type. Food inspection and food economics were administered from the point of view of modern nutritional science by expert metabolists. The administration of our surgical service was greatly forwarded by the work of such men as Charles and William Mayo, Finney, Brackett, Cushing, Goldthwait, Crile and Brewer; our medical service by Thayer, Janeway, Longcope and Conner; the service of ophthalmology by Greenwood, deSchweinitz, Wilmer and Black; the service of otolaryngology by MacKernon, Mosher and Richardson. Reconstruction, gas defense, the physiologic requirements in aviation and the psychologic examination of drafted men come up as entirely new subjects in military administration. Although the orthopedic or instrumental phase of reconstructional surgery of disabled soldiers had been blocked out in Germany ten years before the war and practiced here and there in civil life, the program was soon expanded to include reeducation, or the vocational training of the disabled, including the blind and the deaf; rehabilitation, or the social adjustment of the disabled to suitable employment, and the education of the public to a proper attitude toward the crippled soldier, as voiced in the utterance of Michael Dowling, a reconstructed civilian, at the session of the American Medical Association in 1918:

> Every community and every family ought to see to it that every other member of the family pays no attention to a hunchback, never looks at a man with clubfoot as he walks down the street, especially never looks at his deformity, and never looks at a man with a peg leg or with an empty coat sleeve. It should be taught in the schools. It should be preached from the pulpits.

With this phase of administration we associate the names of Frank Billings, Richardson and Wood.

The application of the newer findings of psychology, neurology and psychiatry to the examination of drafted men by Salmon, Bailey and Yerkes demonstrated the existence in our recent population of large numbers of people with weak, undeveloped or disordered minds. Mental tests of children had been employed in the schools, but they were first tried out on adults in mass during our recent mobilization. Mental defectives will be bad risks in any future army. The soldier of the future must be of active mind as well as body. His wits and senses must be something better than a baseball player's. Under the recent program our prospective army will be a school in which the mind and the senses are trained to coordination through vocational adaptation to suitable employments. Although we were engaged less than twenty months in the war, the scientific achievement of our medical officers in that short time was considerable. What was accomplished reflects the highest credit on our American profession. Through the labors of MacCallum, Cole, Dochez, Avery, Bull, Miller, Capps and Irons, the pneumonias consequent upon different infections were studied pathologically and typed as to bacilli. *Streptococcus hemolyticus* infection was investigated by Avery, Kinsella and Swift; the surgical aspect of the empyemas by Dunham, Bell, Graham, Kinsella and Stevens, of the Empyema Commission of the U. S. Army; measles by Sellards, Bigelow and Fox; meningitis by Flexner and Herrick; influenza by Cole, Avery and Jacobs; parotitis by Sailer; bronchopneumonia by Miller; tuberculosis by Bushnell; anthrax by Pearce; erysipelas by Kanavel; arthritis by Pemberton, and parasitic infections by Kofoid. The hypothesis that trench fever is a louse-borne infection, which originated with the British commission under General Sir David Bruce, was carried to successful demonstration by the American commission under Richard P. Strong.

Generally speaking, the prevention and treatment of disease was of greatest moment in our camps in the home territory, while the transportation and treatment of the wounded occupied us mainly in the war zone. I have already spoken of the relation of the concept of transportability to successful wound treatment. On the Western Front, this was vastly forwarded by the adoption of the principle of continuous extension by means of the Thomas and Hodgen splints and the Balkan frame. Of outstanding practical importance was the work of Blake, Goldthwaite, Osgood, Allison and Keller on gunshot fractures and the standardization of splints. My time limits prevent more than passing mention of the brilliant work of Cannon, Porter and Crile on wound shock; of Cushing on brain surgery; of Hayes, Hutchinson, Powers and Blair on maxillofacial surgery; of Yates and Lilienthal on surgery of the chest; of Salmon on war neuroses; of Warthin, Winternitz and Underhill on the pathology of war gas poisoning.

EDUCATION AND TRAINING

On the score of training, instruction was given to volunteer medical officers in all branches of military medicine and surgery at the Medical Officers' Training Camps in this country, at the Rockefeller Institute, at the Army School at Langres, in the special courses instituted by the administrative divisions of the Surgeon-General's Office in our larger cities, and through the generous cooperation of such great leaders as Sir Robert Jones in England and Depage at La Panne (Belgium). Our Medical Officers' Training Camps brought out some defects in medical education in this country and, on the administrative side, the most valuable lessons which our army has learned from the European war have been in this matter of education and training. From the great training areas in France came the idea of training in corps areas in this country; from the training camps in this country we have learned that medicomilitary or other training should not be too generalized as to subjects or too extended as to time, but should be concentrated on particulars of immediate practical importance. From the useful and valuable lists of the qualifications of civilian practitioners furnished us by the American Medical Association and the Council of National Defense during the mobilization of the Medical Reserve Corps, we have learned the value of cooperation with the medical profession in relation to any future mobilization for war. The expensive and valuable scientific work done for the Army by the Rockefeller Institute, the Carnegie Institution of Washington, the National Research Council and the Public Health Service is a guarantee of the cooperation and team-work which the government may hope for in any future emergency.

PROGRAM FOR THE FUTURE

I have now endeavored to tell you, in brief space, what the Army Medical Department and the medical profession of the country have accomplished in the recent war. A word as to the future. It is the purpose of our army establishment to make its future program of training educational in the broadest sense. Modern armies require not only fighting men but also skilled mechanics, artisans and craftsmen of all kinds. In future, the Army proposes to train such men within the ranks. This is one of the most important things that has come out of our experience in the European war. Hereafter, the enlisted man will have full opportunity to learn a trade and to join the ranks of skilled workers in the world. If he belongs to the unskilled classes, when he leaves the Army, it will be his own fault. If he accepts his Army training in the right spirit, he will acquire a definite means of acquiring a livelihood, of supporting a family and of becoming a respectable and useful member of society. As blocked out on the Army job sheets, this training will be intensive and scientific, not the haphazard and ill-considered training which the journeyman plumber's or steamfitter's apprentice too frequently gets from the boss. In like manner, it is incumbent on the Medical Department not merely to institute educational training of enlisted men as clinical clerks and surgical dressers in the hospital, but also to train specialists among our commissioned personnel in all the important branches of scientific medicine. In the medical establishment of the British Army, steps have already been taken in this direction by the appointment of whole-time chiefs of surgery and pathology. In the contemplated enlargement of the Walter Reed Hospital, we shall have an establishment at which this program can be carried out by our Army Medical School in full measure. The older, archaic army of the small, scattered and isolated posts disappeared with the European war. A newer army, of large corps area, has taken its place. I think you will admit that a nation of more than a hundred million people needs such an army, and that its medical department should have educational facilities at least comparable with those of Netley and Val de Grâce.

In pleading the case of American liberties before the English Parliament in 1775, Edmund Burke said:

> It is the love of the people; it is their attachment to their government, from the sense of the deep stake which they have in such a glorious institution, which gives you your army and your navy and infuses into both that liberal obedience, without which your army would be a base rabble, and your navy nothing but rotten timbers.

This great idea has been borne in upon us through our experience in the European war. Our reasoning in regard to training and education is the same. We came out of the people; we went to the people for our personnel, and we want to do something in return for their sons while they are with us. We of the Medical Corps came out of the medical profession; it is our desire to keep in closest touch with the profession, working together, in the future as in the past, for the common good of our country. I ask you to consider, for a moment, the history of our Medical Corps in its relation to the American profession.

CONCLUSION

William Beaumont started experimental physiology in this country, Woodward photomicrography, Sternberg bacteriology, Billings advanced hospital construction, medical bibliography, medical statistics and the science of medical librarianship. While on duty in the Army during the Civil War, Weir Mitchell developed the science of the peripheral nerve lesions, which was the foundation of his work in neurology. Even your great anatomist, Joseph Leidy, did valuable postmortem work in our military hospitals during this period. After working under Welch at Johns Hopkins, Walter Reed, with his associates in Cuba, demonstrated the transmission of yellow fever by mosquitos, and (with Vaughan and Shakespeare) of typhoid fever by flies. Gorgas then cleaned up Havana and Panama, and made the Isthmus habitable. Russell introduced preventive vaccination against typhoid fever on a large scale; Hoff vaccinated the Porto Rican population and rid the island of smallpox and leprosy. In tropical medicine, I need only mention the work of Ashford on hookworm infection and tropical sprue, Craig on malarial fever and the parasitic amebas, Ashburn and Craig on filaria and dengue, Vedder on beriberi and amebic dysentery, Chamberlain on hookworm infection and beriberi, Gentry and Ferenbaugh on Malta fever and Whitmore on dysentery and yellow fever.

Since the close of the war, there has been apparent a certain feeling of bitterness against the Army. It is due in part to losses sustained, whether of relatives killed in battle or of income or of business advantages, to disappointments and disillusions, to the fact that modern warfare is a drier, more businesslike and less romantic enterprise than the wars of old, and to the natural distaste of average civilized humanity for a thing so disagreeable and troublesome as war. In general, it is a symptom of what Cushing calls "war weariness;" yet I myself belief that it is more common among those whose lot it was to chafe at the leash while doing their bit in the home territory than among those who served with us in France. Pacifists maintain that wars are avoidable things, by which they probably mean that civilized man, i. e., man tamed and domesticated, would like to avoid them if he could. The European war resembled the great epidemics of the middle ages, which came suddenly down upon humanity, they knew not whence or where, with terrible death-dealing force. Epidemics and wars, as Crookshank points out, are not of simple, but of multiple or complex causation. The epidemic of influenza that followed this war was in reality far more destructive; yet who has succeeded in explaining, or even in exploring its causation? Crookshank believes that the remote causes of this epidemic are beyond human calculation. Wars, then, may some day perhaps be prevented, when there exist statesmen with genius and ability sufficient to prevent them. The business of armies, however, is to maintain peace in time of peace and to be ready for war whenever the defense of their country requires it. For the "never again" school there is only one answer, namely, that defenseless nations, like defenseless individuals, invite not only attack but also invasion of their territory. As Crookshank puts it, "until war and pestilence are abolished, we must initiate schemes of defense." To guarantee the defense of a modern nation, there is only one means, namely, discipline and training. In the address I quoted at the beginning, Pericles counsels the Athenians who survived the first year of the Peloponnesian War to "pray for a safer fortune," but to be no less venturously minded against the foe; not weighing the profit . . . but contemplating the power of Athens, in her constant activity: and thereby becoming enamored of her. And when she shall appear great to you, consider then that her glories were purchased by valiant men, and by men who learned their duty; by men who were sensible of dishonor when they came to act; by such men as, though they failed in their attempt, yet would not be wanting to the city with their virtue, but made to it a most honorable contribution. . . . Be zealous, therefore, to emulate them, and judging that happiness is freedom and freedom is valor, be forward to encounter the dangers of war."

It was in this spirit that the youth of our nation met the enemy, and you may read of what they did in the report rendered to the secretary af war by their commander, General Pershing.

I ask that, as members of the medical profession, you will give to the Medical Department of the Army in time of peace the same loyal support and appreciation which you have rendered, and which we may count on you to render, in time of war.

THE CEREBROSPINAL FLUID IN TREATED SYPHILIS *

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In the routine study of cases in the syphilis department of the Johns Hopkins Hospital, lumbar puncture is regarded as especially indicated in three groups of patients: (1) those presenting on admission evidence suggestive of or permitting a diagnosis of neurosyphilis; (2) all other patients accepted for treatment, and (3) treated patients about to be discharged as presumably cured. The first and second groups represent practically all cases accepted for registration in the clinic. They are considered separately because in the one instance (Group 1) spinal fluid examination assists in differential diagnosis and serves as a check on the clinical impression; and in the other (Group 2), it is employed as a routine method of detecting or ruling out asymptomatic neurosyphilis. While, in Group 1, puncture is performed on admission for obvious reasons, it is not employed in Group 2 until after one or more courses of treatment have been administered. Especially in early syphilis, we deem it unjustifiable to delay treatment even the few days necessary for spinal puncture in an ambulatory clinic.

The present study is concerned with the second group of patients (routine punctures). The results obtained in the first group are so generally known as to need no further comment, while those of the "discharged as cured" group properly belong to a discussion of the treatment of syphilis.

The factors leading to invasion of the central nervous system and the development of clinical neurosyphilis are not as yet clearly understood. The existence of a neurotropic strain of *Spirochaeta pallida* seems fairly well demonstrated by clinical evidence and animal experimentation. Examination of the spinal fluid in early untreated primary and secondary syphilis has shown [1] from 30 to 50 per cent. of abnormalities, consisting in general of pleocytosis and increased protein content, more rarely a positive Wassermann reaction and abnormal colloidal tests. It may be assumed from this evidence that in many cases of syphilis, and in most of those who later develop neurosyphilis, invasion of the nervous tissue takes place early in the course of the disease, at the time of the first period of generalization.

It is probably true that in about half of all cases of syphilis, no such invasion takes place. The incidence of clinical neurosyphilis in untreated or badly treated patients is generally considered to be about 25 per cent. Some of the patients invaded early, therefore, are able spontaneously to deal with their neurologic infection.

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* From the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital.

[1] Fordyce, J. A.: The Diagnostic and Prognostic Significance of Spinal Fluid Findings in Syphilis, Med. Rec. **91**: 927 (June 2) 1917. Ellis, A. W. M., and Swift, H. F.: J. Exper. Med. **18**: 162, 1913. Wile, U. J., and Stokes, J. H., Involvement of the Nervous System During the Primary Stage of Syphilis, J. A. M. A. **64**: 979 (March 20) 1915. McIver, Joseph: The Spinal Fluid in Primary and Secondary Syphilis, ibid. **73**: 1765 (Dec. 6) 1919. Wile, U. J., and Hasley, C. K.: Involvement of Nervous System During Primary Stage of Syphilis, ibid. **76**: 8 (Jan. 1) 1921.

Furthermore, it is undoubtedly true that a few patients in whom early invasion did not take place later fall victims to neurosyphilis, thus rendering necessary the assumption of nervous invasion at a second or later period of generalization of the disease. The most important point with reference to the development of neurosyphilis, judging from past experience, is that adequate intensive treatment reduces its incidence very markedly. Prior to the introduction of the arsphenamins, the statistics of various observers indicated that only about 5 per cent. of well treated patients, as compared with 25 per cent. of untreated or badly treated patients, developed paresis, tabes or cerebrospinal syphilis. Since the introduction of the much more intensive treatment now generally employed, not enough time has elapsed to provide adequate statistics. In this clinic, however, the impression prevails that less than 1 per cent. of well treated patients develop neurosyphilis.

The present study was undertaken with the following points in view: (1) To demonstrate the effects of treatment on the early minor abnormalities noted in the spinal fluid by other observers; (2) the possible association of asymptomatic neurosyphilis with other manifestations of the disease; (3) differences in the racial incidence of unsuspected neurosyphilis between whites and negroes, and (4) the possibility of predicting its presence by means of certain generally unappreciated minor signs and symptoms.

The material consists of 642 patients in all stages of the disease. Each patient was examined carefully from the neurologic as well as the medical standpoint. Every case in which a clinical diagnosis of neurosyphilis was permissible has been excluded. In most instances the tests performed on the spinal fluid included cell count, the Pandy and Ross-Jones tests for globulin, Wassermann reaction in quantities ranging from 0.1 to 1.0 c.c., colloidal gold and, in the last 250 cases, colloidal mastic. In a few cases the cell count and colloidal tests are lacking. In order to save space, the results are thus classified: *Positive* includes every case in which the Wassermann was positive in the fluid in any dilution, in most of which, of course, the other tests were also positive. *Doubtful* includes those cases showing slight fixation with large quantities of fluid, together with a slight pleocytosis or a change in the colloidal gold curve not higher than "syphilitic zone," or, in the presence of a completely negative Wassermann reaction, pleocytosis of more than 10 cells with a positive globulin reaction, or abnormal colloidal tests (the majority of these cases would have been in the positive group if puncture had been performed before treatment, as will appear below). *Negative* includes those cases in which all tests, with the exception of the globulin reaction, were definitely negative. I do not lay as much stress on the presence of a small amount of globulin as does Wile,[1] for example, since I am convinced that it can be found in small quantities in normal fluids.

In Table 1 will be found the results of spinal fluid examinations in relation to the diagnosis made on admission. In practically every case the patient had received at least one course of six doses of arsphenamin, followed by several weeks of mercury by inunction with or without potassium iodid. Many patients had received more treatment. Three points of interest appear from this arrangement of the data. If primary syphilis can be well treated before the appearance of secondary manifestations, only a very small proportion (2.9 per cent.) of cases will show any abnormalities in the spinal fluid after treatment. Secondly, after secondary manifestations have appeared and the disease is presumably well intrenched, about the same relative number of patients show spinal fluid abnormalities no matter how long the disease has existed, or by what lesions it manifests itself. Thus, a positive result is obtained with the same frequency in patients whose original complaint, for example, was an early secondary rash, a late bone lesion, or cardiovascular syphilis. (This does not, of course, deny the frequent association of cardiovascular syphilis with clinical neurosyphilis, especially tabes.) No evidence is to be found of the more frequent association of asymptomatic neurosyphilis with one group of lesions than with another.

TABLE 1.—RESULTS OF SPINAL FLUID EXAMINATIONS IN RELATION TO DIAGNOSIS ON ADMISSION

Diagnosis: Syphilis	Total Cases	Cerebrospinal Fluid			Percentage Abnormal
		Positive	Doubtful	Negative	
Primary	34	1	..	33	2.9
Secondary, early	130	15	3	112	13.8
Secondary, recurrent	20	3	..	17	15.0
Secondary, late	7	1	..	6	14.2
Tertiary, skin and mucous membrane lesions	47	4	2	41	12.7
Tertiary, bone lesions	45	3	3	39	13.3
Tertiary, cardiovascular	47	6	..	41	12.7
Tertiary, visceral	21	3	1	17	19.0
Congenital, late	21	1	1	19	9.5
Wassermann, early	35	4	1	30	14.2
Wassermann, late	155	18	8	129	16.7
Latent, early	25	..	1	24	4.0
Latent, late	55	1	2	52	5.6
Total	642	60	22	560	12.7

The reverse is evident in the two groups of cases classified as latent,[2] in which the percentage of positive results is much lower than in any other group except the primary cases. This is probably to be interpreted to mean that the majority of such patients with neurosyphilis have already developed clinical signs or symptoms by the time they reach our hands, leaving only a few in whom the neurologic involvement is asymptomatic. In general, therefore, asymptomatic neurosyphilis is more common in syphilitics presenting some physical or serologic evidence of their disease than in early primary syphilis, in which such manifestations may be rapidly suppressed, or in latent syphilis, in which they have disappeared spontaneously or because of treatment.

Finally, only 12.7 per cent. of these treated cases showed spinal fluid abnormalities, as compared with the 30 to 50 per cent. of untreated early cases of other authors. Thus treatment, even though incomplete, does cause at least half of the early abnormalities to disappear. In some of the remaining cases, however, the effect of such incomplete treatment is to intensify the abnormalities already present, since 9.3 per cent. of this group of patients showed a positive Wassermann reaction in the fluid, as compared with 1 to 4 per cent. in early untreated syphilis.

As I have explained above, in the majority of patients in this series, puncture was performed at the end of one or two courses of arsphenamin (in general from two to six months after the beginning of treatment). Judging from the favorable serologic results obtained in the positive cases by further routine antisyphilitic treatment, the percentage of positive results would be materially reduced if punctures were delayed until after four or more courses of treatment were given. The value of intensive routine treatment as a prophylaxis against neurosyphilis is thus fully illustrated.

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[2] A word of explanation regarding our diagnostic nomenclature is perhaps necessary. All terms are self explanatory except "syphilis Wassermann" and "syphilis latent." In the former we include those cases whose only physical manifestation of the disease is a positive Wassermann test in the blood (excepting only general glandular enlargement). In the latter group fall those cases in which no manifestation can be demonstrated and in which the blood Wassermann test is negative, a diagnosis of syphilis being permissible on the basis of personal or family history. In both groups the division into early and late is an arbitrary one of time: the early cases of less than two years' duration, the late cases of more than two years. In many of the latent cases some treatment had been given, always, however, insufficient, before they reached us.

It is interesting to note, parenthetically, that of twenty-one patients with late hereditary syphilis (all were over 10 years of age, most of them adults) only two, or 9.5 per cent., show abnormal spinal fluids. This is in marked contrast to the results obtained [3] in younger patients, about one third of whom show clinical or serologic evidence of neurosyphilis. The obvious explanation appears to be that congenital neurosyphilis claims its victims early, and that comparatively few of them reach adult life.

If the theory of the genesis of neurosyphilis is correct, that invasion of the nervous tissue usually takes place at the first period of generalization of the disease, it should be true that if examination of the fluid after this period yields negative results, later repeated punctures should also be negative, provided that in the interim no fresh generalization has occurred. Such a generalization might be detectable by recurrent secondary lesions or a recurrent positive Wassermann reaction in the blood. In more than fifty of these negative cases in which the spinal fluid has been reexamined, the second and later tests have all been negative with the exception of two. In one of these a second generalization, manifested by a recurrent secondary rash, had occurred during a lapse in treatment; in the other, the original lesion was a gummatous periostitis of the inner cranial table, and meningeal involvement apparently occurred by direct extension. This question is not yet settled, however, and further study is greatly needed.

The racial difference in asymptomatic neurosyphilis is well brought out by the following figures: Of 377 white patients, sixty, or 15.9 per cent., had abnormal spinal fluids. Of 265 colored patients, only twenty-two, or 8.3 per cent., showed serologic abnormalities. Thus, asymptomatic neurosyphilis is approximately twice as frequent in the white as in the colored race. This is in accord with the figures given by Zimmermann [4] from this clinic for paresis, tabes and cerebrospinal syphilis, which are much more common in white patients. The basis for this racial immunity from neurosyphilis is not clear.

An analysis of the positive results obtained in this study showed that in many cases there were minor symptoms or signs of value in predicting the occurrence of positive spinal fluid findings. These signs may be divided into three groups: (1) a persistently positive blood Wassermann reaction; (2) minor pupillary abnormalities without other neurologic signs, and (3) certain symptoms of which the patient complained, namely, headache, nervousness, lassitude and "rheumatism," or vague generalized neuralgic pains. The material was reviewed from this standpoint, with results of considerable interest, as may be seen in Table 2.

In the first group, with persistently positive Wassermann reactions, are included all cases of early primary or secondary syphilis in which a negative Wassermann reaction was not obtained at the end of the first course of six doses of arsphenamin (in our experience, a negative test can be obtained in at least 90 per cent. of such cases), and those cases of late syphilis of more than a year's duration (excluding hereditary syphilis) in which the Wassermann reaction was still positive at the end of two or more courses of arsphenamin, with periods of mercury by inunction after each course. Of fifty-two such cases the spinal fluid was outspokenly positive in twelve and doubtful in two, an incidence of 26.9 per cent. of abnormalities. These figures agree closely with those of Stokes and Busman,[5] who found 30 per cent. of seventy Wassermann-fast cases to show clinical or serologic evidence of neurosyphilis. In none of my cases could any clinical evidence of neurosyphilis be detected.

TABLE 2.—MINOR SYMPTOMS POINTING TO POSITIVE SPINAL FLUID FINDINGS

		Cerebrospinal Fluid			
Reason for Puncture	Total Cases	Positive	Doubtful	Negative	Percentage Abnormal
1. Persistently positive blood Wassermann	52	12	2	38	26.9
2. Minor pupillary abnormalities	54	9	4	41	24.1
3. Symptoms: headache, lassitude, rheumatism, nervousness	67	19	3	45	32.7
Total of Groups 1-3	173	40	9	124	28.3
4. Routine only	469	20	13	436	7.03

The question of the relation of pupillary abnormalities to neurosyphilis has always been one of interest. In this series only slight changes, consisting in the main of myosis, mydriasis, irregularities not due to old iritis, slight anisocoria, or a sluggish reaction to light of one or both pupils, have been included. All cases showing any other neurologic signs, such as reflex disturbances or tremor, have been discarded. Such slight pupillary abnormalities have been found in our own clinic and in others in all stages of syphilis, but are much more common late in the disease. There were nine frankly positive and four doubtful spinal fluid examinations in fifty-four such cases, an incidence of 24.1 per cent.

The most striking group, however, comprises those cases in which the symptoms of headache, nervousness, lassitude or "rheumatism" were complained of. Often these complaints, especially the latter three, were persistent in spite of treatment. The patients with headache, on the other hand, were often brought to the clinic by their complaint, which was much ameliorated or entirely dissipated by the treatment given before spinal puncture. Needless to say, in this group of cases as in the others, any patient showing demonstrable neurologic abnormalities was rigorously excluded. There were sixty-seven cases with such complaints, in nineteen of which positive, in three doubtful, results were obtained in the cerebrospinal fluid, an incidence of 32.7 per cent.

If these three groups of cases are considered as a whole, we find that of the total 173 patients showing these minor signs, the spinal fluid was positive in forty and doubtful in nine, an abnormality incidence of 28.3 per cent. Furthermore, if these groups are subtracted from the total number, leaving 469 cases in which puncture was performed solely as a routine, since absolutely no sign or symptom pointing to the central nervous system could be detected, only 7.03 per cent. of the cases showed serologic abnormalities in the fluid (twenty positive, thirteen doubtful).

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[3] Jeans, P. C.: Cerebrospinal Involvement in Hereditary Syphilis, Am. J. Dis. Child. **18**: 173 (Sept.) 1919.

[4] Zimmermann, E. L.: A Racial Study of Syphilis in Whites and Negroes, to be published.

[5] Stokes, J. H., and Busman, G. J.: A Clinical Study of Wassermann Fast Syphilis, with Special Reference to Prognosis and Treatment, Am. J. M. Sc. **140**: 658 (Nov.) 1920.

This indicates that asymptomatic neurosyphilis is usually asymptomatic only so far as concerns the grosser and more obvious neurologic changes. As definite minor diagnostic aids must be regarded a persistently positive blood Wassermann reaction, slight pupillary abnormalities, and the vague symptoms enumerated above. In the absence of any one of these points, the probability of the existence of neurosyphilis in well treated cases is small—in this series, seven cases per hundred.

No attempt has been made to predict the type of clinical neurosyphilis which these patients may develop. It is probably true that some of them, at least, remain clinically well in spite of the spinal fluid changes. In the large majority of such cases, in which the spinal fluid findings constitute the only evidence of central nervous system damage, extended and intensive antisyphilitic treatment, often without the aid of intraspinal treatment, has been successful in reducing the blood and spinal fluid serology to normal and keeping it so. In a few cases it has been necessary to employ intraspinal treatment. Only one of the patients included in this series has so far developed clinical manifestations of neurosyphilis, in this instance general paresis.

The incidence of clinical neurosyphilis in the Syphilis Clinic of the Johns Hopkins Hospital is, for the last three years, about 8 per cent. This includes paresis, tabes, cerebral vascular insults, meningeal syphilis, cranial nerve palsies, etc. If to this quota is added the larger class of asymptomatic cases, as developed in this paper, it is apparent that more than 20 per cent. of all our cases are, or lacking adequate treatment are probably destined to become, outspokenly neurosyphilitic. When this stage of the disease is reached, clinical relief is often difficult, cure is frequently impossible, and the unfortunate patient becomes a charge on society.

The inference is so plain that it seems hardly necessary to stress it again. Routine examination of the spinal fluid is an absolute essential to the intelligent treatment of syphilis. It should be carried out preferably after some treatment has been administered, rather than beforehand, because delay in starting treatment is often unjustifiable, and because more definite information regarding the graver abnormalities is then available. Spinal puncture should be repeated at least once before discharge, preferably more often. If this plan is universally adopted by all syphilologists, the treatment of neurosyphilis may be begun in the very incipience of syphilis itself, when favorable results may be more easily attained than after the appearance of somatic or psychic alterations in the nervous system.

SUMMARY

1. The cerebrospinal fluid of 642 syphilitic patients in all stages of the disease, but without demonstrable physical evidence of neurosyphilis of any type, has been examined after the administration of from two to six months of antisyphilitic treatment.

2. Of thirty-four patients with primary syphilis in whom treatment was begun before the appearance of secondary symptoms, only one (2.9 per cent.) showed an abnormal spinal fluid.

3. After the appearance of secondary symptoms, the incidence of abnormal spinal fluid findings was about the same (from 12 to 15 per cent.), no matter how long the disease had existed, or by what lesions it was apparent.

4. Only 12.7 per cent. of these 642 patients showed spinal fluid abnormalities, showing that the amount of treatment administered had been successful in clearing up at least half of the early changes noted by other workers in untreated cases.

5. Asymptomatic neurosyphilis is approximately twice as frequent in white as in colored patients.

6. As minor signs of value in predicting the probability of neurosyphilis are a persistently positive blood Wassermann reaction after treatment, slight pupillary abnormalities, and certain complaints of the patient, namely, headache, nervousness, lassitude and generalized neuralgic pains. Of 173 patients who showed such signs, the spinal fluid was abnormal in forty-nine, or 28.3 per cent. On the other hand, of 469 patients in whom neither these nor other more serious neurologic damage was demonstrable, only thirty-three, or 7.03 per cent., showed abnormal spinal fluids.

7. In general, the serologic evidence of asymptomatic neurosyphilis can be caused to disappear by prolonged, intensive, routine antisyphilitic treatment.

8. In the Syphilis Department of the Johns Hopkins Hospital, more than 20 per cent. of all patients are clinically, or because of the serologic evidence, potentially outspoken neurosyphilitics.

CONCLUSION

Study of the spinal fluid should be carried out as a routine in all syphilitic patients, as an essential to intelligent treatment. Spinal puncture should be performed after the first or second course of arsphenamin, and should be repeated at least once before the patient is discharged as presumably cured.

If this is done in every case of syphilis, and treatment intelligently administered according to the results obtained, the incidence of clinical neurosyphilis may be reduced to an absolute minimum.

316 Professional Building.

THE INTRAVENOUS USE OF CORPUS LUTEUM EXTRACT IN NAUSEA OF PREGNANCY

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In 1915 I first began the use of corpus luteum extract by hypodermic injection, in the treatment of the nausea of pregnancy. Its use was based on the theory that every woman, during the period of sexual activity, is constantly absorbing corpus luteum. Before the corpus luteum of one menstruation is entirely disposed of, another appears to take its place. With the onset of pregnancy, this absorption ceases. The corpus luteum of pregnancy constantly increases in size, until it reaches its acme about the third month. From this time on, it is gradually absorbed. The nausea of pregnancy, beginning during the period of nonabsorption, disappears about the time that the corpus luteum begins to decrease in size. Is it not reasonable to assume that this is not coincidence, but cause and effect, and that the corpus luteum plays an important part in relation to the nausea?

The results of this method of administration have already been given.[1] Preparations of corpus luteum available are: (1) a compressed tablet, containing about 5 grains of the dried substance; (2) powdered extract, and (3) ampules for hypodermic administration, containing 0.2 gm. of the dried substance in solution in 1 c.c. of physiologic sodium chlorid solution.

METHOD OF ADMINISTRATION

Corpus luteum may be administered (1) by mouth; (2) by subcutaneous injection; (3) by deep intramuscular injection, or (4) by intravenous injection.

1. Administration by mouth, using either the tablets or the powder, leaves much to be desired. The substance is affected by oxidation on exposure to the air; it is radically changed by the process of digestion, and often causes considerable nausea and other gastric disturbance. The good results obtained are far less striking than by hypodermic injection.

2. Subcutaneous injection is mentioned only to be condemned. Any animal extract given superficially under the skin causes considerable pain, local reaction and often local suppuration.

3. Deep intramuscular injection is much more desirable. The choice of location is the deltoid muscle, and the injection is given deeply into the muscle. The needle should be perpendicular to the skin surface, and not inclined at an angle, as is usual in ordinary injections. Whatever site is chosen, the needle must be long enough to penetrate through the superficial fat, into the muscle. This method has given about 80 per cent. of successful results, but has the slight objection that there is often some muscular stiffness and slight local reaction, but nothing of any moment. In several thousand injections we have not yet seen a case of suppuration.

4. Intravenous injection should be, and I believe is, the ideal method of administration. At first there was some doubt as to the sterility of the solution in ampules, but very extensive experience with the intramuscular injection, without a single case of suppuration, finally gave us confidence enough to warrant the trial of intravenous injection. For the last two years my assistants and myself have used no other method. Our experience includes ambulatory dispensary and office patients and bedridden patients in the hospital and in private homes.

Reasons for Intravenous Injection.—1. The material used is carried directly into the circulation, giving the most rapid absorption possible. 2. It is possible and advisable to use a considerably larger dose (two or three ampules) than is possible with the intramuscular injection, in which more than 1 c.c. causes considerable local reaction. 3. Each ampule contains only 0.2 gm. of the extract, and in this way the necessary total quantity can be introduced more easily and quickly. 4. There is no local reaction or discomfort of any kind after the injection. 5. Intravenous administration often controls the vomiting promptly, in cases in which intramuscular use has failed.

Method of Administration.—This does not differ materially from the ordinary intravenous injection:

1. A glass hypodermic syringe of 3 c.c. capacity is prepared by boiling, and cooled. Alcohol is not desirable as an antiseptic for the syringe or needle.
2. The ampules to be used are washed and rubbed thoroughly with an alcohol pad.
3. The ampules are filed at the neck and broken in sterile gauze, and the contents drawn into the syringe.
4. A tourniquet is placed on the patient's arm, above the elbow.
5. When the veins become prominent, at the bend of the elbow, a suitable one is chosen and the skin over it is painted with 7 per cent. tincture of iodin.
6. The needle, attached to the filled syringe, is passed through the skin into the vein.
7. As a test, the plunger of the syringe is pulled slightly back, and if the needle is in the vein, blood will appear in the syringe.
8. The tourniquet is loosened, and the contents of the syringe slowly injected, taking about fifteen seconds to each cubic centemeter.
9. When the syringe is empty, the needle is withdrawn. The small puncture requires no dressing.
10. The same vein can be used repeatedly.
11. In stout women it is often difficult to locate any vein at the elbow. In such cases, the veins in the back of the hand are usually the most accessible.

Dosage.—This will vary, depending on the type of case under treatment. Ambulatory patients who can come to the office or dispensary usually receive 2 c. c. every other day. In more severe cases, when office visits would be a hardship, the patients receive 2 c. c. daily, given at home. In pernicious cases 2 c. c. is given twice daily, and the patients are of course confined to bed. Experience has shown that every patient should receive at least 12 c. c. entirely irrespective of the fact that they respond quickly and favorably to a smaller number. If fewer are used, relapses are common, and are more difficult of control than the original attack.

Reactions. — Anaphylactic reactions need not be feared. In many hundred injections, all intravenous, in the hands of my assistants, Drs. Mazer and Wachs, and myself, there was one single case in which a reaction occurred, and that case was somewhat questionable.

The patient was a very neurotic dispensary patient. Shortly after the injection she began to vomit excessively; a similar attack, however, had occurred also before any injection had been given. As a precautionary measure she was kept in the hospital overnight, but no further untoward symptoms were observed.[1] It is, of course, possible that an occasional protein-sensitive individual might show a measure of reaction after injections; but this would occur with any serum, and the possibility is negligible.

One word of caution is needed, however. The presence of a goiter in early pregnancy absolutely contraindicates the administration of corpus luteum extract, either intravenously or intramuscularly, for the control of nausea. In our experience, every such patient has been made much worse by this treatment.

In not a single case has there been any rise of temperature or any evidence of infection following the intravenous use of the extract. We have learned to have confidence in its sterility and now employ it in no other way. The results are more gratifying, more prompt and more lasting than by any other method, and I am confident that the extended experience of the profession will bear out these statements.

1823 Pine Street.

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[1] Hirst, J. C.: Corpus Luteum Extract in the Nausea of Pregnancy, Preliminary Report, J. A. M. A. **66**: 645 (Feb. 26) 1916; The Control of the Nausea and Vomiting of Pregnancy by Intramuscular Injections of Corpus Luteum Extract, ibid. **67**: 1848 (Dec. 16) 1916.

[1] Since this article was written there has been one other case of moderate reaction, evidencing slight shock and vaginal bleeding. This patient aborted within twenty-four hours, and is the only one in our records in whom abortion seemed to have resulted from the injection.

THE AMBULATORY PATIENT WITH CARDIAC DISEASE

WITH ESPECIAL REFERENCE TO DIGITALIS THERAPY *

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The ambulatory patient with cardiac disease is a more difficult subject for study than the hospitalized patient with cardiac disease. In the hospitalized case, one has practically all measures always under control, as the cardiac patient is merely the subject of treatment and is not actively engaged in carrying out any part of it. In the ambulatory case, we are confronted with a different problem: the patient is not merely the subject of treatment but carries out his own treatment as well.

The first obstacle that we encounter is the patients' lack of intelligence and their lack of appreciation of the smaller details, so vital for successful treatment; but in a large number of cases we have been able to educate them to this appreciation. Another factor is that we see our patient only once a week at the shortest interval, which is a drawback, especially in our Type 3 cases. On the other hand, we often have some difficulty in getting the patient to return at these weekly intervals because after a few visits he is so improved that he does not feel or understand the necessity of returning as often as requested, reporting only when he again has symptoms.

Medication is the source of another hardship, in that we are not able at present to obtain a standardized preparation of digitalis from the dispensary, nor do we obtain the same preparation throughout the year. Again, we have no method whereby the patient may accurately measure his dose of digitalis, nor can we know whether the patient is taking his medicine regularly. While all these factors tend to diminish the accuracy of any study of these cases, it must be borne in mind that this is also the condition which exists when the cardiac patient is under treatment by the average general practitioner. We feel, therefore, that the study of a group of patients under this type of treatment allows us to make deductions, or possibly elaborate principles, which may be of value.

No...... Name..................... Date........
Age.... Nativity........... Occupation............
Date of first visit....................................
Diagnosis ....

Date	Weight	Patient's Statement of Condition	Precordial Distress	Edema	Dyspnea	Cyanosis	Heart Rate	Heart Arrhythmia	Pulse Deficit	Systolic Diastolic } Blood Pressure	Lung Signs (râles)	Functional Classif.	Taxing Features. Changes in Occupation	Time Lost on Account of Heart condition (a) Days at Home (b) Days in Hospital	Medication	Remarks

Fig. 1.—Data covered by heading of therapy chart used at the cardiac clinic.

CLINICAL ROUTINE

Before entering on the discussion of treatment, it might be well to relate the method or routine we follow in the clinic from the standpoint of therapy. After the history, physical examination and diagnosis have been completed by the men assigned to this work, the patient is referred to me for treatment. My first interest in each new patient is his functional capacity, as classified by the Association of Cardiac Clinics:

Type 1. Patients having heart disease, but who have never been decompensated.

Type 2. Patients having heart disease who have been decompensated but who are now compensated.

Type 3. Patients having heart disease and who are now decompensated.

Type 4. Cases of possible heart disease.

Type 5. Cases of potential heart disease.

From this classification, from the other data on his chart and from personal observation, I determine whether or not the patient requires digitalis. If digitalis is required, it is ordered, with all the necessary explanations as to measuring the dose, symptoms of toxicity, and so forth, and also with any other directions as to treatment, such as rest and diet. The patient is then requested to return weekly at first and at longer intervals later, depending on his condition.

At each visit to the clinic, the patient is put through a definite routine, that is, his weight, general condition, the presence of edema, dyspnea and cyanosis, the heart rate and regularity, pulse deficit, and blood pressure, are all observed and charted, as well as any change in his classification of functional capacity (Fig. 1). It is on these observations that the effectiveness of the medication is judged. The next step is the determination for each case of the dose necessary to produce a "digitalis equilibrium," that is, the minimum dose which will keep the patient digitalized and compensated under the existing conditions of work. The "digitalis equilibrium" having been established, the patient is allowed longer intervals between visits, but in no case requiring digitalis do we grant intervals longer than four weeks. In the nondigitalized cases, we allow intervals up to three months. The long intervals may appear hazardous, but during the early part of the treatment the patient is thoroughly instructed in his own case, so that he is capable of recognizing the first appearance of any symptoms of decompensation (usually dyspnea) or of the toxic action of digitalis (nausea, vomiting, headache, etc.). At the appearance of any symptoms he is instructed to return to the clinic on the next clinic night, or if

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* From the Cardiac Clinic, Bellevue Hospital Social Sevice.

the interval is too long, to communicate with the Social Service.

One of the features of our routine is our check of a patient's attendance. At each visit he is given a slip containing his name and the date on which he is to return (Fig. 2). The slips are bound in book form, with blanks for carbon duplicates, from which the Social Service makes its files for attendance. If the patient fails to return on the appointed date, he is first notified by a postal, and then if not heard from, by a personal call by a member of the Social Service.

SOCIAL SERVICE CARDIAC CLINIC

BELLEVUE HOSPITAL

M.. No..........
You are requested to return to this Clinic on
Friday, ... at 8 p. m.

Fig. 2.—Specimen of one of the five slips that appear on each page of book of "return slips" used in the clinic.

The following report is based on an analysis of the first 250 cases at the clinic, the period of observation ranging from three to twelve months.

The report deals with patients, the majority of whom are well advanced in years, and the conditions we meet may not obtain in a clinic in which the average age is younger, and naturally would differ from those of a children's clinic.

Of the total cases analyzed, only 46.5 per cent. of the patients required digitalis continuously, while the remaining 53.5 per cent. have never received any digitalis, or in some cases only a small initial treatment until occupational or other readjustments could take place.

RESULTS OF TREATMENT

For convenience, we have divided the series of cases into the nondigitalized cases, the digitalized cases with improvement, and the digitalized cases which are not improved. As the index of improvement, we took the lessening or disappearance of dyspnea and pulse deficit as the most important signs, with the amelioration of edema, cyanosis and lung signs as next in importance. However, in our improved cases all the above signs have entirely disappeared. In the cases which are recorded as not improved under digitalis medication, we may question whether there was not some improvement from the standpoint that the patients would have been worse without the digitalis. We are, however, not taking this point of view into consideration, and, in fact, several of these patients that were sent to the hospital on account of the lack of improvement died after a short stay, even though they were thoroughly digitalized. We feel rather timorous in stopping digitalis in these cases in an attempt to investigate this point; in fact, we are not justified in doing so.

Age is the first factor that stands out prominently in our series in reference to digitalis medication. In our nondigitalized series, only 28 per cent. of the patients are more than 40 years of age. In our digitalized cases with improvement, this rises to 45 per cent. and in our nonimproved cases it climbs to 54 per cent. The apparent reason for the increased number of cases requiring digitalis as the age advances is that the myocardium naturally tends to become less effective with advancing age and, in addition, has been called on for greater effort for probably a longer time on account of the organic cardiac disease present. This must tend to lessen its reserve. As time passes for the nondigitalized patients, it is safe to anticipate that they also will require digitalis, depending on the amount of abuse to which the heart is subjected.

The most prevalent type of disease we have to deal with is the double mitral, namely, mitral stenosis and mitral regurgitation. The etiologic factor in most of these cases is one of the rheumatic triad. This class of disease forms 28 per cent. of all the cases in our nondigitalized series, 45 per cent. in our digitalized with improvement series and 54 per cent. in the unimproved series. However, we do not feel that this has any bearing on the digitalis effect.

In all but two of our nondigitalized cases, we find that the rhythm has been regular without the appearance of a pulse deficit. On the other hand, in our series that were digitalized with improvement, we find 66 per cent. are cases of auricular fibrillation, having had large pulse deficits which disappeared on proper digitalization. In our nonimproved cases, we have 73 per cent. of fibrillations in which there was very slight or no improvement in heart rate, pulse deficit or other symptoms. These patients were returned to the hospital for two reasons: (1) that the digitalis could be pushed to the physiologic limit with the least risk, and (2) that they would get proper rest. None of these patients so readmitted has done well and as a proof of terminal fibrillation, 57 per cent. of the patients with fibrillations have died. The etiologic factor was the rheumatic triad.

The two patients with fibrillations in our nondigitalized series had a slow pulse rate. There is probably a decreased conduction in these cases, possibly in the nature of a sclerosis in the bundle.

Our statistics regarding the work the patients were able to perform are interesting. In our nondigitalized series, 95 per cent. of the patients work. This is in reality 100 per cent., inasmuch as the 5 per cent. not working were idle for reasons other than physical disability. Of the patients working, 11 per cent. were able to do heavy physical work, 30 per cent. were able to do work requiring a moderate expenditure of physical energy, and 58 per cent. did light work. In our series that were digitalized with improvement, 85 per cent. were working. The 15 per cent. not working came under two classes: first, those unable to readjust themselves to lighter work, and second, those who were not able to do any type of work. Of those working, 22 per cent. did heavy work, 22 per cent. did moderate work and 56 per cent. did light work. In our nonimproved series only 18 per cent. worked, all doing light work. It might be argued that a greater number of our nondigitalized patients would have been able to do heavy or moderately heavy work if they were digitalized, but this does not appear feasible, as we would be putting extra burdens on the heart by the heavy work. Our aim is to obtain, for each cardiac patient, work requiring the least expenditure of physical energy, thereby saving as much as possible of the cardiac reserve.

METHOD OF TREATMENT

Coming now to our method of treatment, we are not at variance with the recognized standards of digitalis medication, but some of the more drastic measures are not applicable to the ambulatory cardiac patient, or if used must be modified. In ordering digitalis, we do not allow the patient to use a dropper in measuring his dose but insist on his dropping the drug from the bottle which is supplied. The lips of these bottles are fairly uniform and deliver about three drops to the minim. We considered at one time making up digitalis mixtures containing definite amounts of digitalis to the teaspoonful, but found that this did not possess any advantage over the drop method, in that ordinary teaspoons vary as much as 25 per cent. in capacity. Another fact is that different patients have different concepts of a teaspoonful; some fill it to practically overflowing while others get less than the normal capacity. Our ultimate aim is to obtain a standardized tincture and droppers graduated in minims with which the patient can accurately measure the amount ordered.

With each new patient requiring digitalis and not recently taking it, our first attempt was thoroughly to digitalize him. We started with 30 drops, three times a day, and varied this dose later as the requirements arose. When full digitalization occurred, we began to decrease the dosage until he again showed the early signs of decompensation, when the dose was again increased. After several attempts with this procedure, we were finally able to obtain a minimum dose which would keep him digitalized, or, as it may be called, in "digitalis equilibrium." This dosage when accurately determined does not produce overdigitalization, and the patient can be kept under medication indefinitely.

For convenience, we have translated our drop dose system into minims for easier comparison. In studying the cases of the digitalis with improvement series, we find that 71 per cent. of the patients received between 20 and 30 minims per day; the remaining 29 per cent. were divided equally above and below this dosage. While our method did not lend itself to any great degree of accuracy, the figures compare favorably with those of Pardee of 22 minims per day. We were not able to work out any relationship between the amount of digitalis and the body weight, nor could we find any relationship between the dose and the type of work. Also, in our series, the etiologic factor and the anatomic diagnosis do not affect the digitalis dosage. This we believe is now generally accepted.

We have further subdivided our patients that were digitalized with improvement into the regular and auricular fibrillation types, but we were again unable to find any differences.

In our patients that were not benefited by digitalis we were not able to establish a "digitalis equilibrium" at the time, as we referred them to the hospital, since we were unable, even with increased dosage, to obtain any apparent benefit. We set our upper limit of digitalis at 45 minims per day for the ambulatory patient with cardiac disease, and if no beginning improvement followed the dosage after one week's trial we felt that he was a hospital case. We realize that this is conservative, but we feel that we must be conservative as our patients are not under constant observation and are not able to see us excepting at clinic nights. We have never attempted any of the rapid digitalization methods at the clinic as we feel that patients requiring such medication should be in the hospital.

Overdigitalization is an infrequent event at the clinic, there having been but seven occurrences in the last twelve months, three of these showing only coupled beats and the remaining four having had nausea, vomiting, headache, etc. We are frequently confronted with the symptom of nausea alone, even after the first dose of digitalis, but we do not feel that this is a reliable symptom of overdigitalization without other evidences, as these patients can continue taking large doses without the other evidences of overdigitalization appearing. We have found that if the patient takes a glass of water after each dose this symptom does not occur.

We are not in agreement with the old idea that digitalis administration should be stopped at regular intervals, if the dosage is properly determined for each individual. When the "digitalis equilibrium" has been established the patient can continue taking this dosage over a long period of time, as the figures in the accompanying tabulation will show.

None of these patients has shown any signs of overdigitalization.

EFFECT OF CONTINUED DOSAGE OF DIGITALIS

Length of Time Digitalis Has Been Taken Continuously Months	Daily Dose Minims
13	20
12	35
12	20
12	20
10	23
10	30
10	10
10	20
9	30
8	23
7	20
7	20
6	20

Since the organization of our clinic we have seventeen recorded deaths which may be subdivided thus: patients digitalized but not benefited, 7; patients digitalized and improved, died from sudden exertion, 2; patients that died of intercurrent disease, 3; patients listed as not attending, 2, and patients sent to the hospital after the first visit, 3.

It will be seen from this classification that only nine patients had died from cardiac failure while still being actively treated at the clinic. Seven of the patients proved to have been cases of terminal fibrillation, since they were properly and actively digitalized in the hospital; the remaining two were improved and compensated but died from sudden overexertion. These facts would tend to show that the life of a cardiac patient can be prolonged, in comfort, when he is properly and continuously digitalized.

One not infrequently meets a physician who believes that the giving of digitalis in more than very small doses to the ambulatory cardiac patient is attended with the danger of sudden death. We doubt whether any well informed physician would agree with this. Of our patients who died while under digitalis medication, we know the cause of death in each instance and in none of them could the death be attributed to digitalis. In fact, our hospital experience shows that many patients are forced to enter the hospital in a dangerous condition because of insufficient digitalis medication.

CONCLUSIONS

In conclusion, certain principles relative to the ambulatory cardiac patient and his requirements for medication may be emphasized. The first essential is an accurate diagnosis. By this is meant an exhaustive study of the condition of the myocardium and its functional capacity and not merely a study of the type of valvular murmur present. The presence of a valvular lesion does not in itself call for digitalis medication, nor are etiology, the heart rhythm, and type of work determining factors. As a matter of fact, the functional capacity of the myocardium, alone, is the criterion for medication, because the syndrome of decompensation appears only when the myocardium is unable to function properly. Since the myocardium improves or deteriorates as time goes on, this diagnosis is a shifting one. In one sense, therefore, a new diagnosis from this standpoint must be made at each visit of the patient.

After having established the diagnosis or functional capacity of the myocardium, the next step is to outline a definite course of treatment with special reference as to whether or not digitalis is required. In cases in which the myocardium possesses its full functional capacity and the patient is able to perform his daily routine without the appearance of symptoms, digitalis is not indicated. As has been stated heretofore, more than half of all our patients did not require digitalis. On the other hand, if symptoms of decompensation are present and the case requires digitalis, our first aim is thoroughly to digitalize the patient and then definitely to establish his "digitalis equilibrium," which dosage he can take indefinitely without the fear of overdigitalization. As has been pointed out in this connection, a source of danger is a tendency to underdigitalize rather than overdigitalize. One must bear in mind further that the dosage of digitalis must be fixed for each individual, and this not by an arbitrary number of drops but by a careful study of the amount necessary to produce the desired effect.

It should be clearly understood that a certain number of patients with decompensation fail to be benefited by digitalis. These cases must be considered as terminal ones, and the explanation of the lack of benefit appears to be that the functional capacity of the myocardium is so low that it has no reserve left with which to respond to the digitalis medication.

Finally, with regard to readjustment to work. As in other features of treatment, each individual must be considered in a class by himself. There are two points which stand out clearly: First, so-called heavy work has been established by long continued custom as being very nearly the maximum work which the average individual can do with benefit to himself and to the community in general. It is in harmony with this that one finds the daily hours set aside for work and for rest so definitely arranged for. Secondly, since the cardiac patient, because of his deficiency, is not up to the average normal individual physically, it follows that what is nearly maximum work for the latter is more than normal for the cardiac patient. Hence no person with cardiac disease should do what is usually classed as heavy work. But from the standpoint of the cardiac patient, there are great variations in capacity for work and hence great variations in what might be considered heavy work for a given group of cases. The result aimed at is to find work which is not heavy for each patient and to keep him well within his functional and physical capacity.

338 East Twenty-Sixth Street.

Yellow Fever in Cuba.—In a recent issue of *Vida Nueva* Dr. C. M. Trelles reviews the prevalence of yellow fever in Cuba during the last century. He shows that from 1854 to 1899 the disease caused at least over 74,000 recorded deaths, which if properly reported would probably exceed 99,000. Yellow fever was still in full sway when the Americans took hold of Cuba in 1899 and began to decrease only in 1901 after General Wood began enforcing antimosquito measures. Dr. Trelles estimates that if Finlay's mosquito causation theory of yellow fever had been applied when first advanced in 1881, at least 35,000 deaths would have been prevented. He quotes with approval General Wood's saying that the eradication of yellow fever alone would have justified the American war on Spain.

A CASE OF EPIDEMIC ENCEPHALITIS WITH UNUSUAL FEATURES

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AND

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During this formative period of our clinical knowledge concerning epidemic encephalitis, unusual cases should be described. The case reported here is selected from a group of twenty-five because it presents a number of rather atypical and interesting features.

REPORT OF CASE [1]

History.—A man, aged 38, German-Polish, a printer, whose family history was strikingly free of constitutional or nervous and mental diseases, was able to give us the following account of his prehospital symptoms: March 7, 1920, he contracted a "cold," coughed a great deal, and had a severe frontal headache. The same evening there was a chill, but no fever. Four days later he began to feel drowsy, lost his energy, and "just wanted to keep quiet." He could not open his eyes, and the lids "felt very heavy." Vision was impaired, but there was no diplopia. The dull frontal headache became constant, but there was no other pain. On admission, March 14, the patient's chief and only complaint was extreme drowsiness. He answered questions rationally, but very slowly, and there was a marked tendency to sleep.

Physical Examination.—The patient was large and well nourished. There was a slight ironing out of the left side of the face. There was bilateral ptosis, the eyes looking downward and forward through narrow palpebral fissures. The left pupil was larger than the right, but both were contracted and irregular, and reacted sluggishly to light. There was a tremor about the lips. The facial expression movements did not disclose any assymetry or difficulty. The tongue protruded in the midline. There was no cervical rigidity, though there was a suggestion of a Kernig's sign. The reflexes were normal with the exception of the right patellar, which was much diminished. There was no spasticity, ankle clonus or Babinski reflex. The opthalmologist's first examination was negative; the second discovered an almost complete ophthalmoplegia externa. There was no diplopia.

Clinical Course.—A few days after admission, constant and persistent twitching of the facial muscles developed. It is still present. The next signs that appeared were marked coarse tremors of the fingers, hands and legs. Cervical rigidity and a distinct bilateral Kernig's sign soon followed. Mentally the patient was dull and stuporous, with fairly frequent periods of active hallucinatory delirium. The voice was whispering, and the breathing stertorous. Lumbar puncture, which was resorted to at frequent intervals, always produced temporary improvement. There was slight fever.

About the middle of May the patient became clear mentally. His temperature was normal and he was stronger. There was spasticity, bilateral toe drop and absent patellar reflexes. Continuous, but gradual, improvement followed. In September the patient walked with assistance, and in October unsupported.

In November there was this clinical picture: The voice was slow and monotonous. Motor movements were awkward, jerky and dysmetric. The left corner of the mouth was lower than the right. There was constant twitching of the muscles just above the left eye, below the right malar bone, and at the chin and the left corner of the mouth, from which saliva dribbled. The twitching was much augmented by various facial expression movements. Frowning was impossible. There was no ptosis, nystagmus or strabismus. The pupils were irregular and unequal, the left being larger. They reacted promptly to light, but imperfectly to accommodation. The tongue was protruded in the midline and was grossly tremulous. The arms and legs were somewhat spastic, but there was no Kernig's sign or cervical rigidity. There was bilateral foot drop. The biceps, patellar, Achilles, plantar, abdominal and right cremasteric reflexes were greatly exaggerated; the triceps reflex was diminished and the left cremasteric, absent. The outstanding features were the expressionless parkinsonian mask, the "pill-rolling" position of the hands, and the classical muscular catatonia. I have seldom seen the latter symptom more typically presented, even in the catatonic stupor of dementia praecox. The catatonia gradually subsided, and at present paralysis agitans would be diagnosed on the strength of the mask, the speech, the gait and the characteristic tremors.

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[1] From the service of Dr. G. W. Norris.

Summary of Laboratory Examinations.—The serum and fluid were negative for the Wassermann test. Leukocytes in the blood averaged about 14,000. The urine showed albumin. About twenty-five spinal fluid examinations revealed a pleocytosis, ranging from 20 to 320 cells, usually about 55 or 60 per cent. being neutrophils; there was a trace of globulin; Fehling's solution was invariably reduced; pressure was variable, and all smears and cultures were negative.

COMMENT

Clinicians recognize at least ten varieties of epidemic encephalitis, namely, (1) poliencephalitic, (2) lethargic, (3) parkinsonian, (4) cataleptic or catatonic, (5) meningitic, (6) cerebral, (7) polyneuritic, (8) myelitic, (9) myoclonic and (10) psychotic. It is evident from experience that the group to which a given case is assigned depends largely on the time in the course of the disease at which the patient is studied. Seldom, however, does one form so definitely succeed another as it did in our patient. At first the picture was an almost uncomplicated lethargy, then the meningitic aspects made their appearance, next the psychotic symptoms were prominent, and finally the catatonic and parkinsonian signs came to the fore; and now, almost a year after the onset, the latter hold the center of the stage. Thus is expressed in clinical terms the multiplicity and disseminated pathology of the disease.

The cell count in the spinal fluid was unusual. Several times it was in excess of 300 cells, from 55 to 60 per cent. being neutrophils. Together with the cervical rigidity, Kernig's sign and general toxicity, this made meningitis appear as a strong probability. However, the otherwise negative fluid findings, the course and the outcome are opposed to such a diagnosis. In fifteen cases [2] of encephalitis, the average cell count was 9, the highest being 24; and in sixty-four cases from the literature, a count of 150 was found only twice. The preponderating cell was the mononuclear leukocyte.

The catatonia exhibited by this and other cases of epidemic encephalitis deserves consideration. This muscular sign which has been observed in toxic and exhaustive states, typhoid and other acute infections, as a postoperative sequel, in renal insufficiency, organic brain disease, abscess and tumor, cerebellar hemiatrophy, etc.,[3] is still too often regarded as peculiar to the province of mental disease and more particularly to dementia praecox. Further, it would seem that its frequency in the field of neurology should be given more weight in favor of its probable organic origin; yet it is most commonly described in terms of a pure functional disturbance. It should be more carefully investigated from clinical, physiologic and chemical standpoints. From the clinical aspect a case of undoubted schizophrenia which is now under observation presents an interesting comparison. The psychosis closely followed a severe attack of influenza. Among the earliest mental (?) features were various subjective eye symptoms which were seemingly without foundation and apparently delusional. At this time, which is two years after the onset, the patient is remarkably emaciated, and shows well defined catatonia and an intermittent strabismus.

4401 Market Street.

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[2] Dunn, A. D., and Heagey, F. W.: Epidemic Encephalitis: Including a Review of One Hundred and Fifteen American Cases, Am. J. M. Sc. **160**: 568 (Oct.) 1920.

[3] Strecker, E. A.: Certain of the Clinical Aspects of "Late Katatonia," Am. J. Insan. **74**: 185 (Oct.) 1917.

LIPOMA OF THE CORPUS ADIPOSUM BUCCAE

REVIEW OF THE LITERATURE AND REPORT OF A CASE

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Lipomas of the corpus adiposum buccae are most unusual. Cerné,[1] in 1881, observed that most writers spoke of hypertrophy of this structure but that none reported cases. According to Lexer,[2] lipomas of the face are infrequent, but when present arise most frequently from the sucking pad. Grosch [3] collected from the literature the reports of 685 lipomas occurring subcutaneously; of these only thirteen were on the face, and apparently not one arose from the structure under consideration. Jacobi,[4] in 1884, reviewed the literature on congenital lipomas exhaustively. In his review no mention is made of the corpus adiposum buccae.

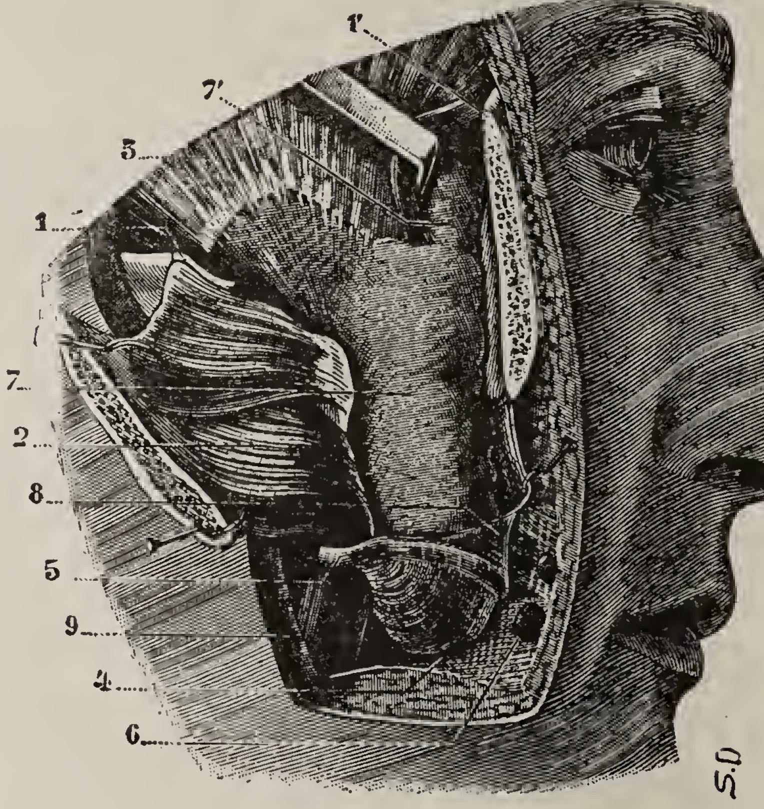

Fig. 153

La boule graisseuse de Bichat, vue en place.

1, 1', arcade zygomatique sciée à ses deux extrémités. — 2, masséter renversé en dehors avec la partie moyenne de l'arcade. — 3, temporal. — 4, buccinateur recouvert de son aponévrose. — 5, canal de Sténon se dégageant du prolongement antérieur de la parotide. — 6, glandes molaires. — 7, boule graisseuse de Bichat se continuant avec 7', la graisse de la région temporale — 8, mince aponévrose recouvrant la boule graisseuse. — 9, coupe de la peau.

Fig. 1.—Corpus adiposum buccae, from Testut and Jacob's Anatomy.

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[1] Cerné, A.: Lipome de la boule graisseuse de Bichat, Bull. Soc. anat., Paris, 1881, p. 333.

[2] Lexer: Lipome, Handbuch der praktischen Chirurgie **1**: 659, 1913.

[3] Grosch, J.: Studien über das Lipom, Deutsch. Ztschr. f. Chir. **26**: 307, 1887.

[4] Jacobi, A.: Congenital Lipomas, Arch. Pediat. **1**: 65, 1884.

Butlin[5] stated that lipomas, occurring anywhere, are unusual in infancy and childhood, and that the majority of them are congenital.

Before proceeding farther, it is well to consider in some detail the anatomy of the corpus adiposum buccae.

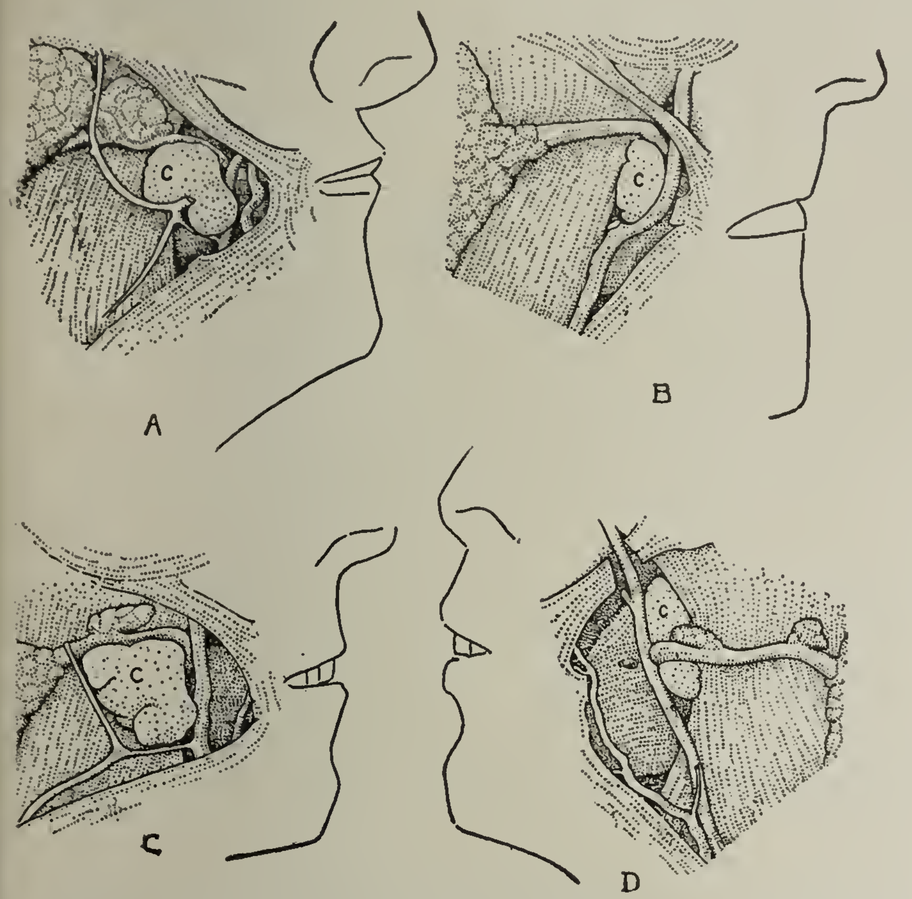

Fig. 2.—Four sketches by Scammon of dissections of the sucking pad in adult cadavers: *c*, corpus adiposum buccae.

Heister is given credit by many writers for being the first to describe it in his "Compendium Anatomicum," published in 1732. It is evident, however, from the reference of Heister[6] to the works of Gedani that the latter had described in 1725 what the former had in mind. Because Heister's description pertained to "conglomerate glands" with ducts opening into the oral cavity, and because of the extreme posterior position of these structures as portrayed by him in Figure 36 in his book, it may well be called in question whether he really was dealing with the corpus adiposum buccae. He may have been describing molar glands. Winslow,[7] in 1753, briefly described the same structures referred to by Heister, agreeing with him in his description. Most writers give Bichat credit for being the first to recognize the fatty nature of the corpus adiposum buccae, the French terming it "la boule graisseuse de Bichat." However, it is quite evident that its fatty nature was known before Bichat[8] referred to it in 1801, for his reference was only incidental to a general discussion on adipose tissue, and was very brief. In 1821, Burns[9] stated that tumors arose from this "bundle of fat." His sketches leave no doubt that he had in mind the corpus adiposum buccae. Gehewe,[10] in 1852, described its gross anatomy and its development as seen by the naked eye. Ranke,[11] in 1884, described it in considerable detail. He, like Gehewe, attributed considerable importance to it as a mechanical aid in sucking. He termed it the "saug polster," or sucking pad. Jonnesco,[12] in Poirier and Charpy's anatomy, gives a brief description of its gross anatomy.

Scammon,[13] in 1919, published an exhaustive article on its development. He described the corpus adiposum buccae, or sucking pad, as "a specialized and sharply circumscribed mass of adipose tissue which lies in the cheek partially wedged between the masseter and buccinator muscles, and covered externally by the superficial fascia of the face and the zygomatic muscle. Posteriorly, it is connected by a stalk with a much larger fat mass, termed by Forster the corpus adiposum malae, which is located between the temporal and the pterygoid muscles, and which possesses a superficial process extending over the outer surface of the temporal muscle beneath the temporal fascia." Jonnesco states that the parotid duct crosses the middle of the corpus adiposum buccae, forming a groove which separates it into two lobes. According to Scammon, the duct may pass either cranial to the body, or may lie in a deep groove on its superficial surface. Scammon adds further that "at birth the sucking pad is a prominent structure of the cheek. In well nourished individuals it is expanded to such a degree that it pushes the buccinator muscle inward toward the oral cavity and forms a prominent elevation laterally on the external surface of the face." Scammon was unable to find evidence of a serous bursa surrounding the corpus adiposum buccae, as observed by Verneuil.[14] He examined forty-two cadavers ranging in age from 20 to 60 years, and found the structure well developed in thirty-four, and in two well developed on one side and practically absent on the other. No relation was observed between the size of the sucking pad and the age of the individual. Its size is not affected, apparently, by extreme emaciation.

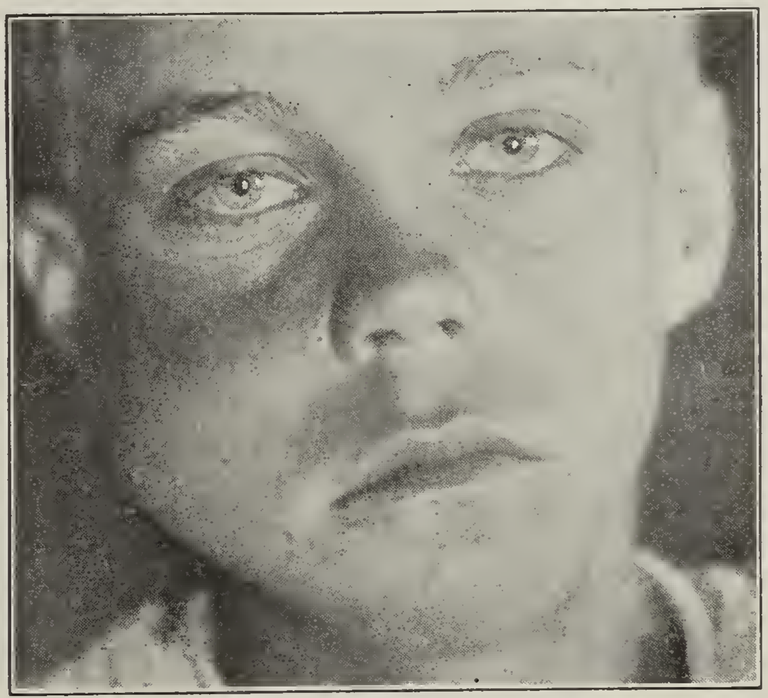

Fig. 3.—Appearance of patient on entering hospital.

It is of interest to note that Shattock[15] found this structure present in an infant chimpanzee and an infant sacred baboon.

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5. Butlin, H. T.: St. Bartholomew's Hosp. Rep. **13**: 179, 1877.
6. Heister, L.: Compendium Anatomicum, 1732, pp. 109, 146.
7. Winslow, J. B.: Expositio anatomica structurae corporis humani, Frankfort and Leipzig, 1753.
8. Bichat, F. M.: Anatomie générale, appliquée a la physiologie et a la médecine, Paris **1**: 106, 1801.
9. Burns, A.: Observations on the Chirurgical Anatomy of the Head and Neck, Edinburgh, 1821, p. 319.
10. Gehewe, W.: De corpusculo quodam adiposo in hominum genis obvio, Diss. Dorpat, 1852 (quoted from Scammon).
11. Ranke, H.: Ein Saugpolster in der menschlichen Backe, Virchows Arch. f. path. Anat. **97**: 527, 1884.
12. Jonnesco, T.: Tube digestif (Poirer et Charpy), Traité d'anatomie humaine, Ed. 2, **4**: 61, 1901.
13. Scammon, R. E.: On the Development and Finer Structure of the Corpus Adiposum Buccae, Anat. Rec. **15**: 267, 1919.
14. Verneuil, M.: Une nouvelle bourse séreuse de la face, Bull. Soc. anat., Paris, 1857, p. 170.
15. Shattock, S. G.: On Normal, Tumor-like Formation of Fat in Man and the Lower Animals, Proc. Roy. Soc. Med. Rept. for Session 1908-1909, Pathology Sec., p. 207.

Figure 1 (reproduced from Figure 153 of Testut and Jacob's[16] Anatomy), and Figure 2 (a reproduction of four sketches published by Scammon as Figure 9) show the structure and its relations very well.

It is my purpose in this paper to review all the cases of tumors of the corpus adiposum buccae reported, and to report a case. I have included in this collection the very probable as well as the undoubted cases, and have been able to find only fifteen. In nine of the fifteen cases the statement was made that the tumor arose from the corpus adiposum buccae. However, were this statement lacking in several of these nine cases, they would have to be classified as doubtful because of incomplete descriptions. In the remaining six cases it is impossible to decide positively that the tumors arose in the sucking pad; yet it is more than likely that they did.

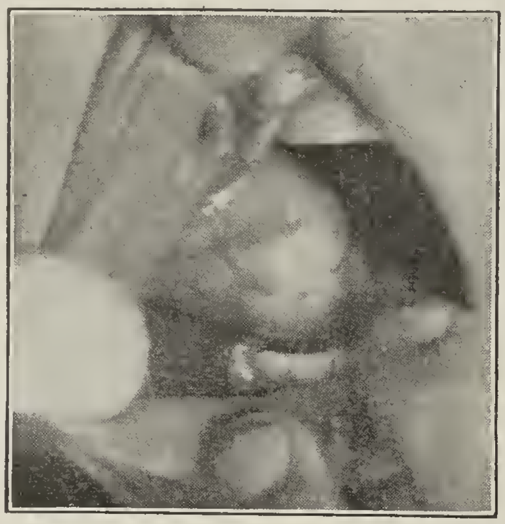

Fig. 4.—Tumor in right cheek.

Because of too brief description I have omitted the case of Acrel, reported in 1772, and contained in the collections of Bruns[17] and Villar.[18] Ransohoff included in his collection the case reported by Mathias.[19] I have omitted it because it seems to me very evident that the corpus adiposum buccae was not the seat of origin of the growth, for it began "as a small kernel behind the ear."

I have had access to the original reports in thirteen of the fifteen cases, the exceptions being those of Auvert and Ollier. Bruns and Villar reviewed the former, and Tripier[20] the latter case. Only four cases, so far as I can determine, have been reported in the English literature.

As was stated earlier in this paper, it is evident that Burns, writing in 1821, was aware of the fact that lipomas arise from the sucking pad. He reported no cases, however. Auvert reported the first case in 1848. One would have to classify it as a very probable case. The first undoubted case is that of Bruns, reported in 1859.

SUMMARIES OF FIFTEEN CASES FROM THE LITERATURE

Case 1 (Auvert, 1848).—A lobulated tumor, the size of a hen's egg, was removed through a mucosal incision from the right cheek of a girl, aged 18 years. It first appeared five years before, following a blow on the cheek.

Case 2 (Robert,[21] 1851).—An indolent, soft and elastic tumor the size of an egg, situated at the site of the corpus adiposum buccae, was removed through a mucosal incision from the right cheek of a woman, aged 22. It appeared six months before, following an acute inflammation of the cheek secondary to a carious tooth. It was a lobulated lipoma.

Case 3 (Gant,[22] 1856).—A semielastic, lobulated, painless and tolerably movable tumor about the size and shape of a pigeon's egg, situated at the site of the corpus adiposum buccae and projecting into the oral cavity against the upper molar teeth, was removed through a skin incision. Paget diagnosed it a fatty tumor.

Case 4 (Bruns, 1859).—A congenital, semispherical tumor, the size of a man's fist, situated in part at the site of the corpus adiposum buccae, was removed through a skin incision from the right cheek of a girl, aged 19 years. It was a lobulated, ramifying lipoma which was stated by Bruns to have arisen from the corpus adiposum buccae.

Case 5 (Virchow,[23] 1863).—Virchow merely stated that there was a specimen, a lipoma of the sucking pad, in his collection.

Case 6 (Gourand,[24] 1863).—A fluctuating tumor, the size of a turkey's egg, having all the ordinary signs of a lipoma, situated in the right cheek of a man, aged 51, at the site of the corpus adiposum buccae, first appeared seven years before as a tumor hardly the size of a pea. On removal it presented all the anatomic characteristics of a lipoma.

Case 7 (Ollier, 1869).—A fluctuating tumor, the size of a small walnut, projecting between the teeth during mastication, was removed through a mucosal incision from the cheek of a patient, aged 55 years. It was a fatty, nearly gelatinous tumor. It had been present three years.

Case 8 (Hubert,[25] 1873).—A soft, lobulated, mobile tumor, whose center corresponded to the space occupied by la boule graisseuse de Bichat, was removed through a mucosal incision from the right cheek of a man, aged 24. The tumor had been observed for six years. It was a fatty tumor the size of a large chestnut.

Case 9 (Cerné, 1881).—An encapsulated fatty tumor the size of a large walnut was removed through a mucosal incision from the right cheek of a man, aged 35. According to Cerné, the tumor arose from la boule graisseuse de Bichat.

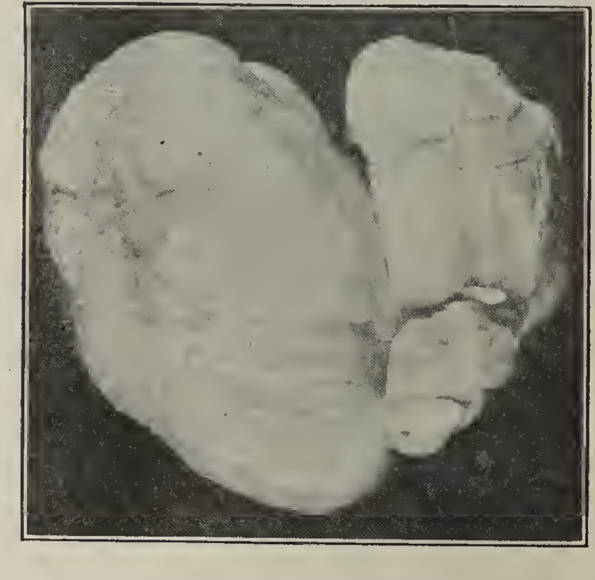

Fig. 5.—Bilobular appearance of tumor.

Case 10 (Villar, 1888).—An elastic tumor, the size of a walnut, occupying the center of the right cheek, was observed in a man, aged 62. It was first noticed six months before, when it was the size of a pea. The lipoma was removed through a mucosal incision. Villar stated that it arose from la boule graisseuse de Bichat.

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[16] Testut, L., and Jacob, O.: Traité d'anatomie topographique **1**: 214.

[17] Bruns, V. V.: Praktische Chirurgie **2**: 146, 1859.

[18] Villar, M. F.: Lipomes des joues; lipomes de la boule graisseusse de Bichat, Bull. Soc. anat., Paris, 1888, p. 954.

[19] Mathias: Lancet **1**: 692, 1863.

[20] Tripier, Léon: Lipome, Dictionnaire encyclopedique des sciences médicales, Series II, 1869, p. 644.

[21] Robert, M.: Lipome de la joue, Diagnostic difficile, Bull. Soc. de chir. **1**: 850, 1851.

[22] Gant: Lancet **2**: 620, 1856.

[23] Virchow: Pathologie de tumeurs **1**: 392, 1863.

[24] Gourand: Note sur un lipome de la joue droite, Bull. Soc. anat., Paris, 1863, p. 21.

[25] Hubert: Lipome de la joue droite, Bull. Soc. anat., Paris, 1873, p. 717.

Case 11 (Owen,[26] 1890).—A lobulated lipoma of considerable size situated at the site of the corpus adiposum buccae was removed from the cheek of a patient. Owen stated that the tumor far exceeded the normal size.

Case 12 (Stoll,[27] 1892).—A soft, pseudofluctuating tumor was present in the right cheek of a woman, aged 25. For the last fifteen years the right cheek had been larger than the left. The tumor was an angiolipoma which was encapsulated and was easily shelled out, except for a stalk located posteriorly and superiorly. This tumor, according to Stoll, arose from the corpus adiposum buccae.

Case 13 (Stoll, 1892).—A movable, painless swelling the size of a hazelnut was situated in the right cheek close to the angle of the mouth. The patient was a man, aged 29. The swelling had been observed for three years. Stoll included this case among those of the corpus adiposum buccae.

Case 14 (Ransohoff,[28] 1917).—A lobulated, fluctuating tumor the size of a small peach was present in the left cheek of a baby, aged 6 months. It extended from near the ear to the angle of the mouth; it projected into the buccal cavity. It was a lipoma, and was removed through a skin incision. Ransohoff states that this is a case of congenital lipoma of the sucking pad.

Case 15 (Ransohoff, 1917).—A uniform swelling was present in the left cheek of a girl, aged 5 years. It extended from the zygoma to the angle of the mouth. It projected between the dental arches as a roll, about the shape and size of an adult thumb. The tumor was removed through a mucosal incision. It was a lipoma which contained an unusual development of fibrous and lymphangiomatous tissue. A tumor had been removed near the same site, through a skin incision, when the patient was 1 year old.

Only three of these fifteen cases, namely, the two reported by Ransohoff and the one by Bruns, were congenital. The ages of onset in the remaining cases range from 10 to 62 years.

Six of these fifteen patients were males, seven females, and in two the sex was not given.

The right side of the face was involved in nine cases; the left in three, and in three the information was lacking.

The size of the tumor in these cases ranges between that of a large chestnut and that of a man's fist.

REPORT OF AUTHOR'S CASE

The case which I have to report is that of a white boy, aged 14 years, who entered the University Hospital, Aug. 28, 1920, because of a tumor of the right cheek which had been present ever since he could remember, but which became externally visible only two years before, when it began to increase in size, continuing to do so up to the time of entrance to the hospital. Prior to this time it was about the size of a hazelnut. Neither the exact date nor the approximate date of onset of this tumor could be learned. It is certain that it was present when the patient was 5 years old. He entered the hospital because of the deformity incident to the tumor.

Examination revealed the presence of a tumor in the right cheek which was one and one-half times the size of a hen's egg. It was located over the buccinator and anterior part of the masseter muscles. When the patient opened his mouth it was seen that the tumor projected into the oral cavity between the upper and lower jaws in the shape of an inflated thumb of a rubber glove. It impinged against the teeth and both the upper and lower dental arches, causing a marked concavity of the latter and changing the direction of the former so that instead of being directed vertically they were directed medially at an angle of about 45 degrees from the vertical. The tumor was soft, lobulated, painless and freely movable under the skin. External palpation gave a distinct sense of fluctuation. Palpation of the portion projecting into the oral cavity showed the tumor to be solid. A dry tap had been performed before entrance to the hospital. The skin and mucosa over the tumor were normal. The mass was very distinct from the parotid gland.

Because the physical findings were those of a lipoma and because the tumor was situated at the site of the corpus adiposum buccae, I made a diagnosis of lipoma of that structure. This diagnosis was confirmed at operation when Dr. A. A. Law removed the tumor through a small mucosal incision. It shelled out easily except for a stalk located posteriorly and superiorly, which was severed. This stalk, no doubt, was the one which connected the corpus adiposum malae with the sucking pad. The fibers of the buccinator muscle had been pushed aside by the tumor so that only the mucosa of the mouth covered its medial aspect. Stenson's duct was not seen. The tumor was a bilobed lipoma whose two lobes were unequal in size. It weighed 36 gm. The characteristics, both gross and microscopic, are well shown by the accompanying illustrations. This bilobed tumor corresponds in every detail with a hypertrophied corpus adiposum buccae.

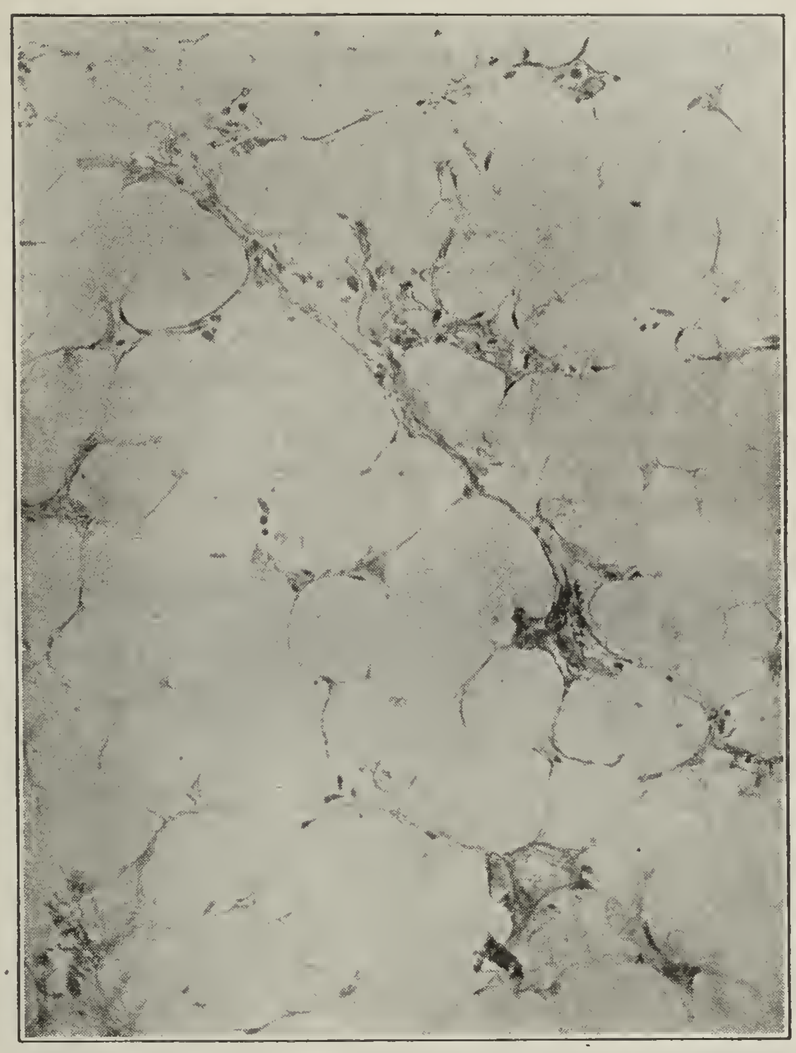
Fig. 6.—Section of tumor.

It was desirable to determine whether this was a congenital tumor, but accurate information could not be obtained.

Figures 3 and 4 show the deformity of the right cheek as it appeared when the patient entered the hospital.

Figure 5 shows the characteristic bilobular appearance of the tumor.

Figure 6 is a photomicrograph of a section of the tumor, which is a lipoma.

Union Medical College, Peking, China.—The completion of this great undertaking, costing more than 5 million dollars, is looked for in the fall of 1921. The anatomy, physiology and administration blocks have been almost finished and are now in use. The entire group of buildings will cover an area of about ten acres. The style of architecture is Chinese, although the windows will be modern. The construction is ferroconcrete, no wood being used anywhere. The sanitary arrangements were made in America to meet the requirements of the Chinese students and staff.

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[26] Owen, Edmund: An Anomalous Case of Salivary Calculus, Lancet **2**: 71, 1890.

[27] Stoll: Beitrage zur Kasiustik der Lipome, Beitr. z. klin Chir. **8**: 597, 1892.

[28] Ransohoff, Joseph: Congenital Lipomata of the Cheek, Ann. Surg. **65**: 711 (June) 1917.

AN AID IN THE DIAGNOSIS OF TUMOR OF THE URINARY BLADDER

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A recent introduction in the study of tumor of the urinary bladder has been the use of the roentgen ray to visualize in picture form the size, shape and location of the new growth. In dealing with tumors of this viscus a case may arise occasionally in which it is impossible to perform cystoscopy on account of inability to get the instrument into the bladder. This may be due to a congenital or acquired stricture of the urethra, so-called "hypertrophy" or adenoma of the prostate, adenoma of Albarran's lobe, or like conditions. It would also be applicable in cases of uncontrollable profuse bleeding during cystoscopy, cases of intolerant bladder, and cases of contracted bladder.

In the case presented it was perfectly easy to introduce the cystoscope, and the diagnosis of papillary carcinoma was made at the first examination. It was with an idea of trying to see what a help, if any, the roentgen ray would be, that the pictures were taken.

REPORT OF CASE

History.—A. K., a man, aged 52, married, was referred to me by Dr. Max Morris, March 20, 1920, with the complaint that he passed bright red blood in the urine at various times. The family history was negative. The patient had always been strong and well up to the beginning of his present illness, five years before. He had never had any operations or injuries. He denied gonorrhea and syphilis absolutely by name and by symptoms. The present illness began five years before with an attack of hematuria, during which the patient passed some bright red blood, and small clots in the urine. This attack lasted three or four days, and the urine became clear. Since the onset he had had short attacks of hematuria as often as once a month, or oftener. His greatest period of blood in the urine had been about six months. When I saw him for the first time in March, 1920, he had been passing blood intermittently for a month. This was his longest period of bleeding, as previous attacks would last only a few days. He stated that he thought his attacks of hematuria came about because he was on his feet so much while at work. He was a coat presser in a tailor-shop. An attack of hematuria could be brought about by lifting, straining, or doing any kind of heavy work. There had never been any long, wormlike clots in the urine. The patient voided at normal intervals by day. There was occasional nocturia once in a great while. The stream started easily, and was of good size and force, with no splitting. During the attacks of hematuria the stream became interrupted in character on account of small clots. There had been remarkable freedom from pain, and never any pain suprapubically or posteriorly in the lumbar region, and never any dysuria. There had never been any attacks of renal colic. The patient had lost about 25 pounds in the last five years, and was gradually losing his strength. His best weight, 155, had been reached five years before; his present weight was 130.

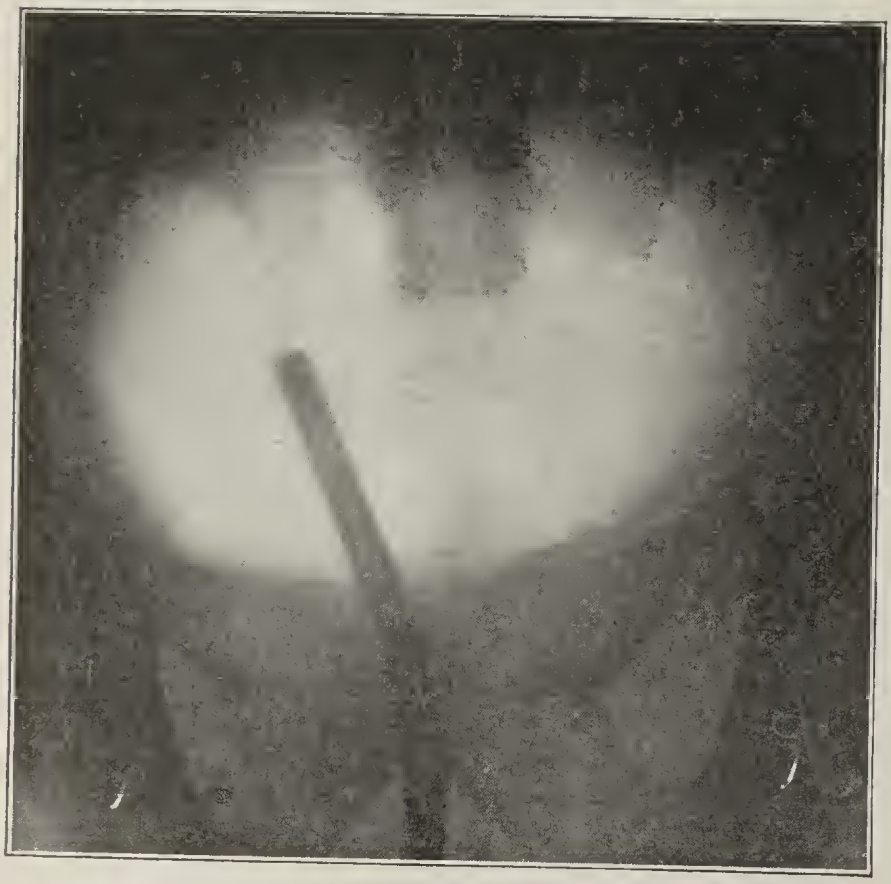

Fig. 1.—Air cystogram: Bladder distended with air, after voiding; soft Nélaton catheter in situ. There is a slight haziness at the location of the tumor on the right.

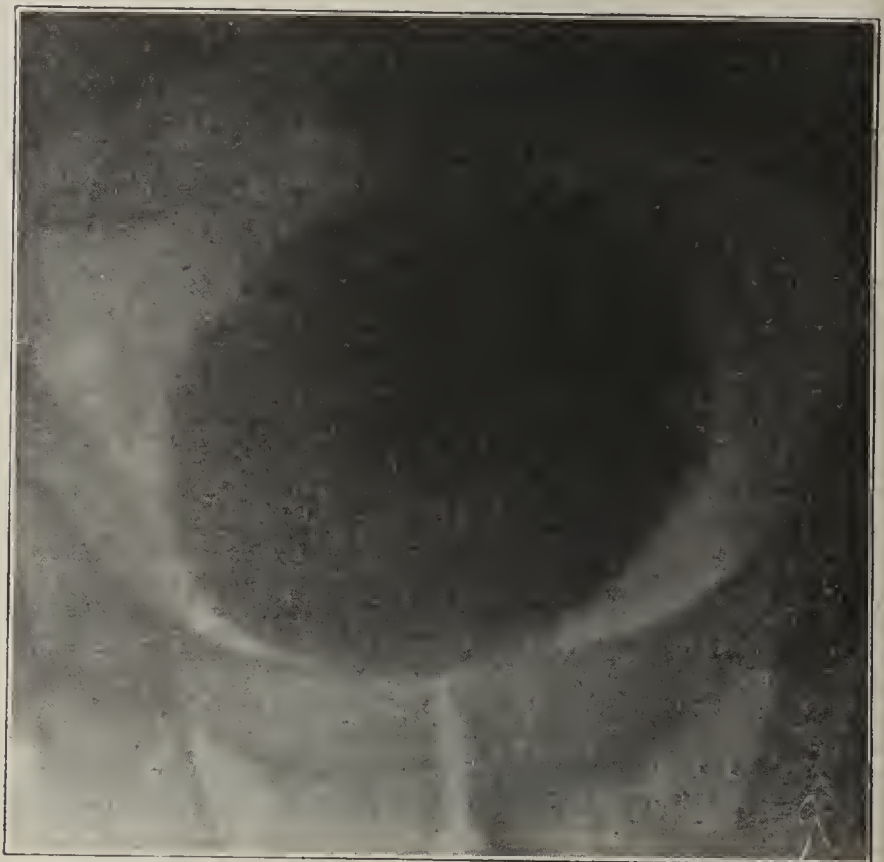

Fig. 2.—Cystogram; 180 c.c. of 15 per cent. sodium bromid injected. The picture shows an asymmetry of outline at the location of the tumor on the right. The tumor itself does not show.

Physical Examination.—The patient looked emaciated. The skin and mucous membranes were very pale. The hemoglobin was 50 per cent. (Sahli). The heart and lungs were negative. The abdomen was soft, relaxed and symmetrical, with no tenderness on deep palpation. The liver, spleen and kidneys were not palpable. No masses were felt. The external genitalia and the contents of the scrotum were negative. Rectal examination revealed a small, firm, smooth, sharply outlined, movable prostate, with no adhesions. There were no areas of stony hardness, and the median sulcus was present. The seminal vesicles were barely palpable; no induration or intervesicular bridge was felt. The urethra was explored; bulbous bougies and a steel sound, size 25 French, passed easily; there was no stricture.

Urinalysis: All three glasses were densely cloudy, straw-colored and acid. The specific gravity was 1.015; albumin, +; sugar, 0. Microscopic examination revealed: leukocytes, +++; erythrocytes, +; bacilli, +; no casts.

Cystoscopy: A Brown-Buerger cystoscope was used. The instrument entered easily; there was no obstruction or irritation; the residual urine was 30 c.c. The bladder capacity was large; it was not measured. A study of the bladder immediately disclosed a large, sloughing, red and dirty gray cauliflower-like mass involving the right lateral wall of the bladder. The right ureteral orifice was not seen at this examination, because the mass projected over it. The left orifice was slightly injected, and was seen to spurt rhythmically. Several petechial spots were seen in the sloughing mass, no doubt the source of the hemorrhage. The mass, as a whole, intruded into the bladder and was attached by a wide base. The mucous membrane of the bladder throughout was somewhat congested, as was also the trigonal area. There was moderate trabeculation of the bladder musculature. The prostatic outline was regular, circular and smooth, with no cleft formation, hypertrophy or intrusion.

A diagnosis of malignant papilloma of the bladder was made.

Treatment and Course. — The tumor was fulgurated six times at weekly intervals to stop the hemorrhage. The bleeding kept getting less and less, and finally stopped. Preceding the second fulguration I excised a piece of the tumor through the operating cystoscope and sent it to the New York State Institute for Study of Malignant Diseases, Buffalo, and then fulgurated the area of the excision. The report of the laboratory stated that the tissue examined was a malignant papilloma. From June 30 to October 15 I applied radium element to the tumor seven times, 100 milligram hours at a dose.

Cystoscopy, October 28, showed the tumor to have become considerably smaller. The patient persistently refused operation.

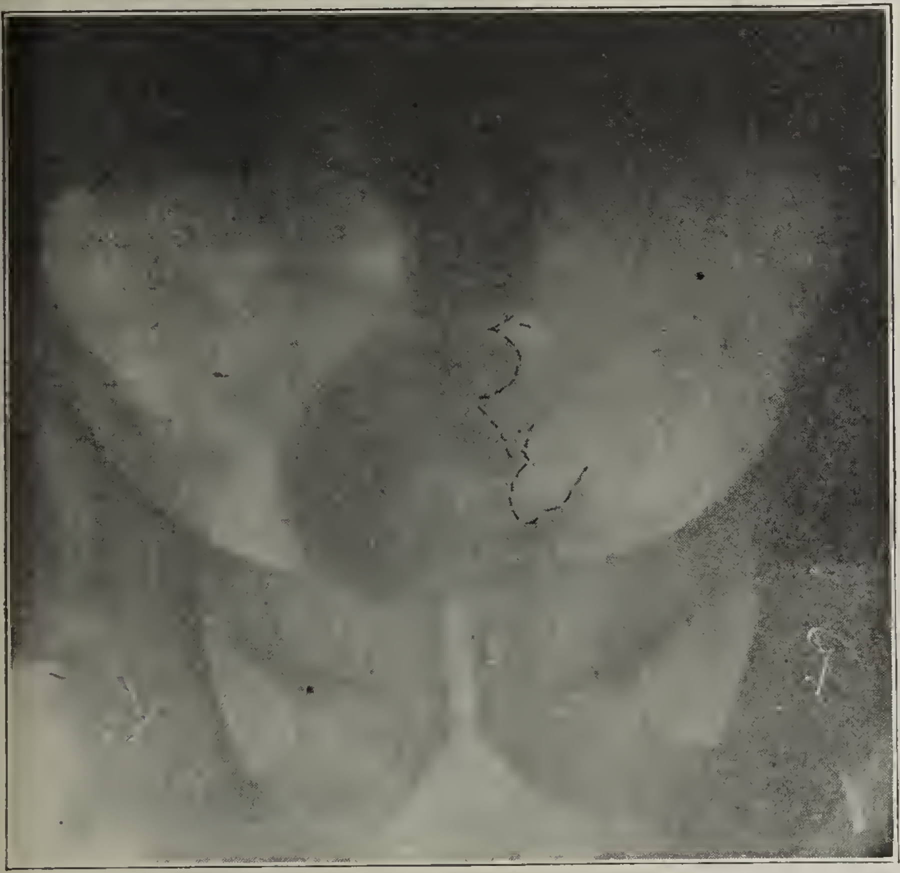

Fig. 3.—The bladder was emptied of the 15 per cent. sodium bromid solution and an immediate picture taken. The irregular intrusion of the tumor from the right lateral wall inward is easily made out. The left side of the bladder where there is no tumor is homogeneously opaque, and the periphery is sharp and clear. The right is not opaque; it shows the irregular outline of the tumor and the periphery is broken up.

ROENTGENOSCOPY IN DIAGNOSIS OF BLADDER TUMORS

A few roentgenograms have appeared in the literature outlining bladder tumors. An excellent one and one of the earliest is by Kelly and Burnham.[1] A recent contribution by Thomas [2] also shows an excellent picture. Both of these pictures were taken by injecting into the bladder a suspension of bismuth subnitrate in water. Pfahler [3] has used air as a medium. I used sodium bromid, 15 per cent., which proves very satisfactory as a roentgen-ray medium in cystograms. The accompanying illustrations are practically self-explanatory. Figure 1 is a cystogram with the bladder filled with air. Figure 2 shows the bladder completely filled with sodium bromid, 15 per cent. It was impossible to demonstrate either by Figure 1 or Figure 2 the presence of the new growth. It was only after the bladder was emptied of the opaque solution and an immediate picture taken that the tumor was outlined. This method has not been brought forward in the accumulated literature. It is therefore suggested that if any one has occasion to attempt a diagnosis of bladder tumor, to follow the routine outlined, namely, to take an air cystogram first, as this may occasionally show a neoplasm, then to fill the bladder with opaque solution and take a picture, and lastly to take an immediate picture after emptying the bladder.

CONCLUSIONS

1. It is possible to demonstrate a tumor of the bladder by means of the roentgen ray.
2. The older methods employed—injecting the bladder with air or with an opaque solution—will not always demonstrate the tumor.
3. It is suggested that one should take an air cystogram first, then fill the bladder with sodium bromid solution, either 15 or 25 per cent., and take a second picture, and lastly take an immediate picture after emptying the bladder.

Many thanks are due to Dr. S. C. Davidson for the excellence of the roentgen-ray work.

35 Chestnut Street.

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[1] Cabot: Modern Urology **2**, 1918.

[2] Thomas, B. A.: The Treatment of Bladder Tumors, J. A. M. A. **75**: 1395 (Nov. 20) 1920.

[3] Pfahler, G. E.: Injection of Air for the Roentgen Diagnosis of Tumors of the Bladder, Am. J. Roentgenol. **6**:371 (Aug.) 1919.

A DUODENAL DIVERTICULUM

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CHICAGO

Cases of duodenal diverticulum are reported not infrequently, since fluoroscopy is so commonly used in the diagnosis of stomach and intestinal lesions. Diverticula are found which apparently give rise to no symptoms, but at times they may be the cause of symptoms which disturb seriously the health and comfort of the patient. The patient whose history is given below suffered at times from severe pain and tenderness localized just below the costal margin on the right side. The pain simulated more closely that of gallstones than stomach ulcer. It is regrettable that the operation was undertaken without a fluoroscopic examination, but I did not believe that the symptoms were suggestive enough of ulcer to warrant such an examination. This diverticulum is reported because it was associated with such severe pain, which was completely relieved by operation.

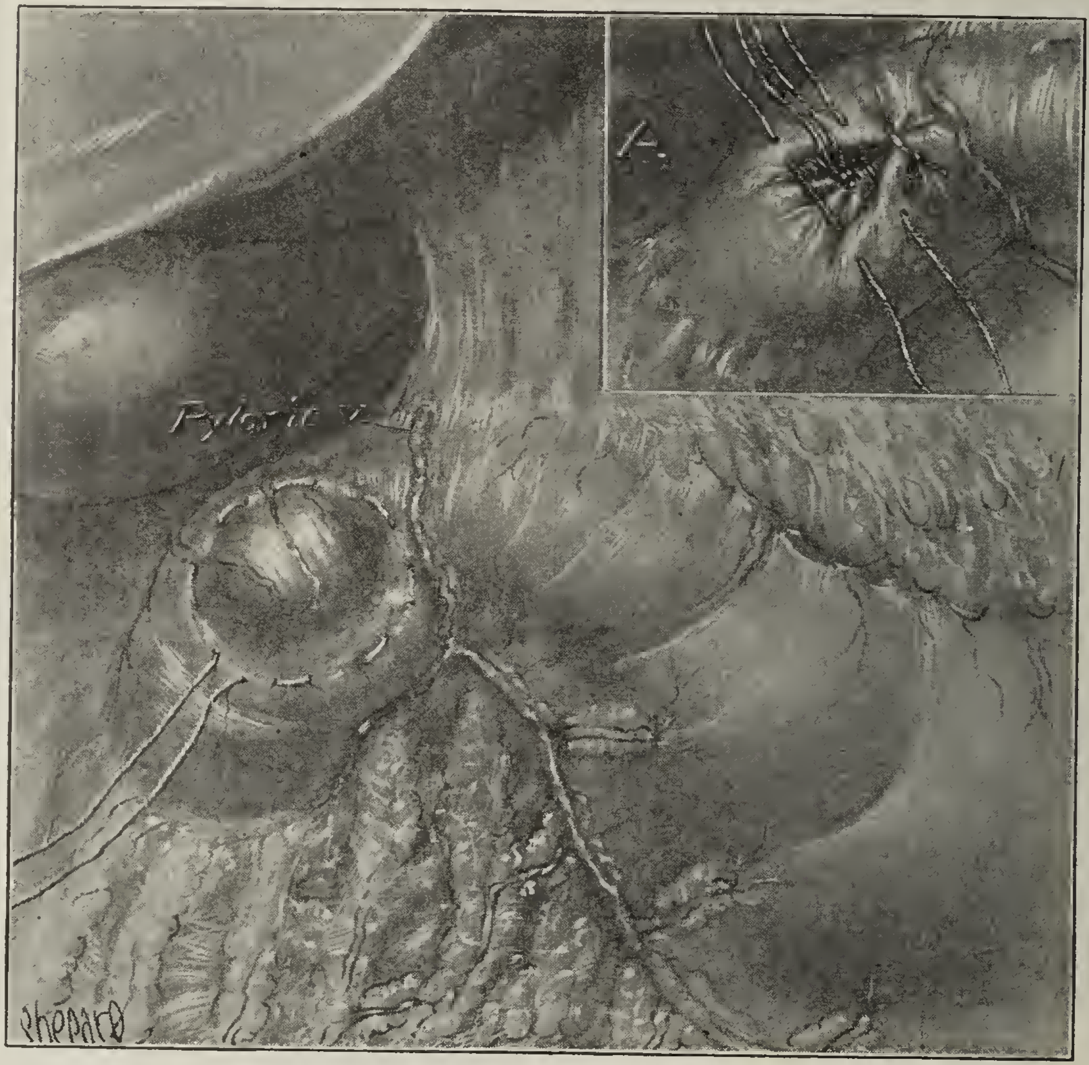
REPORT OF CASE

History.—Mrs. M. R., aged 36, admitted to the Presbyterian Hospital, Nov. 17, 1920, had first noticed epigastric pain six years before. It came on from two to three hours after meals and gradually increased in severity until the next meal, when the taking of food relieved it. An examination of the stomach contents was made at this time, and the patient was told that she had a hyperchlorhydria. She was under treatment for this for some time. Finally the pain was relieved.

Three years before she entered the hospital, pain developed in the right upper quadrant of the abdomen. This pain would come on gradually, reaching a maximum in a short while. It would at times radiate to the scapula and right shoulder. The pain was relieved by sodium bicarbonate and by the patient's lying flat on the abdomen. This pain, during the three years, came on two or three times a week and frequently became very severe.

Two weeks before entering the hospital, the patient again developed a severe attack of pain which has been more or less constant. This pain had been most constant in the upper right quadrant of the abdomen below the costal arch, but had also radiated to the back, to the angle of the scapula. This pain usually became most severe about 5 or 6 o'clock in the afternoon. Nausea had never been a constant feature. At times, however, at the beginning of the attack of pain some nausea might be noted. Jaundice, according to the patient, had been noted with some of the attacks. It usually developed a day or two after the beginning of the pain. Chronic constipation had been noted by the patient during the last few years, and had been relieved by cathartics. The pain of which the patient complained had not been lessened by a bowel movement.

Physical Examination.—This revealed nothing of note except a definitely localized point of tenderness below the right costal margin in the gallbladder area. A roentgenographic examination of the gallbladder and kidney were negative. As previously stated, it is to be regretted that a fluoroscopic examination was not made.



Diverticulum surrounded by a purse-string suture. In the inset (*A*) the diverticulum has been invaginated and the purse-string suture tied.

Operation and Result.—Nov. 19, 1920, a laparotomy was performed, a probable diagnosis of gallstones having been made. The gallbladder was normal. The appendix was practically normal, but was removed. When the duodenum was examined, a fair sized diverticulum was found. In its widest diameter, this diverticulum measured about three-fourths inch. The diverticulum was sessile and could easily be invaginated into the duodenum through a defect in the muscular wall which easily admitted the end of the little finger. The diverticulum was situated on the anterior wall of the duodenum, just on the duodenal side of the pyloric vein. There were no adhesions, no signs of an old healed ulcer, and no changes in the walls of the diverticulum. The diverticulum could easily be invaginated into the lumen of the duodenum. The communication between the duodenum and diverticulum was closed after invagination of the diverticulum by a purse-string suture, which was buried by some interrupted sutures placed in the duodenum.

The pain from which the patient complained subsided immediately. She was discharged from the hospital, December 1. She was examined, Jan. 19, 1921. There had been complete relief from the symptoms of which she formerly complained and she had gained some weight.

COMMENT

I believe that the pain from which this patient suffered was caused by distention of the diverticulum. The diverticulum had not developed on the base of an old ulcer. It apparently was an acquired diverticulum, caused by herniation of the mucosa through a weak spot in the musculature of the duodenum.

122 South Michigan Avenue.

INFLUENCE OF RESPIRATORY MOVEMENTS ON THE FORMATION OF PLEURAL EXUDATES *

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ST. LOUIS

A frequent and striking characteristic of serofibrinous pleural exudates is the fact that they are very rapidly formed in large amounts. This characteristic is particularly evident in those infections of the respiratory tract, due to hemolytic streptococci, in which both the pleura and the lung are very edematous. In the recent epidemics of streptococcal bronchopneumonia this was so striking that often within a day or two following the onset of the illness an exudate of more than 1,000 c.c. would be found in one of the pleural cavities. In seeking an explanation, it seemed probable that the respiratory movements were important factors. The line of reasoning which suggested itself was somewhat like this: The presence of a negative pressure in the pleural cavity might tend by aspiration to draw fluid from a pleural surface which was edematous. Since the intrapleural pressure diminishes still more as the inspiration becomes deeper, one might expect more fluid to be aspirated into the pleural cavity in a condition of dyspnea associated with an increased depth of inspiration than under normal conditions. If, in addition to the dyspnea, the added factor of impaired inflation of the lungs were present so that during inspiration they could not be expanded to meet completely the depressed diaphragm or the thoracic walls in their changed position, the aspiration of fluid into the pleural cavities might follow to a still greater degree. It is interesting that in the bronchopneumonia due to hemolytic streptococci the factors are present which theoretically would make for a rapid accumulation of pleural exudate. It has been a common observation in this condition that, in spite of most extreme inspiratory efforts, the vital capacity remains low, a fact which demonstrates the impaired ability to inflate the lungs. The pathologic studies of MacCallum [1] and others have shown the existence of a marked peribronchiolitis with numerous areas of atelectasis, a finding which would seem to indicate that the occlusion of air passages by both surrounding and contained exudate would be sufficient in many cases to prevent normal inflation of the lungs. It would seem possible, therefore, that an enlargement of the thorax produced by deep inspirations which was associated with inability of the lung to expand sufficiently to fill up completely the enlarged thoracic cavity would result in the aspiration of fluid into the cavity, in much the same way that fluid can be drawn from any edematous tissue into an aspirating syringe.

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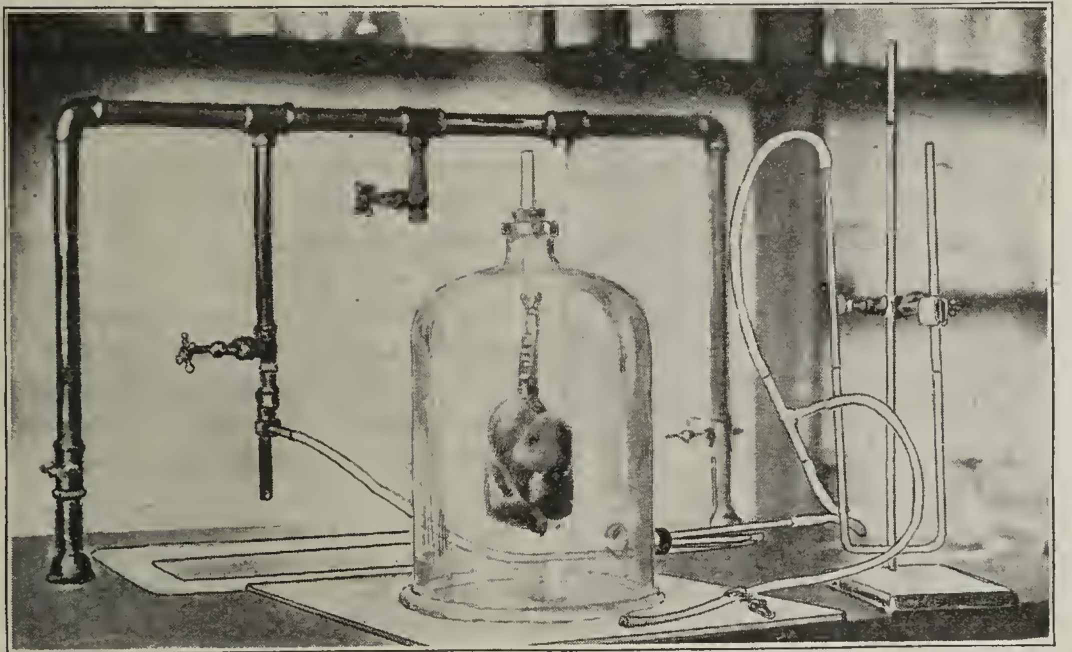
* From the Department of Surgery, Washington University School of Medicine.

[1] The Pathology of the Pneumonia in the United States Army Camps During the Winter of 1917-18, Monograph 10, Rockefeller Institute for Medical Research, 1919.

The ideas were put to experimental test by constructing a model thoracic cavity, which is shown in the accompanying illustration. A pair of lungs was removed from a dog immediately after death, and the trachea was tied over a glass tube that passed through a rubber stopper at the top of a bell-jar. A rubber tube was connected with a glass tube that passed through a rubber stopper in an opening near the bottom of the bell-jar. This rubber tube was connected with an ordinary filter pump by which air could be exhausted from the bell-jar. With the lowering of the pressure in the bell-jar, air rushed down the trachea and inflated the lungs. By means of a T-tube interposed in the connection with the filter pump, connections were also made with a water manometer and with another open tube, which, by alternate clamping and releasing, permitted the alternate inflation and deflation of the lungs at any desired "intrapleural" pressure. By this means the lungs could be made to undergo regular rhythmic respiratory movements.


Apparatus for determining the influence of respiratory movements on the formation of pleural exudates.

When edematous lungs were used in the model, a copious "pleural exudate" could be produced within the bell-jar. But, contrary to expectation, most of the fluid poured out of the lungs at the end of expiration rather than at the end of inspiration. Often only a few drops would collect during inspiration, to be followed by several streams of fluid as soon as the expiratory act commenced. Sometimes, however, if the lungs were held in a condition of considerable inflation for a period of several seconds, as, for example, at a pressure of — 25 or — 30 c.c. of water, a small stream of exudate would flow from them, but this stream would never be so copious as that which would occur during and immediately following the act of expiration. For the purpose of the study, edematous lungs of two kinds were used, human lungs with bronchopneumonia removed at necropsy soon after death, and dog's lungs which had been made artificially edematous. In the case of the latter the lungs were made edematous by pouring from 50 to 100 c.c. of water down the trachea after the lungs had been set up in the bell-jar. In some instances a few drops of dilute acetic acid were added to the water in order to make the edema more intense. If methylene blue was added, it would invariably be found to appear much sooner in the exudate if respiratory movements of the lungs were induced than if they were allowed to remain passive. Usually a single inspiration would result in the appearance of the dye in the visceral pleura; and if the lungs were held in a condition of moderate inflation, the staining of the pleura would be seen to spread very rapidly over rather wide areas from single small foci. As soon, however, as expiration was induced by allowing air to enter the bell-jar, blue-stained exudate was seen to pour from the lungs.

The rapid appearance of the dye on the visceral pleura during inspiration seemed to be explainable perhaps on the basis of a filling of the pleural lymphatics as a result of an aspiration effect induced by the diminished pressure outside the pleura. The explanation of the greater formation of exudate during the process of expiration is more difficult. It is clear that if the pleura becomes saturated with fluid during the process of inspiration, then the sudden reduction in surface necessitated by expiration cannot be accomplished unless this fluid is squeezed out. The exudate, therefore, which under the conditions of the experiment pours out copiously during expiration, represents fluid that has been squeezed out of the edematous pleura as a result of the sudden diminution in surface necessitated by the act of exhalation.

It is recognized that the conditions of the experiment are not identical with those which are encountered in life, since in the model the cohesive force is absent which is an important factor in keeping the visceral and parietal pleurae in contact during life, and also the lungs in the experiment are, of course, dead. The latter fact apparently introduces many complicating factors, such as increased diffusibility of the exudate through the lung and pleura. Nevertheless, lungs which are attacked by severe infections, such as in the streptococcal bronchopneumonias, frequently contain considerable areas of necrosis even during the life of the patient. The phenomena which have been noted in the experiments; therefore, must often occur to a more or less degree during life.

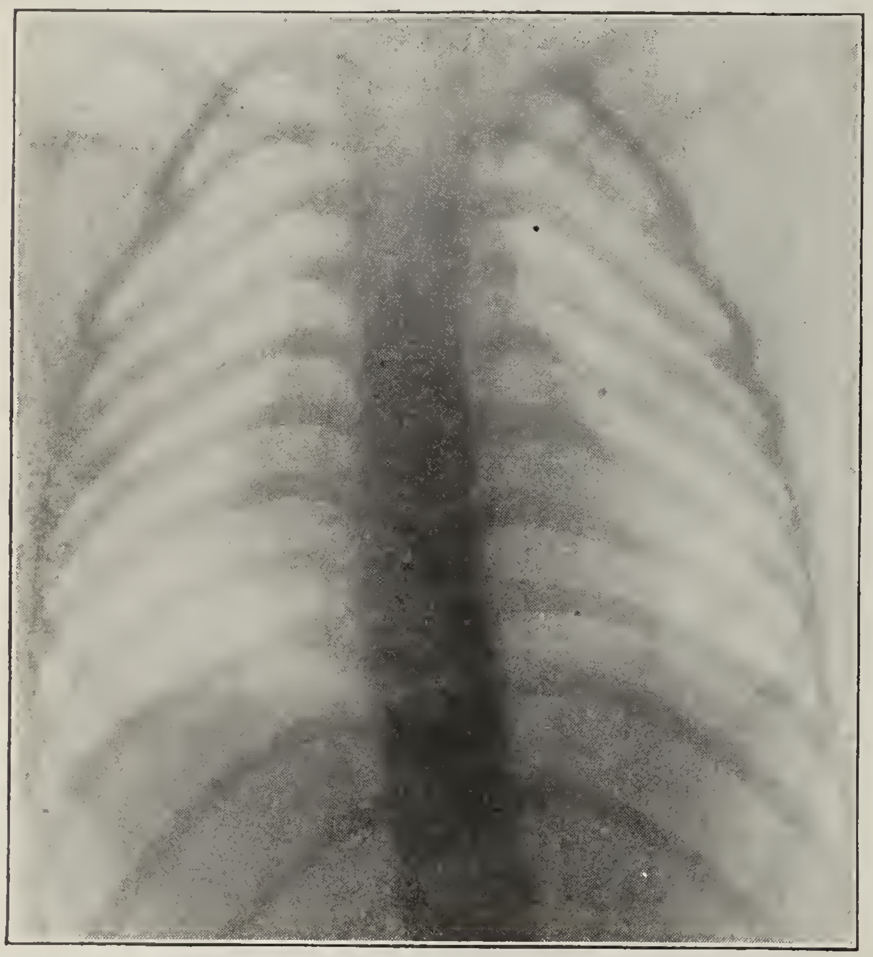
Phthisis in Malay States.—The cases of phthisis in the federated Malay states have been increasing in number very considerably. In Singapore, for instance, the crude death rate was 4,840 per million in 1916. More cases occur among males (6.04) than among females (3.81). Bovine tuberculosis does not exist there; among more than 250,000 pigs killed in the Ipoh abattoirs during the past four years no case of tuberculosis was found. The disease is, therefore, all of the human type. Von Behring's theory of infection is discredited in Malay, since Chinese children and adults seldom take milk, and the cattle are at present free from the disease.

CONGENITAL DORSAL SCOLIOSIS DUE TO SPINAL DEFECT

REPORT OF CASE

CARROLL L. STOREY, M.D.
AND
CARL C. BIRKELO, M.D.
DETROIT

The term "congenital scoliosis" is used here because it is believed that in no place in the literature has there been a serious attempt to limit the term to those cases of lateral deviation of the spine in which the etiologic factor became operative after the birth of the child, even though that factor might be unknown. Scoliosis is the name given to an end-result regardless of the cause, and on this basis congenital scoliosis is a perfectly proper term. Thomas [1] objects to the term when the deviation is due to developmental defects in the bony framework, but the case report submitted by him is a description of a congenital bony abnormality.



Roentgenogram showing absence of eighth rib on left side; rudiment of eighth dorsal vertebra with fully developed right eighth rib; fully developed cervical rib on left side; rudiment of cervical rib indistinctly showing on right.

Putti, quoted by Hodgson,[2] makes this classification of congenital deformities of the vertebrae and ribs: (*a*) numerical variations concerning the column as a whole; (*b*) morphologic variations concerning the individual elements of the vertebral column in their form; (*c*) numerical plus morphologic variations or a combination of the first two mentioned conditions; (*d*) faulty differentiation concerning not only the metameric but also the regional differentiation, and (*e*) pathologic malformation.

The case reported below is one of numerical plus morphologic variation.

Putti further states that "a costal anomaly is inseparably connected with a vertebral anomaly. . . . The converse of this proposition, however, is not necessarily true." This statement is borne out in the present case.

Reports of cases of cervical ribs have been appearing in the literature in greatly increasing numbers, and the relation between this anomaly and the disturbed function of the soft parts of the neck, particularly the brachial plexus, is being gradually worked out. The literature on cervical ribs as a cause of symptomless cervicodorsal scoliosis is very meager. The same holds true in respect to dorsal scoliosis due to defects in the middorsal region. The latter is not surprising in view of the fact that vertebral defects are more commonly found at the points of transition from one type of segmentation to another. In fact, Drehmann [3] says: "The rudiment is always found in the region of transition from cervical to dorsal vertebrae. A compensatory vertebra is sometimes found in the transition from dorsal to lumbar vertebrae on the opposite side." The ten cases cited by Drehmann bear out his generalization; but from subsequent reports based on more extensive use of the roentgen ray, one is compelled to generalize about as follows: The degree of defect, both numerically and morphologically, usually decreases according to the distance the part is away from the transition regions of the spine. According to this, if one found a defect in the eighth dorsal vertebra causing a dorsal scoliosis, one would expect that all the vertebrae between that and the transition point, either above or below, would show increasing abnormalities. In this respect the case reported does not follow the rule given above, for there is no defect below, and no abnormality above until the cervical region is reached. Cockayne,[4] Hartung [5] and others have cited cases opposed to the rule.

REPORT OF CASE

History.—F. K., a girl, aged 8 years, came to the clinic, Nov. 3, 1920, because the right shoulder was higher than the left. The mother states that this has been the condition since birth. No history of congenital defects in her ancestors could be made out, although information on this point was meager. The child had always been delicate, subnormal in weight and size. There had never been any disturbance in the functions of the upper or lower extremities, or any symptoms pointing to involvement of the central or peripheral nervous systems.

Examination.—The general examination was essentially negative except for indications of active tuberculosis at both apexes. The patient stood in a slovenly attitude, with round shoulders, flat chest and prominent abdomen. In the erect position the right shoulder was carried higher than the left; there was no lateral displacement of the trunk on the pelvis, and no rotation of the ribs or the shoulder girdle. The ribs had no deforming angulation. The spinous processes of the sixth, seventh and eighth dorsal vertebrae were rather sharply displaced to the right, the greatest deviation amounting to one-half inch. No secondary curves appeared above or below. The flexibility of the spine was somewhat limited in the middorsal region, and normal elsewhere. Twelve ribs could be palpated on the right side, twelve on the left. The upper left rib appeared, however, to be attached to the seventh cervical vertebrae. Only eleven dorsal spinous processes were palpable.

Stereoscopic plates of the spine revealed two points of abnormality, namely, in the seventh cervical and the eighth dorsal vertebrae.

The seventh cervical vertebrae had a fully developed rib on the left side and a short rudimentary rib on the right. The eighth dorsal vertebra was rudimentary and consisted of a small triangular body wedged in between the seventh and ninth vertebrae on the right side with a unilaterally developed pedicle, transverse and spinous process in no respect different from the corresponding parts on the other vertebrae above and below it. A fully developed rib articulated with it on the right side, and there was no attempt at a corresponding rib on the left side. Thus, there were twelve fully developed ribs on each side, but the first rib on the left was cervical, and if we count the rudiment from the seventh cervical vertebra on the right, we have thirteen ribs on that side. There was a dorsal scoliosis with the convexity of the curve to the right, the apex of the curve being at the eighth dorsal vertebra, the rudiment of which was the sole cause of the scoliosis. There was apparently no rotation of the bodies of the dorsal vertebrae concerned in the curve. The spine was otherwise normal, consisting of seven cervical, eleven fully developed dorsal, with a rudimentary eighth dorsal, and five lumbar vertebrae. The sacrum, coccyx and pelvic bones were normal.

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[1] Thomas, H. B.: So-Called Congenital Scoliosis, J. A. M. A. **64**: 305 (Jan. 23) 1915.

[2] Hodgson, F. G.: J. Am. Orthop. A. **14**: 34 (Jan.) 1916.

[3] Drehmann: Allg. Med. Centr.-Ztg. **75**: 21, 1906.

[4] Cockayne: Proc. Roy. Soc. London, Sect. Stud. Dis. Child., 1913-1914, p. 100.

[5] Hartung, A.: Am. J. Roentgenol. **3**: 430 (Sept.) 1916.

PALPITATION AND ITS CLASSIFICATION IN CERTAIN CASES

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One of the most interesting problems in cardiology is the determination of the nature of the attacks which people describe but the physician is unable personally to witness. A careful study of the findings, though, will often be sufficient for the foundation of a definite opinion. The electrocardiogram of Figure 1 gives a definite clue to the nature of an attack of frightful rapidity of the heart which lasted over a period of several days, and pointed out the line of procedure which led to a complete restoration of normal rhythm. During the latter part of the second lead of the tracing, which at its beginning bears all the characteristics of fibrillation of the auricle, are found a number of beats with the normal rhythm except for one auricular premature contraction. The second lead was unfortunately discontinued before the series of regular beats had come to an end. During the third lead, the fibrillation picture is shown as before. This woman was taking digitalis in considerable doses.

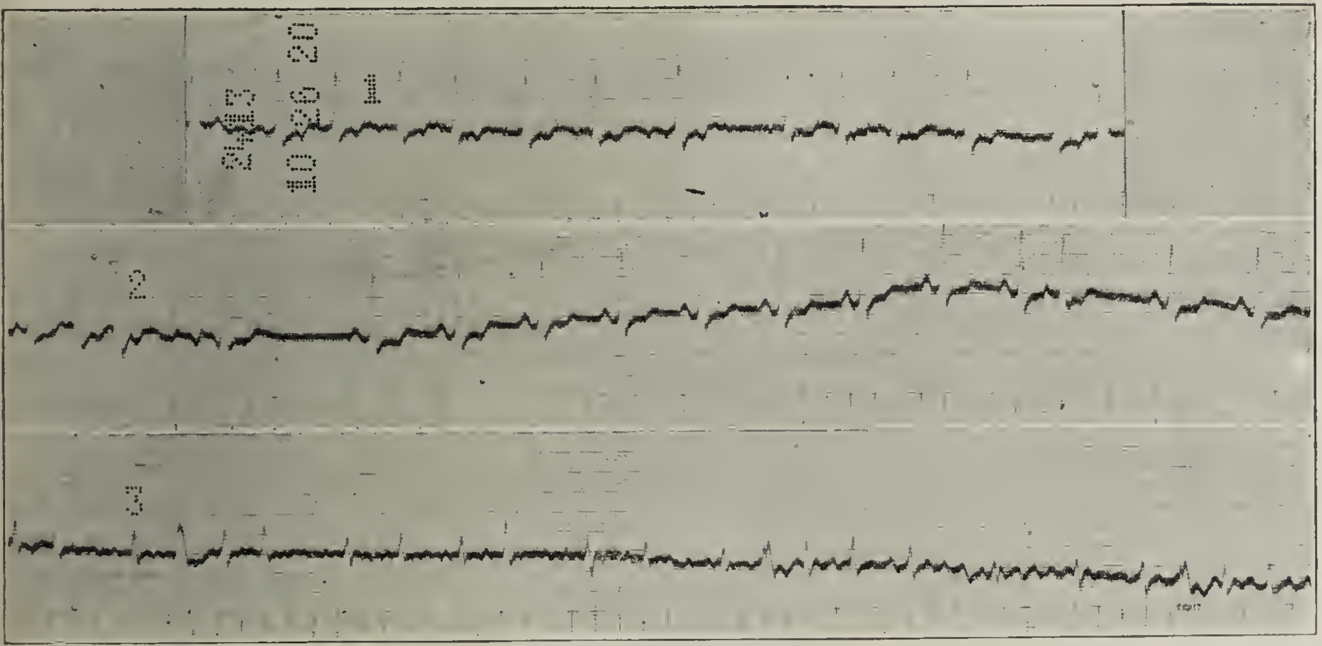

Fig. 1.—Electrocardiogram showing fibrillation of the auricle, but with a short series of normal beats.

The few regular beats show the tendency of the heart to resume its normal rhythm, and a careful questioning of the patient showed that her original attack consisted of a great rapidity of the heart that lasted a great many hours and which finally yielded to digitalis. From her description, her heart was regular when rapid. When she came to me there was nothing to distinguish her from the average person suffering from fibrillation, except the few regular beats in the electrocardiogram. The foregoing history was not elicited until afterward. In the belief that the paralysis of the auricle was due to the action of digitalis in a case of auricular flutter, the drug was entirely stopped with the expectation that the heart would resume its normal rhythm. This change actually took place, as shown on the electrocardiogram of Figure 2, which was taken twelve days after that of Figure 1.

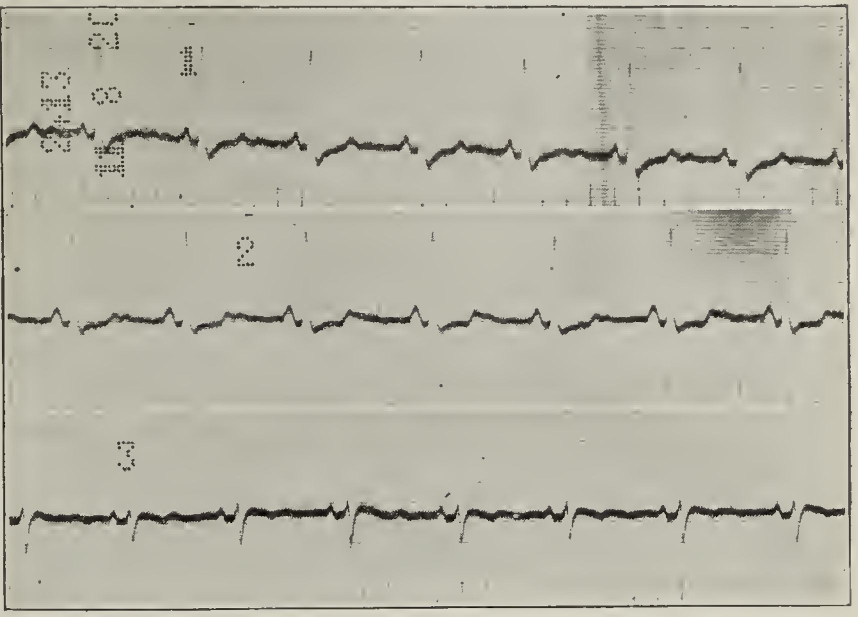

Fig. 2.—Electrocardiogram from the same person as Figure 1, showing complete restoration of rhythm.

Curiously enough, it will be perfectly possible to give this person a moderate amount of digitalis in the future without reproducing the fibrillation, although the fibrillation might have continued much longer if the drug had not been interrupted.

With people who suffer from repeated attacks of auricular flutter, it is good policy to keep a certain amount of digitalis in the system so that an attack may be more quickly controlled when it occurs. Not all attacks of flutter, however, are converted into fibrillation by digitalis. In many cases the attack terminates abruptly on the use of digitalis, and the heart is at once made regular, except, perhaps, for the occurrence of premature contractions for a short time.

109 East Sixty-First Street.

Specialization.—Division of function and cooperation in a scheme in which every one plays a skilled and useful part is in fact the essential characteristic of modern medicine.—Brend.

THE NEURASTHENIC PATIENT AND THE INTERNIST *

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Although practically discredited and discarded as the name of a disease, neurasthenia is still used, for lack of a better designation, to cover a certain well known, easily recognized syndrome, characteristic of a type of abnormal reaction. So the present tendency is to speak of neurasthenic states or psychasthenic states, meaning a condition of increased irritability of the nervous system, with diminished capacity. Naturally, this state will give a certain tone to the clinical picture whenever subacute or chronic disease develops.

As seen by the internist, the neurasthenic patient usually comes with a self-made diagnosis, not of mental or nervous disease, but of visceral disease, gastric, cardiac or intestinal. The symptoms as given in the textbooks (vague, uncomfortable feelings; depressions; fears, etc.) are related later as of little importance, or erroneously as evidence of disturbance in the organ on which the attention is focused.

Frequently the complaint is not of symptoms as understood by the physician, for we understand a symptom to be a marked variation of some function, but he complains of normal functions. He can hear and feel the heart beat; the blood can be felt streaming through the veins; something throbs in the abdomen; there is described an alternating tightening and relaxation, with a squirming sensation in the epigastrium (normal gastric movements), or a feeling as if everything were dead (atony).

One will say that everything he eats "lodges right in his stomach and remains there for two or three hours." Why? Because he can feel it there. Or his stomach "is sour." Does he have burning, sour eructations? No. "It just feels sour." Examination reveals a normal acidity.

Another states that "something begins to move in the right flank, passes up and across the abdomen, returns backward, crosses again, and finally escapes with the sound 'google, google'!" (Normal colonic movements.)

Constipation may be complained of, and on inquiry it will be learned that the bowels move once or twice daily; the stool will be examined and found normal. Why does he say he has constipation? "Because there is something still in the bowel."

One complains of heart disease because he "can feel the heart working hard as if it is laboring against something." There is no dyspnea on exertion, but when he lies down at night the heart *continues to beat* so it shakes the bed and he is "therefore unable to go to sleep."

Autointoxication is not unusually given as the cause of symptoms. Inquiry reveals the fact that the actual symptoms are mental and physical lethargy, somnolence in the daytime and restlessness at night, inability to focus the attention or maintain sustained effort at any work, and an equal inability to practice either mental or physical composure.

It is often most difficult to get a satisfactory history because there seems to be such a flight of ideas that the patient is unable to answer the simplest question directly. To the question, "Do you have a good appetite?" the answer in a certain case was: "Well, I will tell you what I eat. You know I can't eat starches or fats or sweets on account of the gas; and I don't take fruits on account of the acidity—they make the blood acid, you know. My husband wants me to take plenty of raw eggs. Don't you think that eggs make you bilious? So, whenever I have these attacks, I take some of these pills. I wish you would look at them and tell me whether they are good or not."

Not only does this type of patient present a peculiar class of symptoms, but the reaction to the symptom is easily recognized as differing from that of other patients. For example, when we analyze the case, we find that it is not, after all, the symptoms named that distress the patient so much as his interpretation of them. He is more interested in the origin, mechanism and significance of the symptom than he is in obtaining relief. (Introversion.) In the interval between visits he takes notes of his symptoms and on the next visit, when he is asked, "How have you felt since the last visit?" he takes out these notes and recounts, not how he has felt, but what he did or thought and his interpretation of the effect on the function he has had focused under observation. (Elaboration of ideas on a false basis.)

The family history is usually definitely bad, and I believe it would always be found to be so if carefully taken; but sometimes the patient is unable to give information on this subject, and sometimes we fail to avail ourseleves of the facts accessible. As an example I give the facts that I was able to obtain in one of my cases:

The paternal grandmother of the patient had pulmonary tuberculosis when his father was born. The father in later life developed cardiovascular disease and has been a chronic grunter for twenty years. The mother was living and was a very hard working woman on a farm during her child-bearing period. There were twelve children in this family; six died before maturity—at least one of tuberculosis; of the six living, one has chronic spinal arthritis, whether tuberculous or not I cannot learn; one has had definite epileptic seizures; one has marked depressive psychosis, for which she has been in a state institution; another, the youngest, now 24, has hypertension and alveolar pyorrhea; the fifth has some symptoms of renal tuberculosis; and the sixth—the patient—was in the psychopathic ward in the military hospital, was discharged for disability, and once tried to commit suicide. In the previous history are to be found evidences of difficulty in keeping up with the pace at school, but more especially in meeting the requirements when the stress of life is first felt. For example, there will be an account of "a feeble childhood," "always weak," "always had a weak stomach," "was never very strong."

The actually present symptoms usually date from a period corresponding to some special stress either physical or mental, and frequently both; when young men work their way through the university—day study and night work; or when they first assume responsibility; when they undergo criticism; and when young women work in the day and nurse some dependent relative at night; or in young married women after their first pregnancy. Existing chronic infection is more important than recent acute infections.

The physical condition of these patients is usually striking. In the language of the Orientals, "Allah has written their fate on their foreheads." In my experience they resemble each other so much as to suggest a family relation: long head, prominent cheek bones, receding chin, prominent Adam's apple, loose jaw, prominent lips, large eyes, dilated pupils, sad, worried expression. Physically there is found the habitus of universal congenital, physical and psychic asthenia, as described by Stiller. The pulse is slow; the blood pressure low; the vasomotor tone poor, cold hands, clammy feet; the vasotone index of Crampton is low; the reflexes are usually exaggerated. The gastroenterologist finds atonic dyspepsia, constipation and fickle appetite; the cardiac expert, neurocirculatory asthenia; the electrotherapeutist, splanchnic neurasthenia; the neuropsychiatrist, neurasthenia, psychasthenia, neurosis or endocrine imbalance; the surgeon says, with some truth, that this patient should never have assumed the upright position but should still be walking on all fours. In art, this type is well portrayed by Botticelli. In religion, he is a Calvinist—"Hell is naked before him and destruction hath no covering."

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*Read before the Medical Society of the District of Columbia, Jan. 19, 1921.

Finally, when some method of treatment is proposed for relief or amelioration, whether it be diet, exercise, hygiene, alteration of habits, or a surgical operation for some chronic abdominal condition, each point must be explained, counter arguments met, unfounded objections overcome, and when all this is apparently concluded to his satisfaction, he wanders to another physician, to relate anew the absorbing symptoms. He is not seeking a cure, he is collecting impressions and searching for a diagnosis that will appeal to his particular type of imagination. One such patient returned and told me that he had consulted another physician who, without any examination, but simply by listening to an account of symptoms, told him immediately what his trouble was—namely, neuralgia of the solar plexus. This satisfied him. Another, with an anomalous development of the colon and general visceroptosis, returned and stated that he had consulted another physician, one very popular and successful. He said the doctor was a wonderful man, that he made him feel better just as soon as he put his hands on him. On inquiring what treatment had been advised, he said he was told that he had falling of the bowels. And the remedy? It was simplicity itself: He was advised to eat plenty of beans—these, as he well knew, would form plenty of gas and would float the intestines up where they belonged!

As specific examples of such a type, four cases are presented:

REPORT OF CASES

Case 1.—Mr. T., aged 32, single, business man, complained of "intestinal trouble, iliac stasis and autointoxication." Seven years before he had appendicitis, for which an operation was performed and drainage used. Three years after this he was again operated on and "adhesions were broken up." Recently he had felt that the bowels were not acting well, and had observed his movements very closely. He described periods of feeling "dull and dopey," and he "lacked energy." At times he felt "as if something was there"—placing the hand over the lower right abdomen. At other times he "felt something stop in the abdomen." He had had repeated chemical and roentgenologic examinations made, the only finding being pericecal adhesions, and some stasis.

The bowels moved without laxatives, but with some irregularity. The patient was engaged to be married, but was in great doubt whether he should marry in his present condition. He noted that his attacks were always worse when he was returning from a visit to his fiancée in a distant city. Not being relieved by diet or massage, he desired to have a surgical operation. His medical attendant advised against such procedure, but gladly agreed to have him consult an eminent abdominal surgeon. He also advised against surgical treatment.

The diagnosis was: neurosis, anxiety type, based upon some mental conflict; the anxiety, by repression being dissociated from the real cause, becomes attached to the known physical condition, of little real importance.

Case 2.—A man, aged 47, a law clerk, married and with one child, whose father died of tuberculosis at the age of 45, and whose mother was nervous and in an institution for mental diseases, had had mild children's diseases, but no scarlet fever, diphtheria or rheumatic fever. He led a sedentary life, used alcohol moderately and regularly, smoked excessively until recently, and ate moderately, his diet being full and mixed. He complained of attacks of indigestion and heart trouble. These began about five years before and were described as "a sinking sensation in the epigastrium, which gradually spread to the head and whole body," followed by the eructation of gas. The attacks occurred most frequently after he had retired and was just about to fall asleep, or early in the morning before he arose. On the occasion of the last attack he awoke with a start, "feeling as if something terrible was about to happen." He felt "a sinking sensation in the stomach, weakness in the legs, and palpitation of the heart." On these occasions he had to get out of bed and read for hours before he could again go to sleep. He had been told that he had a heart lesion, and took strophanthus, nitroglycerin and bromid. Physically he was of small stature and poorly nourished with flabby musculature and a pasty complexion. There was mild bronchitis and a compensated mitral lesion. Examination of the sputum, blood, urine, gastric contents and feces revealed nothing of further importance. He could eat a hearty meal without discomfort or pain, but was afraid to leave the house to go to work or to the physician's office for fear of "an attack" in the street or on the car.

In this case the physical findings were not considered adequate to account for the symptoms, and further inquiry into the history and personal habits was made because the neuropathic history, the character of the symptoms, the time of their appearance and the condition of well-being between the attacks suggested a neurosis. It was learned that he had practiced coitus interruptus for several years. He was given proper advice with regard to his habits, heart stimulants were discontinued, and diet prescribed, and when last seen, five months later, he had had only one attack and was practically well. The diagnosis was: anxiety neurosis.

Case 3.—A man, aged 47, a lawyer, complained of autointoxication and desired to have his liver and digestion examined. The presenting symptoms were: periodic attacks of depression with mental and intellectual inefficiency, during which he would be unable to go into society, read, or do any intellectual work, such as writing a brief or working on a textbook which he was writing. During these periods he would be unable to do anything but "sit, look at the wall, and smoke." At such times he slept unusually well, being able to go to sleep at any time and sleep the clock around without difficulty; but he did not feel refreshed by the rest. Following this there would occur a period of great mental activity when he felt alert, desired to write or work and could accomplish a great deal, writing on his briefs or textbook for hours into the night, his work being complete and satisfactory.

Inquiry into his family history revealed that his mother was a very pessimistic person, and she seemed to have inherited this temperament from her mother. The patient had two sisters and one brother similarly affected. At the age of 19 he had a breakdown while at college, and was much depressed and unable to work. Since that time he had had many recurrent attacks as described, and had been examined many times by several different physicians; but nothing had been found except chronic prostatitis, and urethritis, which had been treated without result so far as his complaint was concerned. He felt that he was benefited by any laxative, Turkish baths, and enemas, but the periods of depression and mental inefficiency continued to recur.

The psychiatrist to whom I referred him wrote: "The case appears to be a very clear one from the psychiatric standpoint. I think without question he is suffering from one of those very mild forms of manic-depressive psychoses which we term cyclothymia. These very mild cyclical cases of this psychosis are rarely recognized because they are not sufficient to warrant any suspicion of mental disorder, and therefore the patients do just as this man has done, gravitate about between the genito-urinary and gastric specialist, with occasional punctuation by the ophthalmologist, et al. None of the specialists is ever able to find anything, and that is the crux of the whole situation and should lead to a suspicion of psychosis."

Case 4.—A man, aged 20, single, complained of indigestion. While in the street car about four hours after a meal he had a tight feeling in the epigastrium, palpitation, choking sensation, could not get his breath, was bloated, and had pain over the heart. He took some medicine, belched, and was relieved. He complained of a dull, full feeling in the head; smothering sensation; palpitation; trembling, jumping and gurgling in the stomach; he fatigued easily; he slept poorly, being unable to go to sleep if he awakened in the night; there was frequent micturation, and sexual hyperesthesia, with weakness. His father died of a neoplasm of some kind.

He presented the habitus of Stiller; vasomotor instability; dilated pupils; acne vulgaris; some symptoms suggestive of gastric ulcer, namely: burning three hours after meals; hyperacidity; occult blood in gastric contents; positive Einhorn string test, and slight loss of weight. The temperature was normal. No abnormal physical signs were detected in the lungs. Six months later, a little blood was coughed up and tubercle bacilli were found.

COMMENT

It will be noted that none of the foregoing cases is neurasthenia, and that is the point which I wish to emphasize, namely, that most, if not all of the cases usually classed as neurasthenic properly belong in one of these categories: (1) neurosis, or anxiety neurosis; (2) mild, rare or atypical psychosis, e. g., manic-depressive psychosis; dementia praecox; (3) incipient tuberculosis; (4) low grade cryptic infection; (5) early exophthalmic goiter; (6) cerebral arteriosclerosis.

Neurasthenia should be considered as an abnormal, imperfect, inadequate type of reaction; expressive of auto-erotic fixation; an infantile type of reaction in which the individual takes an undue interest in the functions of his own body, of which he is acutely and abnormally conscious. On these sensations he often erects a more or less organized system of false ideas (auto-erotic introversion).

There are several important factors in the pathogenesis of this condition, each of which should be noted and properly valued in forming a clear and accurate conception of the condition with which we have to deal. In almost every case a bad hereditary influence will be noted. Tuberculosis seems to rank first in frequency and importance and is believed to be especially damaging when occurring in either parent about the child-bearing period. It is sufficient simply to mention cancer, syphilis, alcoholism, and overwork and privation on the part of the mother. Conditions modifying development and growth during infancy, childhood and adolescence are equally important. As it is now believed that practically all primary infections with tuberculosis occur in childhood, the etiologic importance of this disease will be apparent. However, severe infections of any kind, by their damaging effect on nerve centers and the endocrine system, often determine a physical and psychic inferiority that will mark the individual throughout the whole of life. To see one healthy, well formed, cheerful, good natured child pass through a severe, acute intestinal infection and then change to a puny, slender, fretful, nervous, irritable youngster is convincing.

The inherited and acquired handicap of inferiority may be borne fairly well during the sheltered period of life; but when the pressure and stress of life are felt, its care, responsibility, competition and criticism, then some relatively slight incident (infection, toxemia) will act as the precipitating moment, and the difficulty in the presence of a handicap of achieving satisfaction in the orderly pursuit of a remote goal will manifest itself in an abnormal type of reaction recognized as a retreat to the infantile type of thought and behavior.

In the management, I leave psychic traumas to the consideration of the phychiatrist, and emphasize the importance to the physician and specialist of existing physical condition and organic disease. These should be carefully investigated, recognized, understood and dealt with in the most thorough manner. Early advice and cooperation with the neuropsychiatrist should not be neglected, for, as the cases reported show, some very serious psychoses may begin as apparently mild neuroses, and serious harm may result if the surgeon or the internist simply stamps the case as neurasthenic and awaits developments.

CONCLUSIONS

The neurasthenic syndrome is a type of reaction which may modify and partly obscure the symptoms of serious physical or psychic disease.

Congenital and acquired physical inferiority should be considered important predisposing causes.

The immediate cause of such a reaction may be psychic or physical, or both combined.

In treatment, physical deficiency and organic disease should be recognized, and relieved as far as possible in order to aid readjustment on the psychic level.

1720 Connecticut Avenue.

Clinical Notes, Suggestions, and New Instruments

FOREIGN BODY IN THE JAW

REPORT OF A CASE

E. M. Sundelöf, M.D., Boston
Radiologist, Lynn General Hospital and New England Hospital for Women and Children

History.—T. B., a boy, aged 2 years, had been run over by an automobile in October, 1920, and had been brought to the Lynn General Hospital for contusions of the head and body. He had remained in the hospital only a few days because he was apparently in excellent condition in spite of the accident. No roentgen-ray examination was made of him at that time. There was no other history of injury. Although the parents, who were uneducated, had noticed that the child's left cheek was swollen after he came home from the hospital and remained swollen, they did not worry about it. Even when sinuses appeared under the angle of the jaw they did not take the child to a physician until the latter part of January, when they brought the child to the outpatient department of the Lynn Hospital.

Examination.—The left jaw and cheek were markedly swollen. There were three sinuses below the angle of the left lower jaw. These drained pus copiously. The lower jaw could not be opened. The child could not chew. He could scream, but was unable to talk distinctly. Palpation within the mouth was impossible because the jaws could not be opened. This was thought to be due to the marked swelling. When the upper lip was raised there seemed to be a marked swelling of the gum over the left bicuspid region. The child was referred to me for a roentgen-ray examination. The roentgen ray revealed a marked lack of bony detail of the ramus of the lower left jaw. The submental glands were markedly swollen, and showed as white shadows on the plate. Beginning at about the angle of the left lower jaw, extending across the ramus and up toward the floor of the left antrum and the floor of the nose was a white linear shadow in the roentgenogram which was thought might be an artefact.

Operation and Result.—Dr. M. C. Smith found a lead pencil 3½ inches long extending from the angle of the lower left jaw diagonally beneath the jaw. It locked the upper and lower jaws, since it passed through the antrum. It was dislodged with great difficulty. The child made an uneventful recovery.

How the pencil had entered or where it had entered no one knows, but presumably it must have been driven into the child's jaw in October at the time of the automobile accident.

525 Colonial Building.

A MODIFICATION OF THE BALDY-WEBSTER OPERATION

WILLIAM R. BAGLEY, M.D., DULUTH, MINN.

The Baldy-Webster operation for retroversion is one that is generally accepted as the best of those using the proximal portion of the round ligament, and in my own practice it is used in preference to any other type of ligament shortening.

The great objection to it is that the suspension of the uterus is trusted to the weakest portion of the cord. I have known of practically no recurrences of retroversion following this operation when there had been evidence of good union between the ligaments and posterior uterine wall.

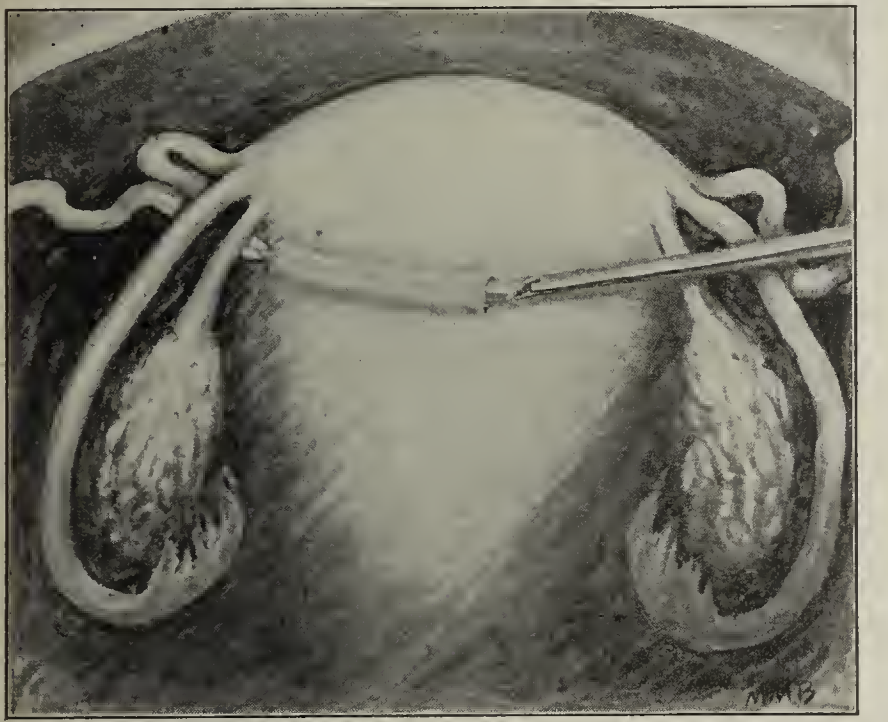


Fig. 1.—Forceps have been introduced into the central incision under the peritoneum, and by blunt dissection are carried to the lateral incision, where the round ligament is grasped after passing it through the broad ligament, as in the original Baldy-Webster operation.

To attain this union it is necessary to suture the ligaments at several points with chromic gut to insure enough prolonged irritation to secure firm union.

This suturing has two objections: (1) It strangles the circulation in various sections of the ligaments, and (2) the inflammatory reaction connected with the absorption of these sutures encourages adhesions from omentum and gut with more or less discomfort to the patient.

It is with the object of eliminating these objections that I have devised the following modification of the technic:

At the point at which the ligaments are to meet on the posterior surface of the uterus, a longitudinal incision from 1 to 1½ inches in length is made through the uterine peritoneum. Next a half inch vertical incision through the uterine peritoneum is made below the horn of the uterus on each side in line with the perforation in the broad ligament, as in the original technic of the Baldy-Webster operation. These lateral incisions are made as far out on the lateral uterine wall as will avoid the plexus of vessels at this point. Suitable fine pointed curved forceps are inserted in the median incision between the uterine peritoneum and the muscle, and by blunt dissection burrowing the muscle are carried to the lateral incision. Any oozing that may result from this separation readily stops when the ligaments are pulled into place. If the uterus is not too large, the same forceps can penetrate the broad ligament between ligament and tube as in the original operation and, grasping the ligament, pull it through the new canal to the central point. The same procedure follows with the second ligament. The two ligaments, now meeting in the central incision, are united by two stitches of No. 2 chromic gut on a short, full curved needle, which passes first into the uterine wall and then through the center of each opposing section of ligament. This brings the knot underneath the ligament so that its irritating influence is not next to the covering peritoneum. Closure of the peritoneum is made by 00 plain gut.

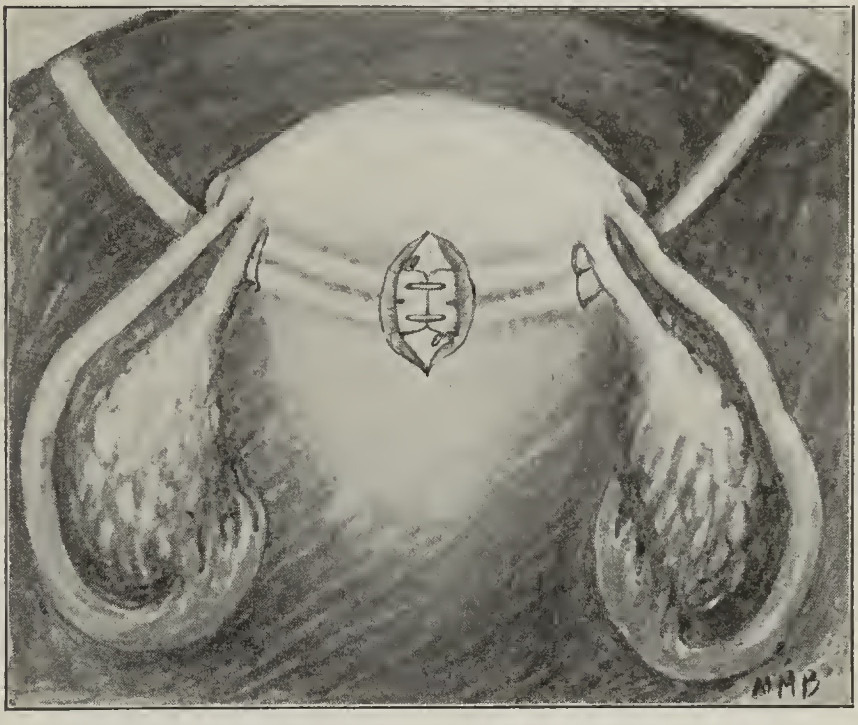


Fig. 2.—The round ligaments are in place and sutured; the suture knots are underneath the ligaments.

The results of this operation are: (1) a union between uterus and ligaments which never gives way because we have a union of peritoneum on one side and uterine muscles on the other; (2) minimum interference of circulation in the ligaments, and (3) minimum tendency to outside adhesions.

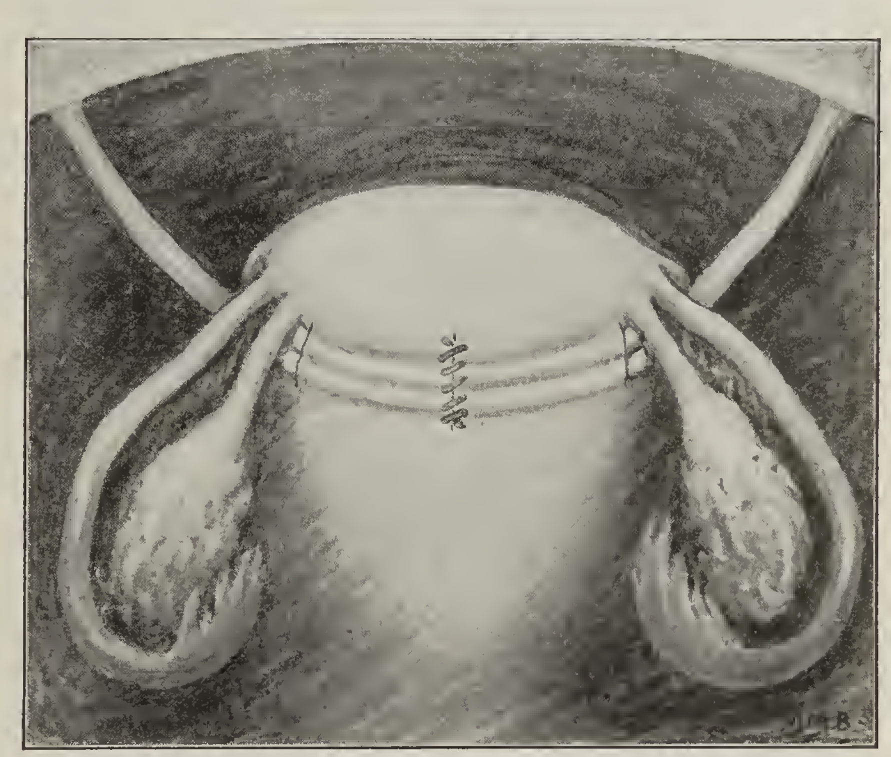


Fig. 3.—Completed operation: The central incision is closed with 00 plain catgut; the lateral incision may be likewise sutured if there is any reason for doing so.

A woman recently operated on for an abdominal condition had had five full term pregnancies following a Baldy-Webster operation, and the uterus was still in excellent position. An interesting finding in this case was that where the round ligaments passed through the broad ligament on the uterine side there were no attachments to the distal portion of ligament. The frequent stretching and contraction had produced a nicely rounded orifice on each side through which the ligaments slid smoothly.

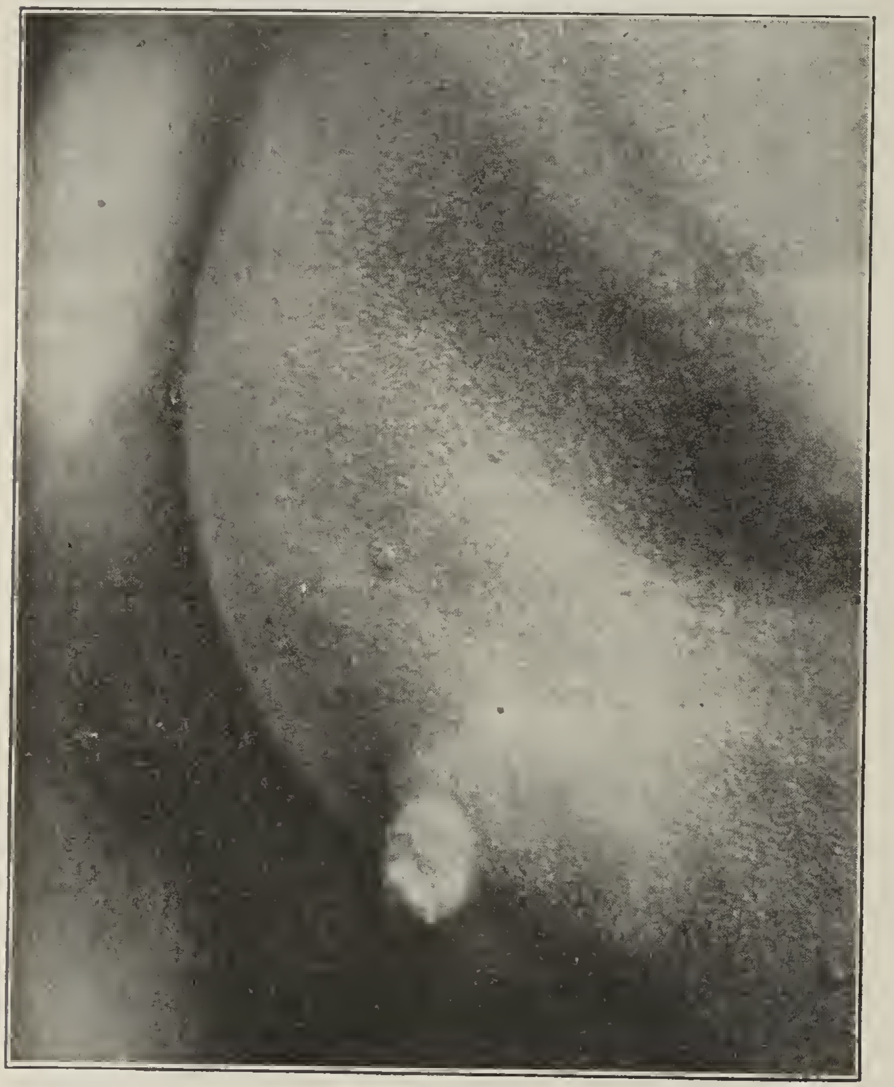
501 Woodland Avenue.

SUPERNUMERARY BREAST ON BUTTOCK

Percy A. Perkins, M.D., Memphis, Tenn.

While we find many reports of supernumerary mammary glands (polymastia) and other malformations, such as gynecomastia, it is seldom that we find all of these features in one case. My reason for reporting this case is its combination of so many unusual features.

As a rule, these accessory breasts are of a most rudimentary nature, and in few cases have they secreted milk. Again, most of the cases reported have been in the female, usually on the anterior thoracic wall or anterior abdominal wall, near the mammary line, though other locations, as the axilla and thigh, have been reported.



Supernumerary breast on right buttock.

To find a well developed breast like this in a man is rare, and one would expect some associated or irregular development of other organs, and to find that the man leaned toward the effeminate; but such is not the case in this instance.

Another feature that is interesting is that even though this gland is located in a place subjected to much traumatism and liability to injury, it has never given him trouble and is free from any mass or tenderness.

REPORT OF CASE

A white man, aged 59, married, a steel worker, formerly a prize fighter, who gave no history of syphilis in the family or congenital abnormalities, who used alcohol freely, and whose children were normal, said that he first began to give serious thought to a tumor on the buttock at about the age of 17 years. At that time it began secreting a fluid which at times was whitish but usually of a prune juice color. He stated that this took place monthly and lasted only a few days at a time. This secretion caused him some inconvenience by wetting his clothes, and it was necessary to wear a pad over it. At the age of 33 the secreting stopped. It has never caused him any pain or trouble of any kind. The man was well developed. No abnormalities of development were found. He had two normal breasts (male). On the right buttock there was a gland about the size of an orange. The gland had the sagging appearance of a breast in a woman of the same age. The nipple was well developed, and slightly larger than usual. No tenderness or masses were found.

The man had nothing of the effeminate about him. His voice was thoroughly masculine and his habits and work were also of very masculine variety.

THE PREPARATION OF SUGAR-FREE CREAM FOR DIABETIC PATIENTS *

Florence H. Smith, B.S., and W. D. Sansum, M.D.,
Santa Barbara, Calif.

An easy method for the preparation of small amounts of sugar-free cream is described by Williamson.[1] "To about a pint of water, placed in a large drinking pot or tall vessel, 3 or 4 tablespoonfuls of fresh cream are added and well mixed. The mixture is allowed to stand from twelve to twenty-four hours, when most of the fatty matter of the cream floats to the top; it can be skimmed off with a teaspoon easily, and upon examination it will be found practically free from sugar." A repetition of this process requiring an additional twenty-four hours produced a cream that was sugar-free.[2] This method suggested the use of the dairy cream separator for the immediate skimming of cream from similar but larger mixtures of cream and water.

EXPERIMENTS

One gallon of cream was poured into a 10-gallon milk can. The can was filled with water at the proper temperature for skimming, and the mixture thoroughly stirred. The separator was adjusted to deliver through the cream outlet one part out of the original ten parts. The cream was separated and the reservoir and separator bowl rinsed, while still running, by the addition of more warm water. This cream contained much less sugar than the original. On repeating this process, the cream became sugar-free.

Analyses of Milk and Cream

	Carbohydrate Pct.	Protein Pct.	Fat Pct.	Ash Pct.
Cream, as purchased............	2.36	2.28	34.0	0.52
Cream, after first separation.....	0.16	0.40	32.0	....
Cream, after second separation...	0.00*	0.23	32.0	0.05
Milk, as purchased	4.46	3.70	3.6	0.73
Milk, after first separation........	0.15	1.57	3.4	....
Milk, after second separation.....	0.00*	0.03	2.5	0.04

* Less than 0.01 per cent.

The same process applied to milk resulted in a sugar-free product, but in all of these experiments the cream was churned to fine particles of butter. This difficulty has never arisen in the preparation of the sugar-free cream.

The carbohydrate was determined by the colorimetric blood sugar method of Folin and Wu.[3]

COMMENT

The loss of sugar and salts alters the flavor of the cream. This may be practically restored by the addition of the proper amount of common salt, from 0.5 to 0.7 per cent., and a small amount of saccharin. The saccharin should be added just before serving, since it becomes bitter if in solution for a long time.

The method is simple, inexpensive and practical. Any dairy can prepare such cream with no additional machinery and at the expense of very little extra time.

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* From the Memorial Metabolic Clinic, Cottage Hospital.

[1] Williamson: Diabetes Mellitus and Its Treatment, New York, the Macmillan Company, 1898, p. 334.

[2] In this paper the term sugar-free is used in the sense that the quantity of sugar present is too small to be detected by the ordinary tests for urinary sugar, such as Fehling's, Benedict's and Haines' qualitative tests.

[3] Folin, O., and Wu, H.: J. Biol. Chem. **38**: 81 (May) 1919.

The method is safe. We have been using the cream for the last two months, have tested every bottle furnished, and all have been sugar-free.

The product is an economical one. Aside from the loss of the lactose which is desired, only a comparatively small amount of food is lost as butter fat and protein.

The keeping qualities of this product are excellent. The loss of the lactose prevents souring, and the loss of the protein prevents putrefactive changes from taking place. We have kept samples in the icebox for weeks with no apparent change in flavor.

Used as a cream, or diluted with water, this product furnishes a welcome addition to the diabetic diet.

AN UNUSUAL HISTORY OF ECTOPIC PREGNANCIES

Dudley W. Palmer, M.D., Cincinnati

This case is of interest in that it well illustrates the tenacity with which the primal functions continue their activities.

Mrs. W. D. A., now aged 47, was married in 1901 and had always been well, having had no known pelvic trouble, although there was considerable dysmenorrhea. Soon after her marriage, she was taken sick with a variable amount of pelvic pain and hemorrhage and fever. About one month later she was operated on by my father, Dr. C. D. Palmer, who made the following report in the *Lancet Clinic,* June 7, 1902, and presented the right tube and ovary before the Academy of Medicine at Cincinati:

> The uterus, found three and a half inches in length, in its backward displacement and flexion to the second degree, was thoroughly curretted, when an unusual amount of soft, pultaceous structure was removed from its cavity; then freely irrigated with hot sublimate water, but not packed. The vagina was well filled, especially its posterior culdesac, with iodoform gauze, to elevate and to antevert the uterus. A section of the abdomen showed in its peritoneal cavity at least two pints of dark, clotted blood, which apparently, for the most part, had been there for a week or more; the left ovary and tube normal; the uterus moderately adherent, by peritoneal adhesions in its retroverted position; the right ovary and tube in a state of chronic inflammation and disintegration; and in the Douglas space and to its right, a soft, boggy mass, of the size mentioned. This was removed with but little force, and the appendages of the uterus of that side exsected, after thorough catgut ligation on the pelvic and uterine ends. The gaping surfaces were overstitched, and the peritoneal cavity was then cleansed with sterilized gauze, and freely irrigated with gallons of hot (110 F.) salt water. The patient became extremely weak at two different times during the operation, so much so that it was feared she would die on the table; strychnin and whisky were administered freely hypodermically; saline transfusion, provided for, was not used, but a pint of the same was thrown into the rectum, when the abdomen was closed. No inconsiderable amount of the hot saline was intentionally left in the peritoneal cavity.

Following the foregoing there were five living children born and one stillborn. Four of these children are now living and in perfect health.

October, 1914, I was called about midnight, the patient then being 41 years old. The typical history of an ectopic pregnancy of about six weeks duration was obtained. She was so rapidly sinking that by the time we carried her down the stairs to rush her to the hospital, she could no longer remember events, though not completely unconscious.

An abdominal section was again made. The peritoneal cavity was found filled with blood. The left tube was quickly ligated and removed, its end not being excised from the horn of the uterus. Within the next forty-eight hours she slowly reacted, and by the time she left the hospital her condition was excellent.

It is interesting to note that the patient at this time made the statement that she was very glad the left tube had not been excised at the first operation, as she preferred the risk and dangers of a second ectopic pregnancy to foregoing the privilege and pleasure of having a family of children to raise.

About four months later she called me on the telephone, telling me she felt sure she was pregnant. I advised her that it was impossible, telling her she was probably "just weak" from the experience she had been through. I advised her to consult her family physician, and a few days later he told me that he had seen a large amount of material that had been passed that he felt sure was the early product of conception.

Nov. 20, 1920, she gave normal birth to a full term, 8 pound, 8 ounce child.

The explanation, of course, of the latter facts is that the ligature thrown around the uterine end of the left tube was absorbed in a few days, leaving a patent left tube. The left ovary must have come close to the opening in the tube, thus permitting the discharge of a healthy ovum into the uterine cavity.

707 Race Street.

NEW DEVICES COMBINING DISSECTION AND SUCTION, FOR USE IN SEPTUM, TONSIL AND OTHER OPERATIONS

Clifford B. Walker, M.D., Springfield, Mass.

From my experience with the two instruments illustrated herewith, it seems to me that the principles of suction dissection can be used to advantage not only by the nose and throat surgeon, but also, by other specialists and by the general surgeon. The principle is most valuable when one must work without assistance, when there is not room enough for an assistant to manipulate a sponge rapidly, or when a small amount of blood obscures a precise spot before the operator can follow the removal of the sponge.

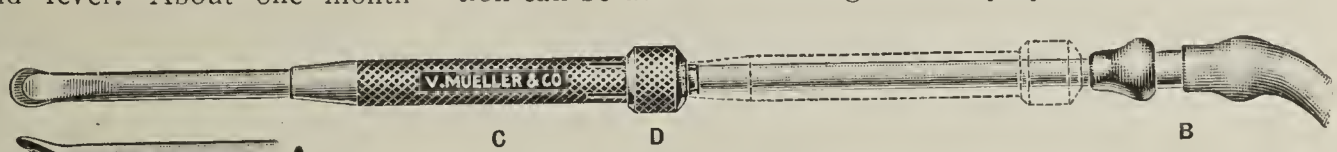

Fig. 1.—Walker's septal suction dissector: *A*, side view of tip; *B*, swivel joint allowing instrument to rotate in fingers; *C*, finger rest which may be fixed at any desirable distance from tip by chuck device (*D*).

Figure 1 shows a submucous elevator of tubular steel arranged to connect to the ordinary small suction apparatus which I believe will be as commonly seen in the hospital, the clinic and the office as the ordinary vacuum cleaner. The finger grip may be set at any suitable distance from the tip, and the instrument can be rotated in the fingers by virtue of the swivel or union joint. It is used for the same purposes as is the Freer elevator.

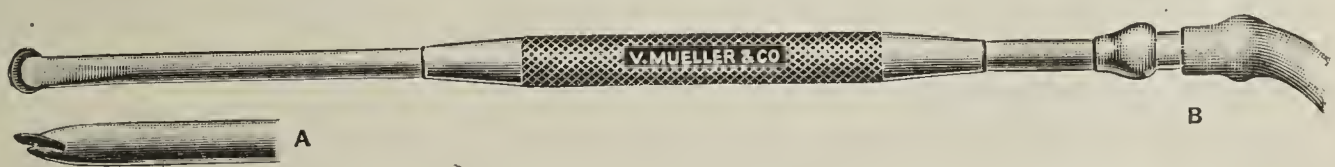

Fig. 2.—Walker's tonsillar suction dissector: *A*, side view of tip; *B*, swivel joint so that instrument may be rotated in the fingers. The projecting dissecting lip is dull-sharp.

Figure 2 shows the tonsil suction dissector,[1] similar but more strongly constructed. It is used as any tonsil dissector is used, but the dryness of the field makes possible much more accurate following of the capsule, especially when the reclining position is employed. During tonsil operation it may be used to clean the nose or larynx as well as the tonsillar region. I find that it contributes to rapid work in subperiosteal dissection as in mastoid exposure, and in the radical antrum operation; and, without doubt, it can be successfully used to advantage in many other regions of the body. It will handle splendidly a retropharyngeal abscess.

Each of these instruments is best for the special purpose intended; but in case of clogging, which will rarely occur if the tip is occasionally dipped into water during the operation, either instrument may be used as a substitute for the other. The size of the openings is such that an ordinary pipe cleaner will clear out any clot or bone chips almost instantly.

317 Main Street.

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[1] A more detailed account of this device has been given by Walker, C. B.: Control of Long Abscess Following Tonsillectomy and Retropharngeal Abscess: The Suction Dissector, Laryngoscope **30**: 701-706 (Nov.) 1920.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 19, 1921

THE FATE OF FOREIGN PARTICLES IN THE BLOOD STREAM

The entrance of bacteria into the blood stream is not necessarily an event of serious, not to say fatal, moment to the body as many were inclined to believe only a few years ago. Indeed, competent bacteriologists have stated that even during health a certain number of living bacteria enter the portal circulation from the intestine and from there may ultimately find their way into the systemic circulation. In any event the stay of such adventitiously introduced microorganisms in the blood stream is brief, at best. This fact exemplifies the now well-recognized conclusion that an infection of the circulation, like that of any other region, is the product of two factors: the invading germ and the invaded body. For various reasons these two factors may be quite incompatible with one another, so that, as Zinsser once expressed it, we have in truth a battle of two opposed forces. It is the systemic analysis of these forces in their variable conditions, he continued, and the laws which govern them, which constitutes the science of immunity. It is the initial skirmish between the two which determines whether or not a foothold shall be gained on the body of the subject.[1]

What are the weapons which the body has at its command in its efforts to oust bacteria that may invade the blood? The action of the phagocytes is now too familiar to call for detailed comment. Phagocytosis by the characteristic leukocytes is, however, not the only way of ridding the blood of bacteria. It has been demonstrated experimentally that agglutination phenomena may take part in the process.[2] The mere clumping of bacteria does not entirely remove them from the circulation except so far as they find lodgment somewhere. The leukocytes may still come in for a final share in the conquest.

There have been suggestions that the cells of the capillary walls may cooperate in the removal of bacteria. A recent investigation by Drinker and Shaw,[3] in the Laboratory of Applied Physiology at the Medical School of Harvard University, is destined to throw light on this question. They followed the fate of carefully made suspensions of manganese dioxid containing particles not larger than 1 micron introduced in an acacia-saline solution directly into the circulating blood. In many instances the latter no longer showed the foreign particles after an interval of little more than a quarter of an hour. They were found for the most part in the lungs, liver and spleen, along with small deposits in other organs. Muscle, skin and nervous tissues were invariably free. The failure of the Boston physiologists to affect the rate of removal of manganese dioxid from the circulating blood and to alter the ratio of distribution in different organs through changes in blood pressure and in concentration of the suspensions employed is cited as evidence that some specific activity on the part of particular cells in certain organs is responsible for the removal, and that simple mechanical factors are of little or no importance.

It may be argued that inert inorganic particles and bacteria are quite different in character, so that the conclusions drawn from the behavior of the manganese dioxid cannot be applied without reserve to the chemically different micro-organisms. Drinker and Shaw assert, however, that so far as the immediate removal from the blood stream is concerned, the two types of particulate matter are similarly treated by the living organism into which they are injected. They are impelled to the conclusion, both from their own studies and the observations of their predecessors, that in certain organs the vascular endothelium possesses phagocytic power rendering the capillaries permeable to particular material as well as to gases, liquids and dissolved substances.

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[1] Zinsser, Hans: Infection and Resistancc, New York, the Macmillan Company, 1914, p. 3.

[2] Bull, C. G.: J. Exper. Med. **20**: 237, 1914; **22**: 457, 466, 475, 484, 1915.

[3] Drinker, C. K., and Shaw, L. A.: Quantitative Distribution of Particulate Material (Manganese Dioxide) Administered Intravenously to the Cat, J. Exper. Med. **33**: 77 (Jan.) 1921.

DIARRHEA AND ANHYDREMIA IN INFANCY

A distinct service to clinical medicine has been performed by Marriott[1] of the Washington University Medical School, through his review of the important subject of anhydremia in the course of his lecture on some phases of the pathology of nutrition in infancy, before the Harvey Society of New York. There are a number of frequent disturbances of the health of infants which have various symptoms in common, although their character has received most diverse designations. In former days the development of diarrhea was the conspicuous feature of "the most stormy of the nutritional disturbances"; hence the once prevalent expression "cholera infantum" is fairly descriptive of the condition referred to. To some this implies a primarily bacterial causation; and the terms gastro-intestinal or alimentary intoxication, or toxicosis, have also come into vogue to designate acute toxic-like conditions following diarrhea, in contrast with the chronic state of failing nutrition that has received the name of "marasmus."

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[1] Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.

The clinical picture of the hyperacute symptoms, which occur much more frequently in infants who have for some time been in poor nutritional condition, especially those who have suffered from previous attacks of diarrhea, is a familiar one. Marriott has pointed out that it is in many respects not unlike that of surgical or wound shock. There is the same gray pallor, prostration, weak, thready pulse and altered character of the respirations, and very frequently a rapidly fatal termination.

Our readers need scarcely be reminded of the diverse hypotheses which have been ventured in explanation of shock. For the shocklike symptoms of the acute type in infants, quite comparable suggestions have been made. There has been the proposal that an "acidosis" is the underlying source of danger—a phenomenon that does in fact occur, particularly when the renal functions fail so that neutrality regulation cannot be adequately accomplished through excretion of acid phosphate in the urine.[2] There is the theory of the genesis of peculiarly toxic compounds somewhere and somehow either in the tissues or through abnormal bacterial action in the alimentary canal. Marriott has emphasized the fact, now well substantiated by various investigations in addition to his own, that the blood of infants in all such involvements is decidedly concentrated by loss of water. There is an increase in the specific gravity, in the corpuscular volume, and in the amount of dried residue. The index of refraction is increased, and the protein content high. The viscosity, the electrical conductivity and the osmotic pressure are all increased. Fever is frequently present in infants suffering from severe diarrhea. In such cases, too, it is not necessary to assume the production of some specific pyrogenic substance in the disordered organism. Fever may be the expression of a decreased amount of water in the body available for heat regulation by evaporation of water and for other physiologic functions. In view of what dehydration will do [3] toward causing febrile reactions, there is no need for assuming injury to body cells or the production of pyrogenic metabolites.

In the analogies presented there is much to uphold Marriott when he argues that the entire clinical picture presented by infants who have lapsed into a toxic, shocklike condition following severe diarrhea may be explained on the basis of the water loss from the body, which is known to occur. That factors other than water loss are operative cannot be denied, but it is unnecessary to assume their existence in order to explain the observed facts. If poisons are accountable for the symptoms, their origin, nature and mode of action has not yet been explained. If the hypothesis of anhydremia can be defended successfully, the problem of therapy in the once so-called "toxicoses" of infancy becomes clearer. Water must be restored to the organism in some safe and effective manner. The intraperitoneal administration of physiologic sodium chlorid solution at frequent intervals has proved to be highly satisfactory.[4] We are assured that it is unnecessary to administer alkali to correct the acidosis unless this is of a severe grade, for when sufficient amounts of water are given the acidosis disappears, as the conditions that have led to its production are no longer present. The entire situation is one resting on easily understood and demonstrable chemical factors, the existence of which in turn indicates the desirable steps in a rational therapy.

PATHOLOGIC RELATIONSHIPS OF THE BLOOD VOLUME IN INFANCY

It is a common experience in the natural and the physical sciences that the discovery of a new method of investigation or the perfection of some novel form of apparatus may promote valuable contributions to our knowledge. Numerous illustrations might be cited. The help that has been gained from devices for counting blood corpuscles emphasizes what new technic can add to the progress of a science.

Lately, studies on blood volume have demanded more than usual attention, particularly because of the development of the dye methods for estimating the amount of fluid circulating in the blood vessels. In their classic investigations in this field, Keith, Rowntree and Geraghty [5] used vital red and demonstrated that the normal blood volume for adults is about 8.8 per cent., or one eleventh, of the body weight. In a more recent investigation in the department of pediatrics at the University of California Medical School, Lucas and Dearing [6] have secured the corresponding data for infants. In the new-born, wide variations appear to occur, ranging from 10.7 to 19.5 per cent. of the body weight, and from 107 to 195 c.c. per kilogram. Lucas and Dearing can ascribe no reason for these wide variations beyond the fact that the blood during the first few days is undergoing a definite adjustment to its new surroundings. They point out, on the basis of records of the protein and sugar content of the blood, that a similar wide variation occurs during these first few days before the normal averages are established; and the blood volume undoubtedly goes through the same period of adjustment, when the blood-forming organs are probably called on to function independently of any assistance from the maternal circulation. In the records of the infants at an age of from 15 days to 1 year, examined by the San Francisco pediatricians, there is a definite uniformity, constant at least for individuals, and the variations between individuals are much less marked than in the first fifteen days, the extremes being from 9 to 12.6 per cent., and the average, 10.9 per cent. There seems, we are told, to be a fairly definite attempt to stabilize the blood volume during the first few months; and for any given infant over a period of several months, at least, the blood volume apparently remains at a fairly constant level, except when some condition has intervened which might easily be assumed to have changed the blood volume.

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[2] Howland, John, and Marriott, W. M.: Acidosis Occurring with Diarrhea, Am. J. Dis. Child. **11**: 309 (March) 1916. Schloss, O. M.: Intestinal Intoxication in Infants, ibid. **15**: 165 (Feb.) 1918.

[3] Balcar, J. O.; Sansum, W. D., and Woodyatt, R. T.: Fever and Water Reserve of Body, Arch. Int. Med. **24**: 116 (July) 1919.

[4] Blackfan, K. D., and Maxcy, K. F.: Intraperitoneal Injections of Saline Solution, Am. J. Dis. Child. **15**: 19 (Jan.) 1918.

[5] Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med. **16**: 547 (Sept.) 1915.

[6] Lucas, W. P., and Dearing, B. F.: Blood Volume in Infants Estimated by the Vital Dye Method, Am. J. Dis. Child. **21**: 96 (Jan.) 1921.

Such conditions do arise, according to the argument of Marriott [7] of St. Louis, in certain types of marasmus—the "Dekomposition" of the German school—sometimes designated as infantile atrophy, or athrepsia. This differs from the "toxicoses" attended with marked anhydremia, discussed in detail in the preceding editorial. The concentration of protein in the serum of athreptic infants may be noticeably lower than that of normal children of the same age. There is not merely a dilution or hydremic condition of the blood in these infants, but also an actually decreased blood volume. Whereas Marriott, like Lucas and Dearing, has found the average blood volume of approximately normal infants under 1 year of age to be 9 per cent. of the body weight, with variations ranging from 8 to 10.8 per cent., in athreptic infants the blood volume was found to average 8 per cent. of the body weight, the extreme variations being from 4.8 to 10.4 per cent. The higher values in general were observed in those infants who might be considered as convalescing from the condition.

These patients had a lower blood volume both absolutely and in relation to the body weight, a fact indicating to Marriott that a considerable destruction of the blood must have occurred along with the breakdown of other parts of the body. Decrease in blood volume may lead to diminished volume flow. If this occurs in certain important organs, like the gastro-enteric tube, their function may become seriously impaired. The nutrition of the entire body may become involved, leading to a syndrome of events which make the condition of the marasmic infant precarious. As some of the attendant conditions have been imitated experimentally in animals by underfeeding,[8] the possible rôle of dietotherapy comes into distinct prominence in the marasmus of infants.

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[7] Marriott, W. M.: Some Phases of the Pathology of Nutrition in Infancy, Am. J. Dis. Child. **20**: 461 (Dec.) 1920.

[8] Utheim, Kirsten: A Study of the Blood and Its Circulation in Normal Infants and in Infants Suffering from Chronic Nutritional Disturbances, Am. J. Dis. Child. **20**: 366 (Nov.) 1920.

Function of Social Service.—It is essential that the function of social service be clear in the minds not only of those who practice it professionally, but of the trustees, the superintendents, and the medical staffs of hospitals and dispensaries. Unless a department can be started under properly trained leadership, it is better to defer its formation.—*Hospital Social Service* **3**:7, 1921.

Current Comment

FUNCTION OF RED BLOOD CELLS IN THE TRANSPORT OF CARBON DIOXID

While the blood passes from the arterial to the venous side of the circulation it gives up oxygen to the tissues and gains carbon dioxid from them. This gain ordinarily amounts to from 5 to 10 per cent. by volume of carbon dioxid. The red corpuscles, containing hemoglobin, possess an indispensable function as oxygen carriers. It has often been said, however, that aside from the transport of oxygen, all the chief functions could apparently be fulfilled by the fluid portion of the blood, the plasma. To it has long been assigned the part of carrying to the lungs the waste carbon dioxid. Latterly the presence of this compound in the corpuscles has become better recognized. The textbooks still tell us that "the carbon dioxid is contained chiefly in the plasma, though a certain amount is also in combination in the corpuscles." It will come as a surprise, therefore, to those not so conversant with recent advances in the biochemistry of the blood, to read the latest dictum that "the transport of CO_2 in the blood is chiefly carried out by the corpuscles." [1] This conclusion is fortified by the demonstration that as blood passes from artery to vein it gains on an average 8 per cent. by volume of carbon dioxid; but of this, less than 1 per cent. by volume is gained by the plasma. This is true not only under normal conditions but also in disease. Whether most of the carbon dioxid thus removed by the cells is carried as inorganic bicarbonate or in actual combination with the cell pigment hemoglobin remains to be cleared up. At any rate, the functions of the red cells are being placed in a new and even more important light.

SHORTAGE OF PHYSICIANS IN RURAL COMMUNITIES

The alleged shortage of physicians in rural communities is still erroneously being interpreted as a dearth of physicians generally and is being advanced by some as a reason for abolishing medical practice acts, while by others the alleged shortage is used as an excuse for lowering the standard of medical education. More frequently, of late, the needs of rural communities is put forward as an argument for giving ill trained cultists—chiropractors, osteopaths, naprapaths, spondylotherapists, etc.—the right to treat the sick. The claim that there is a shortage of physicians in the United States is buncombe. This country now has double or treble the number of doctors in England—the country having the next largest supply. We now have one physician to every 726 people. The lack of physicians in rural communities is not due to a dearth of physicians but to the fact that physicians, like other people, prefer the better educational and social advantages of city life. They prefer the city where they find the valuable modern apparatus used in the diagnosis and treatment of disease, and the facilities for making various special examinations. The chief reason, however, rests with the well-to-do people living in rural districts who, by means of the better roads, the automobile, interurban car lines and other means of rapid transit, now go for treatment to physicians or hospitals in nearby cities. Where physicians cannot make a livelihood, quacks, medical pretenders, cultists and others are even less inclined to locate. They are not found in rural communities. The licensing of such ilk, therefore, will not provide care for the sick in rural communities nor will the situation be improved by abolishing medical licensure, or by lowering the standards of medical education. How to remedy the situation—how to provide medical care for communities in which physicians cannot obtain an income to which their training and skill entitle them; or how to induce physicians to leave the cities which are oversupplied with medical service—is another story.

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[1] Smith, L. W.; Means, J. H., and Woodwell, M. N.: Studies of the Distribution of Carbon Dioxide Between Cells and Plasma, J. Biol. Chem. **45**: 245 (Jan.) 1921. Joffe, J., and Poulton, E. P.: J. Physiol. **53**: 66, 1919-1920.

COLD AND DIABETES

Considerations of climate find a place in many departments of therapy, although it is often impossible to define in any precise or scientifically formulated manner how the effects sought are to be secured by changes of climatic environment. Cold can undoubtedly increase the metabolism of the body; it can increase the muscular tonus up to the point of shivering, and correspondingly it is said to promote the mobilization of carbohydrates, which are presumably the chief source of the energy transformed in the muscular contractions. It is not strange to read, therefore, that hyperglycemia has sometimes been found to attend exposure to cold. Facts of this sort have led Allen[1] to investigate whether in animals on the verge of diabetes, owing to deprivation of the function of part of the pancreatic gland, exposure to cold is sufficient to provoke the disease. It was argued that in a partially depancreatized animal, the increased carbohydrate mobilization or increased total metabolism may impose an additional burden upon the pancreas remnant, and any lasting increase of glycosuria must be interpreted in the sense of a true aggravation of the diabetes. In an occasional instance, the change from warmth to cold seemed responsible for a definite but transitory glycosuria. But there was no demonstrable difference in the proportion of pancreatic tissue that must be removed to produce diabetes in dogs in warm or cold environment, and it was proved by successive operations on the same animals that the influence of cold is not equivalent to the removal of the smallest fraction of a gram of pancreatic tissue. In comparison with the latter the most powerful functional influences seem to be of small potency. Allen states that in animals already diabetic, the course of the diabetes in a few instances seemed to be influenced slightly for the worse, so as perhaps to warrant the conclusion that cold imposes an increased burden upon the pancreatic function by increasing metabolism. How is climate to be evaluated in the clinic of diabetes? The impression that diabetic patients do worse in cold weather is probably explainable, Allen concludes, by the discomfort of chilliness when they are undernourished, the tendency to take more food, and sometimes by the limitation of exercise. These may be important sometimes from a practical standpoint, he adds, but any direct influence of climate on diabetes must be very slight if it exists.

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[1] Allen, F. M.: Experimental Studies in Diabetes, II, The Internal Pancreatic Function in Relation to Body Mass and Metabolism, 7, The Influence of Cold, Am. J. Physiol. **54**: 425 (Jan.) 1921.

ADMIRAL STITT BECOMES SURGEON-GENERAL OF THE NAVY

Among the nominations made by ex-President Wilson, not confirmed by the Senate before adjournment, was that of Rear-Admiral E. R. Stitt to the position of Surgeon-General of the Navy, succeeding Rear-Admiral Braisted, retired. As The Journal stated editorially at the time, the original nomination of Admiral Stitt met with the unanimous approval of the members of the Naval Medical Corps and of the medical profession generally. There was some fear that Admiral Stitt would not be nominated by the in-coming President. It is gratifying, therefore, to know that President Harding also recognized Admiral Stitt's fitness for the position and sent his name to the Senate, which confirmed the nomination on March 14. As The Journal stated in its previous comment, Admiral Stitt is peculiarly adapted for the high office to which he has been appointed and he may be assured of the full support of the medical profession of the country in any work which he may undertake for the development of his department.

THE DOSAGE OF ARSPHENAMIN

A wide divergence of opinion often exists as to the dosage in specific cases of drugs of admitted therapeutic potency. It is well understood that a variety of conditions may be present in the organism that can modify the effect of drugs. Size, age, sex, pathologic conditions, acquired tolerance, temporary changes in the body—any of these may determine a modification of dosage or choice of a drug because they might alter the reaction ordinarily expected. The Pharmacology of Useful Drugs[1] points out that the intensity of the action of a given drug usually depends largely on the total amount that acts at one time, and this is determined to some extent by the ratio between the rate of absorption, on the one hand, and that of elimination or destruction in the body, on the other. A large dose of a drug may produce less effect at one time than a small dose administered in the same way at another time, the difference in the intensity of action being due to differences in the rates of absorption and elimination. It is not equally well understood, however, that low concentrations of a chemical compound may affect protoplasm in a distinctly opposite manner from that provoked by larger proportions. It may be recalled that some of the familiar drugs are said to be both stimulating and depressing, the outcome depending on the dosage, i. e., the effective concentration acting at any moment on the receptive tissue. There are indications that arsphenamin may exhibit such properties. Several years ago it was observed[2] that low concentrations of arsphenamin, in vitro, markedly stimulated the growth of spirochetes. Subsequent investigations on animals with experimental syphilis by Bronfenbrenner and Schlesinger[3] of the Harvard Medical School showed that, under comparable conditions of infection, untreated animals may thrive better than those receiving exceedingly small doses of the drug, although larger doses were remedial in the usual manner. This outcome is not to be confused with the greater resistance to arsphenamin which the spirochetes are said to acquire after repeated treatment with the arsenical compound. From a practical aspect, the unexpected experimental effects of small doses suggest caution in view of the growing tendency to decrease the dosage of arsphenamin in the treatment of syphilis.

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[1] Hatcher, R. A., and Wilbert, M. I.: Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 7.

[2] Bronfenbrenner and Noguchi: J. Pharmacol. & Exper. Therap. **50**: 333, 1913.

Association News

COMMITTEE TO ACT ON REHABILITATION OF EX-SERVICE MEN

At the request of the chairman of the Committee on Hospitalization and Rehabilitation of the American Legion, a meeting was held at the City Club, Chicago, March 7, to consider the present problems connected with the rehabilitation of ex-service men. There were present at this meeting Gen. Abel Davis, Major A. A. Sprague, Dr. Thomas B. V. Keene, members of the National Committee on Hospitalization and Rehabilitation of the American Legion; Surgeon-General Cumming and Drs. Lavender and McDill, of the U. S. Public Health Service; Dr. Thomas W. Salmon, representing the National Committee for Mental Hygiene; Dr. Charles J. Hatfield, representing the National Tuberculosis Association; Drs. Frank Billings of Chicago, A. R. Mitchell of Lincoln, Neb., and W. T. Sarles, Sparta, Wis., representing the Board of Trustees; Dr. Hubert Work, President-Elect of the American Medical Association; Dr. A. R. Craig, Secretary; Dr. George H. Simmons, Editor and General Manager; Drs. E. E. Irons of Chicago; J. N. McCormack of Bowling Green, Ky.; President Ray Lyman Wilbur of Leland Stanford University, and others. General Davis called attention to the care the ex-service man is now receiving, not only in hospitalization and treatment, but also in regard to his allowance and vocational training. A vigorous discussion followed, in which many of those present took part, the general trend of which was that whatever present failure exists is the result of complexity and the lack of coordination of the work, and that the first step toward remedying the present conditions should be the coordination of the three responsible bodies (Bureau of War Risk Insurance, the Federal Board for Vocational Education, and the Hospitalization and Treatment by the Public Health Service) under one directing head. It also developed in the discussion that much of the difficulty connected with hospitalization and treatment could be remedied if it were possible to secure, in the localities in which hospitalization is being carried on, the assistance of members of the local profession, acting as consultants in the various specialties.

The next day the Executive Committee of the Board of Trustees called in for conference: Admiral W. C. Braisted, President of the American Medical Association; Dr. Hubert Work, President-Elect of the Association, and Dr. M. W. Ireland, Surgeon-General of the U. S. Army. The Executive Committee recommended to the Board of Trustees the immediate appointment of a committee representing the American Medical Association, to consider and act on the general problem. This recommendation was later adopted by the Board of Trustees, and Drs. Frank Billings, Hubert Work and J. N. McCormack were appointed as such a committee.

THE BOSTON SESSION

Special Railroad Fares

The Central Passenger Association acts for those railroads which are members of the association operating in the following territory: the states of Indiana and Ohio; the lower peninsula of Michigan; that portion of Illinois on and south of a line drawn from Chicago to Peoria, and thence to Burlington, Iowa, including St. Louis and Hannibal, Mo., and border portions of Kentucky and West Virginia extending from Evansville, Ind., to Louisville, Ky., thence to Kenova, and thence a line leading to Pittsburgh. This association has taken official action so that the round trip railroad fare to Boston for the Annual Session of the American Medical Association announced by the Trunk Line Association (The Journal, March 12, 1921, page 730) will under like conditions be in effect in the territory of the Central Passenger Association.

Hotel Reservations at Boston

Present indications give promise of a large attendance at the coming annual session. Consequently, those who plan to go to Boston next June are urged to make hotel reservations early. Already letters have been received both at the Association headquarters and by the Local Committee on Arrangements, stating that requests addressed to hotels brought the replies that these arrangements must be made through the Hotel Committee. To meet this condition, the Local Committee on Hotels, Dr. John T. Bottomley, Chairman, Boston Medical Library, 8 The Fenway, Boston 17, Massachusetts, announces that it will gladly assist in securing assignments of hotel space to those who wish the committee's cooperation.

The offer of the committee appears on advertising page 29 of this issue of The Journal. In writing to the committee, be sure to indicate your first, second and third choices of hotels, and authorize the making of the reservation which will most nearly meet the conditions which you will indicate on the coupon from the advertising page to which reference is made. It is important that all the information indicated on the form shall be given to the committee. Moreover, if, for any reason, after having secured a reservation, conditions make it impossible to attend the annual session, it is urged that the Hotel Committee shall promptly be advised, that the reservation may be reassigned. Be sure to mail the coupon and to address all communications concerning hotel accommodations directly to the Local Committee on Hotels at the Boston Medical Library.

ANNUAL CONFERENCE ON MEDICAL EDUCATION AND HOSPITALS, LICENSURE AND PUBLIC HEALTH

Held in Chicago, March 7-10, 1921

MEDICAL EDUCATION AND HOSPITALS

(*Continued from page 733*)

OUTLINE OF AN ADEQUATE TRAINING FOR THE SPECIALTY OF DERMATOLOGY AND SYPHILOLOGY

Dr. William Allen Pusey, Chicago: As preliminary to taking up the practice of dermatology and syphilology, the student should have, after graduation, at least one year in a general hospital with either a service in internal medicine, or a rotating service in which internal medicine and the medical specialties are the chief part. General medicine and neurology play such an important part in this specialty that one year in a general hospital must be regarded as an absolute minimum. An internship of two years is not an excessive preliminary general training, and an internship followed up by a general practice for a few years—not more than five—makes the best preliminary training for this specialty.

It is desirable that the student should graduate from a Class A mediical school; that he should have a reading knowledge of French and German, and that as an intern he should have had some work in general pathology, particularly in postmortem pathology.

Familiarity with skin diseases and the ability to differentiate them requires visual memorizing of a large number of clinical pictures. It is therefore the first essential for the dermatologist to have an opportunity to see an extensive dermatologic material. This can be obtained in two ways: First, as an assistant in a hospital or dispensary which has an abundance of dermatologic cases, or second, exceptionally, with a specialist of established ability in dermatology who has a large amount of skin diseases and syphilis in his practice.

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[3] Bronfenbrenner, J., and Schlesinger, M. J.: Generalized Infection in Syphilitic Rabbits Resulting from the Inadequate Salvarsan Therapy, Proc. Soc. Exper. Biol. & Med. **18**: 94 (Dec.) 1920.

This opportunity for the clinical study of skin diseases and syphilis is the first essential of training in this specialty. The next, and not less important, in order to make a thorough dermatologist, is a proper laboratory training in this specialty, and a training in the technic of treatment. This training should be gotten at the same time as and in connection with his clinical training. A minimum requirement for laboratory training should include a working knowledge of cutaneous pathology and bacteriology, ability to recognize and demonstrate the bacteria and the animal and vegetable parasites that are commonly found in the skin. He should become familiar with the technic of diagnosis and treatment of skin diseases, including the therapeutic use of roentgen rays and radium, and the various dermatologic procedures. He should be trained in the intravenous administration of drugs, and the performance of spinal punctures.

The time necessary for such a training depends upon the opportunities of the student, his industry and his ability. It must be long enough for him to become well grounded in the essentials of dermatologic training as outlined above, if he is to be made competent to proceed independently on his special career after this training. For an adequate training of this sort, two years is a reasonable time; for a thorough seasoned training, three years should be given.

If such a course is given by a university it might well be recognized by a degree or a diploma which should be a master's degree or a degree of Doctor of Philosophy—not something new. A thorough course leading to such a degree in dermatology and syphilology should be not less than three years in duration, and the university giving it should have not only adequate laboratory facilities for giving the course, but also adequate clinical facilities; and there are few universities that can at present meet these requirements. For adequate training in this specialty at the present time, opportunities are afforded chiefly by a few university clinics, a few special hospitals, a few hospitals with special departments, and in the practice of established specialists.

REPORT OF SUBCOMMITTEE ON GRADUATE TRAINING IN OPHTHALMOLOGY

Dr. Walter B. Lancaster, Boston: (a) Basic general training in the undergraduate medical school: We agree that the person desiring to specialize in ophthalmology should have full undergraduate courses leading to the degree of Doctor of Medicine in an acceptable medical school (such as those designated as Class A by the American Medical Association). (b) Courses leading to the specialty of ophthalmology which might be elective in the undergraduate medical school: The majority of opinion is that such electives are not advisable at present. (c) The hospital internship at the time of graduation—should it be a rotating internship in a general hospital? The consensus is that internship in a general hospital is essential and should be for a period of one year. There is almost unanimous opinion that the internship should be a rotating one. (d) Minimum practical graduate training in ophthalmology: (1) Review course in the anatomy, physiology, pathology and bacteriology, etc., for the organs involved. (2) Advanced courses in the specialty, lectures, recitations, clinics, and the number of hours to be devoted to each. Give also length of suggested course in weeks or months. The members of the committee agree that two years is the minimum to allow for training in ophthalmology.

The fundamentals should include: 1. Topographic anatomy of the head and neck. 2. General pathology and bacteriology, with special reference to diseased conditions bearing on ophthalmology. Standish would omit laboratory work in these, and confine the course to a restatement of the subjects as applied to the eye. 3. Histology and embryology of the eye. 4. Physiology of the eye. 5. Physiologic optics. 6. Physics of light. 7. Neurology. 8. Psychology of vision. The study of these subjects might be carried on in the laboratories of a university if such were available.

The clinical subjects in ophthalmology should include: 1. Special pathology and bacteriology of the eye. 2. Principles of refraction, including skiascopy. 3. Ophthalmology. 4. External eye diseases. 5. Internal eye diseases. 6. Practical refraction and skiascopy. 7. Eye muscles. 8. Perimetry and photometry. 9. Relation of the eye to (a) internal medicine; (b) neurology; (c) pediatrics; (d) dermatology; (e) industrial medicine; (f) public health. 10. Hygiene and therapeutics. 11. Ophthalmic surgery. 12. Preparation of histories and records. Probably a period of six months should be devoted to the fundamental subjects in laboratory work, demonstrations, lectures and reading, and six months to the clinical subjects, in the dispensary, laboratories and clinics.

(e) Suggestions regarding hospital internship or other clinical courses where further knowledge or skill in ophthalmology may be obtained. We recommend that following this year of preparation there should be, if possible, a year of internship in a recognized ophthalmic hospital, or a year as assistant in a well organized eye clinic. If these are not available, a year as an assistant in the office of a reliable ophthalmologist might be accepted, provided the duties assigned the assistant are of educational value. We recommend that hospitals organize their house staffs with the demand for training specialists in view. (f) Advisability of granting a certificate in ophthalmology to physicians who have demonstrated their proficiency. We recommend that the granting of a certificate in ophthalmology be in the hands of a board independent of the teaching bodies, such as the American Board for Ophthalmic Examinations. (g) Advisability of a higher degree (Ph.D.) and regulations governing its award. The granting of higher degrees should be carefully considered, lest they be cheapened. (h) Recommendations regarding a board of examiners and methods of testing proficiency of those completing the course, or others seeking the certificate in ophthalmology. A board for ophthalmic examinations has been in satisfactory operation for several years. We recommend that other specialties adopt some similar method.

DISCUSSION

Dr. Frank Billings, Chicago: We have reached a period in medical education when we have been attempting to teach specialties to students rather than this broad, comprehensive knowledge which they must have if they are going to make what is most needed—general practitioners. Having served his internship before he receives his degree, which is a pedagogic principle, the physician is fitted to become a general practitioner. We do not need as many specialists as we do general practitioners. If each specialty would follow the outline given by Dr. Shambaugh, of returning for other training in the fundamental sciences before he takes up his clinical training, he would reach the fundamental basis of a good education and training as a specialist. Without that he cannot do that.

Mr. C. C. Choyce, London, England: I gather from this discussion that you seem determined to do away with the immature and self-styled specialist, and are determined that the specialist, whether he be a surgeon or an ophthalmologist, shall be fully competent to do his work. Many of you seem further determined that his ability shall be guaranteed to the public by the possession of a diploma or degree. Hospitals in Great Britain will not accept a candidate for the post of surgeon on their staffs unless he has the Fellowship of the Royal College of Surgeons or a Mastership of Surgery, or both. This degree follows on a thorough preparation for the work. I hope and think that we shall alter our examinations to include both of these diplomas in order to compel better training beforehand.

Dr. Ray Lyman Wilbur, Stanford University, Calif.: I want to call attention to one point brought out in the report of the Committee on Surgery as it argues in favor of a good elementary education. In connection with the medical profession we have been talking about getting men into active work too late, and we have been trying to devise some method in our curriculum by which to shorten the work. There is a very easy solution to this problem concerning our public school system. We can readily squeeze two years out of the elementary work and never miss them for our best students if we use our brains on the problem. We have the exceptional child as well as the defective child, and the rest are in between. What we want to do is to get the exceptional boy and the exceptional girl into medicine.

Dr. Abraham Flexner, New York: All of the speakers suggested that a scheme of graduate education should proceed on the basis of a recognition of a Class A medical school. Dr. Billings pointed out the enormous importance of undergraduate instruction in medicine if we are to train a sound body of specialists in postgraduate schools. In going about the country, looking at the Class A medical schools that would figure at the top and seeing those that perhaps appear at the bottom, I find it difficult to formulate what is really required in order to be a Class A medical school. While we have made great progress, we still have a great way to go. Until a Class A school means something more nearly uniform in all sections of the country and in any one section of the country, it is going to be an extremely difficult thing to crystallize the needs of the various specialties in the postgraduate field. My first caution is not to lose sight of the undergraduate problem. We should strive as hard as we can to level up before we commit ourselves to a hard and fast conception of postgraduate training. My second caution is against a policy to define this postgraduate training too much in terms of courses.

Dr. M. W. Ireland, Washington, D. C.: The Medical Department of the Army has been tremendously interested in the standardization of medical education, and I do not believe any one has received more benefit from these conferences than the members of both our department and that of the United States Public Health Service. We are now concentrating more and more on this work.

Dr. George E. Armstrong, Montreal, Canada: With the development of specialties, it has been sometimes difficult to divide and keep the subjects under three distinct branches—medicine, surgery and obstetrics. Of course, we have subdivisions of these three great divisions in medicine. In this way we think we have a better perspective, while the student at the same time gets the benefit of their teaching. As regards postgraduate teaching, the man who wishes to qualify in any special department has to go back to the fundamental sciences. In other words, he must re-lay his foundation. If he is going to take up surgery as a specialty, a thorough knowledge of anatomy is essential, together with a thorough grounding in pathology, which is the basis of all surgical work.

Dr. Alexander Begg, Boston: At the Harvard Medical School we have felt for some time that the fences are becoming too high, so that it is impossible to get proper cooperation between departments and the proper real training for those who want to go into the different lines of medicine. It seems to me that we are likely to fall down in university work by emphasizing technic too much. This crops out in a good many of the so-called minor specialties particularly.

Dr. George E. Meeker, Philadelphia: Our experience would seem to show that the most important things are hospital organization and finances. If the American Medical Association and the constituent bodies can assist universities in marshaling their forces in an efficient way and see that the graduate students get hospital privileges and real opportunities and real responsibilities, it will result in the accomplishment of great good.

Monday, March 7—Afternoon

THE RELATION BETWEEN THE SPECIALIST AND THE PRACTITIONER

Dr. James B. Herrick, Chicago: (This paper will appear in full in The Journal.)

REPORT OF COMMITTEE ON GRADUATE TRAINING IN GYNECOLOGY AND OBSTETRICS

Dr. J. Whitridge Williams, Baltimore: Your committee feels that four types of medical graduates require consideration, namely:

A. Those who have been in practice for years and merely desire to refresh and to bring more or less up to date their knowledge of the specialty.

B. Recent graduates who desire to prepare themselves to become competent specialists.

C. Practitioners, who, after some years in general practice, desire to engage in special work.

D. A much smaller group, consisting of those who have fulfilled the qualifications for Group B, and who desire to undertake serious research work in one or more of the fundamental sciences ancillary to their specialty.

The committee unanimously agrees that Group A is unimportant so far as educational problems are involved, but that it is important for the physicians themselves and for the welfare of their patients. Such work can easily be given by any medical school or teaching hospital which has control of sufficient clinical material, and has at its disposal a sufficient number of teachers who are willing to devote their time and energy to it.

Instruction of this type should in no way be regarded as graduate work, and should be designated as extension, repetition, or "refresher" courses for physicians; as it will generally be desired by those who have studied at inferior schools or who graduated from the better type of schools before the present methods of instruction came into vogue. In reality, such instruction is not university work at all, as it is of much lower grade than that provided for undergraduate medical students in university medical schools.

Such courses may last from six weeks to six months, and should include such simple instruction as experience has shown is needed by the type of practitioners taking them. Those participating in them should not be classed as graduate students, but should be enrolled in a special category. The committee believes that no certificate should be given on the completion of such courses, and that the physicians taking them should regard the information which they have obtained as a sufficient return for the time and money expended.

Group B, on the other hand, represents an urgent need from two points of view: (1) To provide recent medical graduates with adequate facilities to prepare them to take up special work, and (2) to protect the public from the activities of pseudospecialists.

Your committee agrees that instruction of this type is rather a matter of hospital than of university facilities, and should in great part be regarded as a technical apprenticeship rather than as an academic training.

The major part of the clinical work should be in the wards and in the operating and delivery rooms of the hospital, and considerable direct personal responsibility should be imposed on the student during at least his last year of service. Adequate provision should likewise be made for fairly prolonged service in the dispensary, which should include prenatal and postpartum work and the usual training in gynecologic diagnosis and treatment, as well as training in "follow up" work.

The laboratory instruction should afford adequate opportunity for personal work in the following subjects:

1. Histologic and pathologic study of the female genitalia both from the gynecologic and the obstetric point of view.
2. Bacteriology as applied to wound and puerperal infection, sterilization, etc., as well as the serologic reactions involved in the simpler biologic tests.
3. Biologic chemistry in connection with the study of metabolism and the investigation of various toxemic conditions.
4. Obligatory attendance on carefully conducted necropsies.

Work along practically such lines has for years been afforded members of the resident staffs in gynecology and obstetrics at several hospitals connected with university medical schools in various parts of the country, with the result that every one who has completed his four or five year term of service (including the intern year) has become a competent practical gynecologist and obstetrician.

In order to make this type of training possible, it is essential that, in teaching hospitals, obstetrics and gynecology should be fused into a single department, and that the usual short term resident service should be abolished and replaced by one lasting from three to five years, and open to graduates of any approved school.

Greater difficulty was experienced in reaching a conclusion as to what should be required of members of Class C, namely those who desire to take up special work after having been engaged in general practice for a varying length of time. The committee feels that this problem will eventually solve itself, for the reason that, as time goes on, fewer and fewer physicians will approach special work in this way.

Group D is the smallest, and in many ways the most important of all. In the unanimous opinion of the committee it is the only one which is really graduate in character and with which the universities should be seriously concerned. As indicated above, it would include a small number of men, who, after fulfilling the requirements for Group B, are prepared to undertake serious research work in one of the fundamental sciences on which their specialty is based. It is recognized that it is from men of this type that the important advances in the future may be expected, and they should be welcomed and afforded every facility by real university medical schools.

The committee was unanimous in concluding that work in Group A is not of university caliber and should not be designated as graduate instruction, and that students taking it should not secure any sort of university recognition, not even a certificate.

Furthermore, the committee was equally unanimous in holding that the work for Groups B and C is almost entirely technical in character, and so far as the university is concerned represents only the practical application of instruction already given to undergraduate students. For these reasons, it feels that successful completion of such work does not call for an academic degree, and that the most which can be justified is the granting of a certificate of proficiency.

The committee was divided concerning the propriety of conferring university degrees on the small number of men who do satisfactory work in Group D. Several members of the committee were doubtful of the propriety of granting the Ph.D. degree to medical men under any circumstances, while another member felt that, while it might be harmless, it should be regarded as a waste of the letters of the alphabet.

REPORT OF COMMITTEE ON GRADUATE TRAINING IN PUBLIC HEALTH AND HYGIENE

Dr. Victor C. Vaughan, Ann Arbor, Mich.: The committee considered the problem topically, endeavoring to answer the most important questions involved, as follows:

1. What basic general training should be given in the undergraduate medical school? To this question, the chairman made the following suggestions:

A. Required Courses. 1. Elementary bacteriology. Five hours a day for one semester. Laboratory work directed and supplemented by lectures and quizzes.

2. General hygiene and sanitation. Sixty-four hours of lectures and quizzes, embracing food, water, water supplies, sewage disposal, clothing, housing, health administration, federal, state, municipal and rural hygiene, military and naval hygiene, vital statistics, health laws.

3. Epidemiology. Forty-eight or sixty-four hours of lectures and quizzes on the history, geographic distribution, spread and control of communicable diseases.

4. Entomology. A short course of from six to twelve hours on the principal insects and other arthropods known to be vectors of important diseases. This instruction might come in one of the courses given above.

B. Optional Courses. 1. Advanced bacteriology. A more detailed study of organisms which cause the less common infections; methods of bacteriologic diagnosis; preparation of toxins and anti-toxins, vaccines and other curative and protective procedures. From three to four laboratory hours, five days a week for one semester, supplemented by lectures and demonstrations. Optional to medical students, but required for those who intend to devote themselves to public health. A medical graduate, entering a graduate school in hygiene, should take this course as part of his graduate studies, provided he has not already had it.

2. Protozoology. Study of spirochetes, trypanosomes, hemocytozoa and pathogenic protozoa. Laboratory work and reading extended over eight weeks or more. This course must be preceded by 1 and 2. Optional for medical students, but required for those seeking a degree in public health.

3. Sanitary analyses. Chemical and bacteriologic examination of foods and water.

C. Courses leading to the specialty, which might be offered as electives in the undergraduate school: (1) vital statistics and statistical methods; (2) serology; (3) immunology; (4) child hygiene, eugenics, prenatal care, personal hygiene, health supervision of public schools; (5) psychology and mental hygiene; (6) nature and prevention of habit diseases; (7) public health education.

Varying views were presented by the members of the committee as to what instruction on public health subjects should be included in the required course for a medical degree. Colonel Siler felt that such instruction should include general hygiene and sanitation; communicable diseases; vital statistics, and medical zoology. Dr. Abbott feared that more is advised than the average medical school can give, and about all that can be expected at present are required courses in bacteriology and hygiene, and everything else must be deferred to the graduate course. He calls attention to the report of the Committee of the Association of American Medical Colleges which recommends a required course of ninety hours in hygiene and public health. Admiral Stitt agrees with Colonel Siler as to the subjects which should be covered in the undergraduate course and feels that elementary bacteriology should be given in the premedical course. Dr. Frost feels that medical graduates are deficient in their training, largely because disease has been presented to them as an individual and not as a collective problem. He suggests two required and three optional courses.

What should be the minimum requirement for a postgraduate course in public health and hygiene?

A. Amount of time required. A majority of the committee are agreed that a postgraduate course should cover a period of two years.

B. What should a postgraduate course include? In the opinion of the committee, it would be unwise at present to attempt to prescribe any definite curriculum for a graduate course in public health and hygiene. Much must at present depend on the student and his qualifications. Such review or supplemental courses as may be necessary should be offered. Each one of the members of the committee has sent in recommendations and has made suggestions as to the subjects which such a course should include. A composite of their views shows that the following subjects should be included:

I. Epidemiology, with special reference to communicable diseases: (a) classification of diseases; (b) discussion of various epidemiologic factors, biologic and environmental, affecting the occurrence and spread of communicable diseases.

II. Vital statistics and statistical methods.

III. General principles involved in the prevention and control of communicable diseases.

IV. Applied hygiene, community and personal hygiene.

V. Housing, general considerations, city and town planning, ventilation, heating, lighting and general sanitation.

VI. Public health engineering and sanitation, building plans, sanitation, rat proofing, etc., water, disposal of sewage, disposal of garbage and refuse; drainage, prevention of mosquito breeding; bacteriology, chemistry, microscopy of water and sewage.

VII. Bacteriology, public health bacteriology.

VIII. Immunology, infection and immunity.

IX. Medical zoology.

X. Biochemistry and physiology, nutrition, work fatigue, reaction to heat, light and atmospheric conditions.

XI. Public health organization and administration: (a) state health department; (b) municipal health department; (c) county health department, rural sanitation; (d) federal health organizations; (e) unofficial health organizations.

XII. Epidemiology and prevention and control of communicable diseases from the administrative standpoint, by groups and diseases.

XIII. Industrial hygiene, prevention of occupational diseases and industrial accidents.

XIV. Child hygiene, eugenics, prenatal care, preschool hygiene, health supervision in schools.

XV. Mental hygiene.

XVI. Epidemiology and prevention of diseases due to dietary deficiencies.

XVII. Epidemiology and prevention of habit diseases.

XVIII. Sanitary control of the milk supply, meat inspection, general food inspections.

XIX. Public health legislation.

XX. Public health education.

GRADUATE WORK IN ANATOMY

Dr. C. M. Jackson, Minneapolis: The graduate work in anatomy involves two distinct problems: (a) The question of the training of professional anatomists, and (b) the graduate work in anatomy for clinicians. These will therefore be considered separately.

The graduate work desirable for the training of a professional anatomist will depend largely on the amount and character of his previous study. We may divide the probable course of training into three stages, subject to a certain amount of overlapping and difference in sequence in individual cases. These stages include (1) the fundamental academic or general college work; (2) the professional work, including elementary courses in anatomy and allied subjects, and (3) the graduate or advanced anatomic work. The essential subject matter for each stage will first be outlined, leaving the question of degrees for later consideration.

The present committee is unanimous in considering as indispensable at least two years of general college work, including the fundamental training in physics, chemistry and biology (zoology), as generally outlined for premedical courses. It is highly desirable (considered essential by Evans, Stockard, Streeter and Terry) for the future anatomist to extend his general college work to three or four years, which will enable him to obtain much without which he would find himself more or less handicapped in his later career.

For a professional anatomist in a medical school, a thorough preparation in human gross anatomy, histology and embryology (including neurology) is clearly essential. Of the allied subjects, physiology is generally considered the most valuable, on account of the close correlation between form and function in living organisms. Biochemistry is necessary to understand the fundamental conditions of morphogenesis. Pathology is also considered essential, since abnormal conditions frequently throw much light on the normal structure.

The committee agrees that in all cases the training of the anatomist should include substantial research work under competent guidance in anatomy or some closely related phase of biology. The demonstration of ability in productive scholarship is indispensable. The time required for this will naturally vary in individual cases.

The financial or economic aspects of a career in anatomy constitute an important problem which cannot be ignored. As Dr. Streeter points out, the anatomist, in order to acquire an adequate training, must make an expenditure of approximately $10,000, and must give from eight to ten of his best years. There should be a fair return on the investment. The remuneration to be expected, under present conditions, begins with an instructorship at about $2,000 and leads ultimately to a professorship at perhaps $5,000. In comparison with the financial rewards in the practice of medicine, this is insufficiently attractive.

The committee recognizes the necessity for further basic work in anatomy by progressive clinicians, and favors cooperation with them by providing so far as possible the necessary facilities.

(To be continued)

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Department of Hygiene for University.—The University of Alabama, cooperating with the U. S. Interdepartmental Social Hygiene Board, recently established a department of hygiene, with Dr. Hiram Byrd as director.

ALASKA

Valdez Hospital.—It is announced that Drs. Ernest L. Anderson and Marcus D. White are to be associated in reopening the Valdez Hospital. It is also planned to have this institution cooperate closely with the hospital at Latouche which is to be used as a base where all serious cases are to be taken for operation and treatment.

ARKANSAS

Bill to Regulate Practice of Medicine.—The state legislature has passed the Lemore bill regulating the practice of medicine and surgery.

New Community Civic Health Center in Fort Smith.—A free clinic for women and children established through the joint efforts of the Sebastian County Medical Association and the Fort Smith Federated Welfare Association has been put in operation at the community center. At the present time it is receiving the cooperation of public health nurses and other interested welfare organizations.

CALIFORNIA

Personal.—Dr. William F. Gates, Oroville, was injured in an automobile collision, near Gilroy.——Dr. Robert Smart was selected, from a civil service list, as health officer for San Diego to succeed Dr. Ernest P. Chartres-Martin, resigned. The board of health also reelected Dr. Alexander M. Lesem, physician at the Mission Valley Hospital for Women.——Dr. William I. Kinsley has announced that he will be a candidate for mayor of San Diego.

CONNECTICUT

Dr. Flint's Resignation.—Yale University announces the resignation on account of poor health of Dr. Joseph Marshall Flint, since 1907 professor of surgery, to take effect at the close of the present university year. Dr. Flint is planning to go to his home in California after commencement.

FLORIDA

Hospital News.—The Flagler Hospital and the Anderson Memorial Home for Nurses were recently opened at St. Augustine. The new structure which has been more than two years in building is well equipped and replaces the old Flagler Hospital which was destroyed by fire.

ILLINOIS

Chicago

Hearing Board Established.—Dr. Lee Alexander Stone, chief of venereal disease and social hygiene division of the health department, announces that he has established a hearing board in connection with the work of his bureau as a means of getting more complete reports from the medical profession on cases of this kind. Physicians who fail to report the venereal cases which they have under treatment will be asked to appear before the board and explain why they have failed to comply with the law.

INDIANA

Physician Convicted for Criminal Operation.—It is reported that Dr. Albert A. Hill, Indianapolis, who was charged with performing a criminal operation which resulted in the death of a girl of 18 years in July, 1918, was convicted, March 8.

State Legislation.—The state senate has passed the bill authorizing county commissioners to employ public health nurses.——Senate bill 213, which provided that all milk sold for human consumption must either come from tuberculin-tested cattle or must have been pasteurized, was killed by the house.——A motion to strike out the enacting clause of senate bill 120, providing for state inspection of all remedies for tuberculosis, was voted down in the house. An amendment eliminating from the bill a clause which permitted the state board of health to fix a price at which lung medicines could be sold was passed.——The house passed the bill appropriating $125,000 for the establishment of a children's hospital in honor of James Whitcomb Riley.

IOWA

Meetings of Iowa Physicians.—The Iowa Society of Clinical Medicine met in Grinnell, February 26, as the guest of Dr. Evan S. Evans and the Grinnell Clinic.——The annual clinic of the College of Medicine of the University of Iowa will be held on April 12 and 13. Dr. William J. Mayo, Rochester, Minn., will take part in the program.——The Iowa X-Ray Club will hold its third meeting in the University Hospital, April 14.

LOUISIANA

Asks Repeal of Occupation Tax.—The Natchitoches Parish Medical Society, at the regular March meeting, adopted resolutions condemning the occupation tax as unfair and a double tax. Copies of the resolution were sent the members of the Constitutional Convention asking them to use their influence to have the tax repealed.

MAINE

Bacteria Film to Be Shown in Schools.—A motion picture reel on bacteria will be shown in two eighth grade schools in Augusta this week. If the results are satisfactory this experiment will establish a basis for the introduction of visual education in the public schools of the state.

MARYLAND

Personal.—Dr. John Graham of the University of Edinburgh was the guest of honor at a dinner given recently by Dr. John T. Geraghty at his home in Guilford, Baltimore.

Meetings.—Dr. Shelby M. Harrison, director of the department of surveys and exhibits, Russell Sage Foundation, New York, delivered an address on "The Methods and Results of Public Health Surveys," at Johns Hopkins University School of Hygiene and Public Health, March 8.

Appointment at Bay View Under Consideration.—Appointment of a medical man as superintendent of Bay View City Asylum at a salary of $4,000 with living quarters, light and fuel, to succeed Mr. Lamar Hollyday, resigned, was discussed recently by members of the board of supervisors of city charities following a meeting of the Bay View committee. Mr. Hollyday's successor will be considered at a general meeting at Bay View on April 1.

MICHIGAN

Hospital News.—The new Mercy Hospital at Muskegon, costing $400,000, was opened in February.——An eighteen bed hospital has just been completed by the Belding Brothers Corporation, at Belding, and is to be known as the Belding Brothers Corporation Hospital.

MINNESOTA

Chicago Educators Visit Mayo Foundation.—Dr. Harry Pratt Judson of the University of Chicago and Dr. Arthur Dean Bevan, professor of surgery, Rush Medical College, and chairman of the Council on Medical Education, American Medical Association, recently visited the Mayo Foundation to study the methods of graduate teaching employed there. Dr. Judson and Dr. Bevan addressed the fellows and staff of the foundation. Dr. Judson spoke on the work of the Rockefeller Foundation with special reference to the work in China. Dr. Bevan discussed the facilities for graduate and undergraduate medical instruction in the University of Chicago and stated his belief in the promising future of graduate medical education in this country.

Personal.—President Ray Lyman Wilbur, Leland Stanford University, delivered a Mayo Foundation Lecture on botulism, Saturday, March 5.——Dr. J. Whitridge Williams, professor of obstetrics in and dean of Johns Hopkins University Medical School, gave a Mayo Foundation Lecture, "A Critical Review of Twenty-One Years's Experience with Cesarean Section," March 10.——Dr. Henning Wiese, who has been a fellow in surgery in the Mayo Foundation since 1918, is leaving for his home in Christiania where he will practice surgery in the city hospital.——Dr. G. Carl Huber, professor of anatomy, University of Michigan, gave a Mayo Foundation Lecture, "Experimental Observations on Bridging Nerve Defects."——Prof. Gaston Labat, special lecturer on anesthesia in the Mayo Foundation, has just received notice from the Faculty of Medicine of the University of Paris that he has been awarded the medal for his thesis on paravertebral anesthesia in gastro-intestinal surgery. This confers on him the title of Laureate of the Faculty of Medicine of the University of Paris.

NEW JERSEY

State Health Conference.—At the eleventh annual conference of state and local health officers, held at Trenton, Dr. Abraham Zingher, New York, spoke on "The Modern Method for the Control of Epidemics of Diphtheria"; Dr. C. G. Wigley, New York, on "The Protection of Public Water Supplies"; Mr. E. G. Routzahn, Russell Sage Foundation, New York, on "Publicity and Health Work," and Mr. Philip P. Jacobs of the National Association for Study and Prevention of Tuberculosis, on "The Broader Health Aspects of the Tuberculosis Problem."

Women in Industry Receive Attention of Legislators.—Welfare legislation is receiving renewed impetus in New Jersey since the entrance of women into the political field. Bills before the present legislature limit the employment of women in manufacturing establishments, bakeries, laundries and restaurants to nine hours out of any ten consecutive hours in any one day, and to forty-eight hours in one week; prohibit night work by women between 10 p. m. and 6 a. m., and establish a commission to study the advisability of making it unlawful for women to be employed in industrial occupations six weeks before and six weeks after childbirth.

NEW YORK

Gift of One Million Dollars to Medical School.—The new school of Medicine and dentistry of the University of Rochester has recently been given $1,000,000 by Mrs. Gertrude Strong Achilles and Mrs. Helen Strong Carter, daughters of the late Henry A. Strong. The entire amount will be used toward a clinical hospital to be erected as a joint memorial to the parents of the donors.

New York City

Alumni Dinner.—The New York University Medical College Alumni will held their second annual dinner at the Hotel Biltmore, on Thursday evening, March 31. Dr. Robert J. Carlisle of the class of 1884 is president of the association.

Academy of Medicine Increases Nonresident Membership.—At its meeting, March 3, the New York Academy of Medicine adopted a recommendation of its council amending the constitution so as to increase the number of fellows not residing in the city of New York from 250 to 300.

Delousing Started in Public Schools.—The public health committee of the New York Academy of Medicine has made public a report on the typhus situation in which it advises preventive measures "although no imminent danger of the spread of typhus fever exists." The report states that the occurrence of typhus fever in New York City is not an extraordinary event, there having been twenty-four cases reported in 1917 and thirteen in 1918. The report emphasizes the importance of separating the sick from the healthy and states that it is imperative that disinfection of immigrants be made at the port of embarkation. Because of the existence of endemic typhus fever in this city the public health committee recommends that efforts be directed toward the elimination of pediculosis. The reports of the health department show that every year 200,000 children in the public schools are found to be infested with vermin. Efforts are being made to discover such children, and when they are found they are told not to return to school until they are rid of vermin. If the instructions are not complied with, truant officers are to bring the parents of such children into court for failure to comply with instructions of the board of health. It is stated that all the children found infested have recently come to this country from Europe. Five new cases of typhus fever have developed among passengers of the Italian liner *San Guisto*, which arrived here more than a month ago. On March 7 there were altogether about forty-five cases of typhus fever on Swinburne Island.

New York Association for Medical Education.—At the annual meeting of the association held at the Academy of Medicine, March 7, the by-laws were amended and the board of directors was reconstituted to apportion the control of the association's affairs to the five medical schools of greater New York; namely, Columbia University, College of Physicians and Surgeons; Cornell University Medical College; the Long Island College Hospital; the New York Post-Graduate Medical School and Hospital, and the University and Bellevue Hospital Medical College. This means that for the first time in the history of New York City the five medical schools will cooperate to develop New York City as a medical teaching center. The mayor, the commissioner of health, and the commissioner of public welfare are ex-officio members of the board of directors. Unnecessary duplication of courses of instruction by the several medical schools will be done away with. New courses and a higher type of graduate work will be instituted. The new officers of the association are: president, Dr. Haven Emerson, formerly health commissioner of New York City, and at present in charge of the War Risk Bureau; secretary, Dr. Otto V. Huffman, at present associate professor of medicine at the New York Post-Graduate Medical School and Hospital, formerly secretary of the state board of medical examiners, and secretary-treasurer of the Federation of State Medical Boards of the United States, and formerly dean of the Long Island College Hospital; treasurer, Dr. George W. Kosmak, attending surgeon of the Lying-In Hospital, and formerly secretary and editor of the American Association of Obstetricians.

NORTH CAROLINA

Hospital News.—Bonds to the amount of $250,000 will be issued to rebuild the Biltmore Hospital, recently destroyed by fire at Asheville. Mrs. George W. Vanderbilt donates $25,000 to the building fund.——Fire of undetermined origin completely destroyed the Atlantic Coast Line Hospital for the First Division at Rocky Mount, entailing a loss of more than $50,000. The building was of old construction and highly inflammable. It is expected that its replacement will be of modern fireproof type.

New Marriage Law.—A recent enactment of the legislature, effective March 5, known as the Bellamy act, forbids the issuing of marriage licenses to men unless the application is accompanied by a physician's certificate dated within the past seven days attesting the absence of venereal disease, tuberculosis in an infectious stage, and an absence of a previous adjudgment of insanity by a court of competent jurisdiction. Women applicants for marriage licenses are exempt from the venereal disease clause but must exhibit physician's certificates relative to the absence of infective tuberculosis and insanity.

Medical Society Finds Enforced Treatment Act Unnecessary.—The New Hanover County Medical Society, to which was referred the measure before the legislature to enforce treatment of persons in Hanover County afflicted with tuberculosis, upon investigation found that a law already exists giving the board of health power to order any person suffering from tuberculosis to enter an institution for treatment. Accordingly, the society passed a resolution disapproving the proposed new law and recommending that the board should use the power with which it is already vested, and promising the support and cooperation of the county medical society.

OHIO

Physicians Appointed on State Board.—Dr. Isaac B. Harris, Columbus, and Dr. Edmund M. Baehr, Cincinnati, have been appointed members of the state board of administration.

Ohio Hospital Convention.—The annual convention of the Ohio Hospital Association will be held in Cleveland, May 16 to 21, inclusive. The nurses of the state will meet at the same time.

Scientific Societies.—The American Association of Pathologists and bacteriologists, the American Society for Cancer Research, the American Society of Immunologists and the International Association of Medical Museums (American and Canadian Sections) will meet in Cleveland, March 24 to 26. Members of the profession in Cleveland are invited to attend.

Oppose Nurses as Anesthetists.—The Miami County Medical Society, the Paulding County Medical Society, and the Cincinnati Academy of Medicine have each passed resolutions opposing the use of nurses as anesthetists and asking that suitable legislation be presented in the present session of the state legislature to repeal the present act authorizing nurses to administer anesthetics under direction of the surgeon. These organizations resolve further to instruct delegates to vote against any proposal of the state society to stand neutral or to favor any action of the state society to continue supervised anesthesia.

OKLAHOMA

Legislation for Women in Industry.—A bill introduced in the state senate by Mrs. Lamar Looney, state senator, provides that no woman shall work more than eight hours a day nor more than fifty hours a week, except by the consent of the worker in time of calamity or disaster. The measure does not apply to agricultural workers, nurses or women of similar professions. Provision for seats for all women employees when not engaged in active performance of their duties, and also sufficient heating and adequate toilet equipment are demanded in the bill. There is a penalty of not less than $50 nor more than $100 for violation of the measure, which is increased to from $200 to $300 or from five to thirty days' imprisonment for a second offense.

OREGON

Baby Home Nearly Completed.—The new Albertina Keer Nursery Home, costing $80,000 and providing accommodations for approximately ninety babies will be ready for occupancy about April 1.

University Medical Department to Expand.—The appropriation by the legislature of $271,000 and a corresponding amount expected from a philanthropic Eastern foundation making a total of $542,000 will be expended on medical training, medical research, and medical building in Portland by the University of Oregon. The number of students permitted to enter will be increased with the school's expansion.

PENNSYLVANIA

Hospital News. — The Clearfield Hospital Endowment Building and Equipment Fund has reached the sum of $180,000; $200,000 is required.

Practicing Without Licenses.—State health department officials have recently been engaged in arresting persons engaged in practicing in various specialized branches without state licenses, including chiropractors, chiropodists and others.

Officers Elected.—At the annual meeting of the Northampton Medical Society the following officers were elected for the year 1921: president, Milton W. Phillips, Chapmann Quarries; vice presidents, Drs. Edwin D. Schnabel, Bethlehem, and Paul Correll, Easton; secretary-treasurer, Dr. Paul Walters, Bethlehem.

Personal.—Dr. William E. Holland, Fayetteville, was elected president of the Medical Society of Franklin County at the society's annual meeting held, January 18, at Greencastle. Other officers elected were: vice presidents, Drs. John W. Croft, Waynesboro, and Thomas H. Gilland, Greencastle; secretary, Dr. John J. Coffman, Scotland; assistant, Dr. Samuel D. Shull, Chambersburg, and treasurer, Dr. Thomas N. Emmert, Chambersburg.

Philadelphia

Personal.—Dr. Anna Broomall, who occupied the chair of obstetrics in the Women's Medical College from 1878 to 1902, was run into by an automobile, March 4, and sustained a fracture of the arm.——Dr. Henry S. Wieder, for nine years assistant medical inspector in the bureau of health, has resigned.

Elimination of Mosquitoes.—Steps toward the elimination of the mosquito in Philadelphia were recently discussed in the mayor's office. Dr. Herbert Allen, representing the Navy Yard, said that efforts were being made to keep mosquitoes away from the vicinity of the Navy Yard and offered the service of the laboratory there to the city.

Medical Unit Organized.—Jefferson Medical College has completed the organization of a medical corps unit of the Reserve Officers' Training Corps under the direction of Major John T. Aydelotte, M. C., detailed to the college by the United States Surgeon-General, as professor of military science and tactics. Fifty-nine students have enrolled.

RHODE ISLAND

Personal.—Dr. Horatio R. Storer, Newport, was presented with a silver loving cup as a testimonial of the esteem of his fellow physicians and citizens on his ninety-first birthday, February 27.

TENNESSEE

Special Permits to Physicians.—Memphis physicians are permitted to park their cars in restricted zones for a period of three hours provided they carry on their cars the physician's insignia and pledge themselves not to violate other automobile ordinances. The local medical society has voted to adopt the insignia secured from the American Medical Association to mark physician's cars.

TEXAS

Legislative News.—The state legislature has passed five bills relating to public health. None of them carried appropriations, although all are constructive measures. The Consolidation Act merges the pure food and drug department with the state board of health at a saving of $15,000 a year. Another act prohibits persons infected with or affected by a contagious disease from working in restaurants, hotels, bakeries, meat markets, cafés, dairies and dining cars. It also provides for the proper sterilization of all dishes, receptacles, or utensils used in eating or drinking. A third act prohibits the employment of persons suffering from a contagious disease in barber shops or beauty parlors. The fourth act requires the use of a prophylactic solution in the eyes of the new-born; while the fifth act requires all maternity homes and hospitals to be registered with the state board of health.

WASHINGTON

Oldest Physician in America.—Dr. Lemuel I. North, Tacoma, the first white child born in Iowa and believed to be the oldest practicing physician in America, celebrated his one hundredth birthday at a party given in his honor at Puyallup. During the week of this anniversary he answered thirty-three medical calls.

WISCONSIN

Wisconsin Home-Coming.—The State Medical Society of Wisconsin will celebrate its seventy-fifth birthday by holding a "Home-Coming" meeting in Milwaukee, September 7, 8 and 9. All former Wisconsin men, whether they have practiced there or left Wisconsin to study medicine, practicing elsewhere after graduating, are invited to this home-coming. The officers of the society are anxious to secure at this time for mailing purposes the names of all former Wisconsin men. They will confer a favor by sending their names and addresses to Dr. Rock Sleyster, Secretary, Wauwatosa.

CANADA

Personal.—Dr. D. B. Wilson, Toronto, is at present health officer, department of public health, Sante Fe, Mexico.

Prescribing Too Much Liquor.—The Manitoba Medical Council has suspended all the physicians of St. Boniface, Manitoba, from practice, with one exception. Infractions of the Manitoba Temperance Act was the cause. The citizens will appeal to the Manitoba government to provide adequate medical service for the district previously served by the physicians under suspension.

The Aesculapian Club, Toronto.—The last gathering for the season, 1920-1921, of the Aesculapian Club, Toronto, was held March 10. Sir Bertram Windle, M.D., London, England, delivered the regular address. The following officers were elected: president, Dr. Alexander Primrose, C.B.; vice president, Dr. George Elliott; secretary, Dr. Fred Harrison (reelected); treasurer, Dr. Edmund E. King (reelected).

New Health Center Opened.—The Massachusetts-Halifax Health Commission, on March 2, opened a second health center in the area of the great explosion disaster, in 1917. This new center is in the old Postoffice Building, Dartmouth, which is splendidly adapted for the purpose. The medical staff are Dr. Henry A. Payzant, who will organize the prenatal and child welfare clinics; Dr. Matthew G. Burris, the tuberculosis service; Dr. George G. Gandier, the eye, nose and throat service, and Dr. F. W. Tidmarsh, the nutrition clinics. The nursing service will be organized by Miss Mary D. Patterson, under the general direction of Miss Ross, the chief nurse of the commission.

Report of Committee of Sixteen.—"To bring about a reduction in, and final extermination of commercialized vice in the community, and the rehabilitation of its victims by bringing into activity such laws as exist, and causing to come into existence such others as are necessary to accomplish this object," is stated as the purpose of the Committee of Sixteen (Montreal, Que.) in its second annual report. The committee has secured a law providing jail sentence without the option of a fine for a keeper convicted more than twice and also for all keepers convicted from an address with respect to which more than two convictions have been made. Three convictions have already been obtained against keepers of forty-four of the worst vice resorts in Montreal. Photographs and finger prints are now taken on arrest of all keepers of disorderly houses. All women arrested as keepers or inmates of such houses are physically examined after conviction and before sentence. The injunction and abatement act obtained last year against landlords of houses used for immoral purposes has recently been sustained through a test case. The ward containing the red light district shows 30 per cent. greater juvenile delinquency than any other ward in the city. It is estimated that 3,000 children and young girls attend school and 3,500 girls are employed in business establishments in this district.

GENERAL

World Tuberculosis Meeting.—The International Union Against Tuberculosis, including representatives of members of the League of Nations and the United States, will meet for the first time, in London, July 26-28.

Red Cross Leaders Sail.—Four national officers of the American Red Cross sailed on the *Imperator* on March 12 to attend the International Conference of the Red Cross, which opens at Geneva on March 28. They are Dr. Livingston Farrand and Dr. Albert Ross Hill of New York, Eliot Wadsworth of Boston and George E. Scott of Chicago.

Fit for Beverage Purposes.—According to Treasury Decision 3141, dated March 2, 1921, and effective ninety days from the date hereof, the "preparations named below which are included in the U. S. Pharmacopeia and the National Formulary are hereby classed as fit for beverage purposes"—the preparations listed are: Spirit Ether or Hoffman's Drops, U. S. P.; Elixir Terpene Hydrate, N. F.; Wine of Pepsin, N. F.; Wine of Beef, N. F.

Association of American Medical Colleges Elects Officers.—The officers elected by the Association of American Medical Colleges at the thirty-first annual meeting held in Chicago, March 8, for 1921-1922, are: president, Theodore Hough, University of Virginia School of Medicine; vice president, Charles P. Emerson, University of Indiana School of Medicine; secretary-treasurer, Fred C. Zapffe, Chicago; chairman of executive council, Irving S. Cutter, University of Nebraska, College of Medicine.

Campaign to Promote Annual Physical Examinations.—Gen. John J. Pershing is participating in a campaign for an annual physical examination of the young manhood of the country. Disclosure of the fact that over 60 per cent. of the youths drafted into the military service during the World War were physically defective is the reason that General Pershing is advocating this annual survey. He advances the theory that such an examination conducted either by government physicians or doctors in civilian practice under authority of the War Department or the U. S. Public Health Service would reveal any lack of physical development or defect that could in most instances be remedied.

Dr. Sawyer to Outline Plans for Public Health.—Dr. Charles E. Sawyer of Marion, Ohio, who has been President Harding's personal physician, has been commissioned a brigadier-general in the Medical Reserve Corps, and will be called to active duty. At the present time there are only two brigadier-generals in the medical section of the reserve corps. They are Dr. John M. T. Finney and Dr. William F. Thayer, both of Baltimore. It is now reported that in addition to his duties as physician to the White House, Dr. Sawyer will be detailed to public welfare work. An official statement from the White House concerning this appointment follows:

> President Harding has long since been convinced that the affairs relating to public welfare, such as Public Health, Education and Social Justice, are so intimately related and so vital to the Nation's prosperity that he has decided to begin at once a careful survey of all matters pertaining to these subjects.
>
> That there may be no delay, he has nominated Doctor Sawyer of Marion, Ohio, a man of long and practical experience in such matters, to a Brigadier Generalcy in the Medical Corps of the Army, thereby not only securing the services of Dr. Sawyer as physician at the White House when professional attention is necessary, but also giving him direct authority to make a thorough investigation of needs of this subject and to present the accumulated facts, with such suggestions as his observations may warrant, in bringing about a concrete plan of co-ordination and most efficient and economic operation of these affairs.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jefferson Medical College, Philadelphia, $150,000, to be held in trust for the Daniel Baugh Institute of Anatomy, the income to be used to pay salaries to a professor of anatomy and director of the institute, by the will of Daniel Baugh, Philadelphia.

Hahnemann Medical College, Philadelphia, a trust fund of $25,000, the income to be used for the purchase of instruments and apparatus to equip the John Clifford English and Mary E. English laboratories; Hahnemann Medical College Hospital, $10,000 for the endowment of two beds, and St. Luke's Hospital, $5,000 to endow one bed, by the will of Mary E. English, Philadelphia.

Italian Hospital of the Borough of Manhattan, more than $20,000, the proceeds of a benefit performance of "Rigoletto."

St. Mary's Free Hospital for Children, $5,000, and United Hospital Fund, New York, $2,500, by the will of Mrs. Ellis Prince Speyer, White Plains, N. Y.

Society for Improving the Condition of the Poor, New York, $200,000; Children's Convalescent Home at Chappaqua, N. Y., National Committee for Mental Hygiene, each $100,000; New York Hospital, $50,000; Adirondack Cottage Sanatorium, $25,000, by the will of Mrs. Elizabeth Milbank Anderson.

Mount Sinai Hospital, New York, $1,000; Montefiore Home, New York, $500, by the will of Edward Hirsch.

Is Beer a Medicine?—One of the last acts of Attorney-General Palmer was to furnish an opinion to the Secretary of the Treasury on the manufacture and sale of whisky and beer for medicinal purposes under the Volstead Act. The opinion, dated March 3, 1921, the day before President Harding was inaugurated, holds that it was not the purpose of Congress to prohibit the use of liquor for nonbeverage purposes. As evidence thereof, the Attorney-General quotes the title of the National Prohibition Act. However, in order to regulate the manufacture, production, sale and use of spirits for other than beverage purposes, it was found necessary to regulate the traffic in nonbeverage liquors. The use of liquor as a medicine was recognized by Congress to be a nonbeverage use. The Attorney-General, therefore, is of the opinion that the Commissioner of Internal Revenue may issue permits for the manufacturing of liquors for medicinal purposes. This opinion answers the first three questions of the Secretary of the Treasury, which were whether the commissioner is authorized under the Volstead Act to issue permits for the manufacturing of whisky, beer or wines for medicinal purposes. The fourth question is whether the Secretary of the Treasury is authorized under the law to limit or control by regulation the quantity of any or all of the three forms of liquor which may be prescribed by physicians. The Attorney-General says that the law forbids a physician to prescribe liquor, except when after a personal examination or investigation he believes, in good faith, that the use of such liquor as a medicine by such person is necessary and will afford him relief from some known ailment. The only limitation which Congress has prescribed is that not more than 1 pint of spirituous liquor shall be prescribed for the same person within a period of ten days. The Attorney-General holds that subject to this limitation, the question as to the quantity of liquor which may be used as a medicine in each case has been committed to the professional judgment of the physician and not to the judgment of the Commissioner of Internal Revenue, or of the Secretary of the Treasury. The Attorney-General is also of the opinion that it was the intention of Congress to leave the physician unfettered by governmental control for the practice of his profession, but subject to criminal prosecution and revocation of his permit if he acts in bad faith. A regulation, therefore, putting a limit on the amount which could be prescribed in a given emergency, or during a given period of time would in the opinion of the Attorney-General be void. The Secretary, however, has clearly the authority to make regulations governing the manner in which liquor may be prescribed. The Attorney-General is also of the opinion that the commissioner and Secretary of the Treasury are without authority to limit the number of permits either in a particular section of the country or in the country as a whole. The opinion of the Attorney-General is, of course, simply a personal opinion for the guidance of the other members of the administration. As Mr. Palmer's opinion was issued in the last twenty-four hours of his official career, it is not necessarily binding on the new administration. Whether the new Attorney-General will take the same view of the subject remains to be seen.

LATIN AMERICA

Return of Dr. Torres.—The *Brazil-Medico* reports that Dr. Alvaro de Lemos Torres has returned to S. Paulo from the United States where he has been studying at the invitation of the Rockefeller Foundation for the last two years. He is assistant professor of clinical medicine in the S. Paulo medical faculty.

Election of Officers.—The Sociedad Peruana de Cirugía of Lima recently elected Dr. G. Gastañeta as president for 1921; Dr. E. Bello, vice president; Dr. L. de la Puente, second vice president, and Drs. R. Palma and C. Morales Macedo, secretaries, with Dr. F. Graña, treasurer.——The Sociedade de Medicina e Cirurgia do Amazonas has elected for the two-year term, 1921-1923, the following board: Dr. A. A. da Matta, president; Dr. G. Ramos, vice president; Dr. Fulgencio Vidal and Dr. Linhares de Albuquerque, secretaries, and Dr. Vivaldo Lima, treasurer.——The Sociedade de Medicina of Porto Alegre, Brazil, has elected for 1921, Dr. Sarmento Leite, president; Dr. Annes Dias, vice president, and Dr. G. Blessmann, secretary general. The committee in charge of the publication of the *Archivos Rio-Grandenses de Medicina,* the official organ of the society, comprises Drs. Dias, Lima Guedes and Gonçalves Vianna.

FOREIGN

Conferences of Belgian Eugenics Society.—The newly organized Société Belge d'Eugénique is holding a series of public lectures at Brussels on appropriate topics, Monday evenings. The lecturers are professors in the medical faculty, and the topics discussed recently were "The Venereal Peril" and "Eugenics from Sociologic Standpoint in Respect to Demography." The secretary of the society is Dr. Govaerts, 17 Grand'Place, Brussels.

Netherlands Committee Sent to Investigate Friedmann's Remedy for Tuberculosis. — The *Nederlandsch Tijdschrift* relates that the Netherlands minister has just received the report of the committee he sent to Berlin for this purpose. The committee consisted of Prof. C. H. H. Spronck, Dr. B. H. Vos and Dr. H. M. M. Eykel. According to the daily papers, their report states that nothing they saw or heard had convinced them that favorable results had been realized with the Friedmann remedy for tuberculosis, and hence that there were no grounds for introducing the Friedmann treatment into the Netherlands. They add that the underlying principle may be correct, however, and therefore assuming that the remedy is harmless, they propose to continue investigating it and will report to the authorities later on the outcome.

League for Prevention of Mental Disease.—The *Encéphale* states that the French Ligue de Prophylaxie et d'Hygiène Mentales is meeting with much encouragement. Nine committees have been appointed for different phases of the work, with leading physicians at the head of each, Legrain for alcoholism; Toulouse for dispensary and consulting centers; Briand for aid and legislation; Dupré for training in psychiatry; Antheaume for organization and propaganda; Colin for the "antisocial" committee; Lahy, occupational hygiene, and Klippel for general diseases and mental disturbances. Each committee comprises from eight to eighteen members at present. One of the aims of the league is to secure psychiatric treatment at the earliest possible moment, without internment in the majority of cases. Among the 20,000 psychiatric cases under observation at the psychiatric center at Val-de-Grâce during the war, only 5.000 had to be interned.

Deaths in Other Countries

Charles Alexander Cameron, Dublin, Ireland; F.R.C.S.I., and L.M., 1874; Royal University of Ireland, 1896; F.R.C.P.I., 1898; at one time president of and professor of chemistry and hygiene in the Royal College of Surgeons, Ireland; president of the Royal Institute of Public Health from 1889-1893; died, February 27.——Dr. **A. Torchio,** instructor in pathology at the University of Parma.——Dr. **Rivelli** and Dr. **L.**

Bernasconi of Buenos Aires, killed together in an accident. Both were connected with the Hospital Fernández of Buenos Aires.——Dr. **G. Zoratti** of Udine contracted scarlet fever while examining a child with the disease, during a postgraduate course at Rome, and succumbed to the hemorrhagic nephritis which developed.

CORRECTION

"Results of Operation for Varicocele."—In the article by Dr. John Douglas on this subject (The Journal, March 12, page 717), the statement "There were 303 patients operated on for hydrocele" should read "operated on for varicocele."

Government Services

Rutland Sanatorium Is Leased by Public Health Service

The model tuberculosis sanatorium nearing completion at Rutland, Mass., originally established by the New England Sanatorium Association, has been leased by the U. S. Public Health Service. Extensive improvements in the way of enlargement will be made and the institution originally constructed to accommodate 100 patients will ultimately care for 300.

Confirmation of Medical Corps Personnel

Although several thousand recommendations for promotions of officers in the infantry, cavalry and artillery branches of the regular army, whose names were submitted to the Senate during the last session, failed of confirmation—every member of the commissioned personnel of the Medical Corps was confirmed. The records show that two captains were advanced to the rank of majors and that 148 first lieutenants were promoted to captains on the recommendation of the President and that the Senate confirmed the entire list.

Improvements in Sanatoriums Suggested

The tuberculosis specialists, who at the request of Surgeon-General Cumming of the U. S. Public Health Service, have been visiting tuberculosis hospitals belonging to and operated by the government, have completed their task and submitted their suggestions for the improvement of the care and treatment of patients. Steps to put into effect their suggestions were immediately taken by the U. S. Public Health Service. The additional employment of personnel was one of them and the following specialists have been added to the U. S. Public Health Service staff: David Lyman, Wallingford, Conn.; Victor Cullen, Maryland State Sanitarium; Martin V. Sloan, Towson, Md.; George Thomas Palmer, Springfield, Ohio, and Henry Hoagland, La Jolla, Calif.

Public Health Service Issues Standard Sanitary Code

The U. S. Public Health Service has issued a Standard Sanitary Code which has been approved by a conference of state and provincial officers of health and is recommended to the several states for adoption. The new code deals with the transportation of persons having communicable diseases; it also pertains to water and ice supplies; with the cleaning and disinfection of cars; with sanitation in railway stations and with railway construction camps. The code revises the existing regulations covering the certification of water used for drinking and culinary purposes on railroad trains and also the character of ice provided by the railway companies for the public. A study has been conducted for more than a year by the U. S. Public Health Service on this subject and many health officers in various states of the Union have joined in the work of regulation of water supply for railroad trains.

Transfer Tuberculosis Patients to East

The influx of former veterans of the World War from eastern states to the semi-arid Southwest has resulted in a serious problem for the U. S. Public Health Service due to the fact that the government hospitals and contract hospitals in that section are crowded with tuberculosis patients and it has been necessary to transfer patients from Tucson, Ariz., and other western sanatoriums to Asheville, N. C., and elsewhere in the East. Many ill-advised soldiers have of late thronged to Tucson, unmindful of the fact that every bed in that place is filled and every hotel and boarding house overcrowded. More than 500 tuberculosis subjects in Tucson are unable to find entrance into the sanatorium. Other towns in the Southwest report similar conditions and Surgeon-General Cumming of the U. S. Health Service has issued a warning against leaving their homes where the government is able to care for them and going to the Southwest on their own initiative.

Public Health Service Takes Up Care of Lepers

The U. S. Public Health Service has started concentrating lepers, who are scattered in various parts of the country, at the Federal Leprosarium at Carryville, La. This home for lepers was recently taken over by the government after its sale was authorized by the state legislature of Louisiana. Dr. Oswald E. Denny of the U. S. Public Health Service was placed in charge and extensive improvements are to be effected this year. An appropriation of $200,000 was granted by Congress to remodel the leprosarium. Its present capacity is fifty patients, but this will be increased to 500 patients. Additions and alterations will include new dormitories, a power plant, laundry, amusement hall and chapel. Ultimately the Public Health Service plans to enlarge it so that all cases of leprosy that develop in the United States will be sent to Carryville. It is estimated now that there are over 600 patients in various parts of the country, all of whom will be concentrated in this federal institution. An army hospital car is now proceeding to Bedford, Mass.; Bridgeport, Conn.; Washington, D. C., and Richmond, Va., collecting lepers to transport them to Carryville.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Feb. 18, 1921.

Abuse of Hospital Privileges by Persons of Means

At a recent meeting of the Conseil d'Administration du Syndicat Médical de Paris, Dr. Lapointe, surgeon to the hospitals, discussed the suggestions made by the various medical societies of Paris and vicinity as to the best means of dealing with the abuses that result from the conditions under which patients with adequate means are admitted to the hospitals. At the end of his report he offered these conclusions:

1. The hospitals of the City of Paris should be reserved, in the main, for persons who have not sufficient means to be cared for and operated on in their homes or in the *maisons de santé.*

2. Patients whose names are not already inscribed in the ward list of those receiving regular assistance from the city should be required to sign a request for free medical assistance, before being admitted to the city hospitals.

3. Patients who will not sign the request for free medical assistance thus admitting that they possess adequate means should be required to pay the medical fees, which should be added to the charges for board and room and use of the operating room.

4. Paying patients should be subjected to the same régime as the indigent and persons of limited means.

5. The City of Paris, with the aid of the state, should establish, separate and distinct from the hospitals, and without the aid of the public charity funds, *maisons de santé* in various sections of the city. All physicians and surgeons should be free to practice in these sanatoriums at will. These *maisons de santé* should be managed on a nonprofit-producing basis. The minimal tariff rates for board and room and use of the operating room should be the same as in the hospitals.

6. The hospital rates for board and room should be reduced to the level of the lowest rates of the municipal *maisons de santé.* For an ordinary consultation the rate should be at least equal to the average charge for an ordinary consultation

in a physician's private office. In case a dressing, the application of an appliance or a slight surgical operation not necessitating hospitalization is required, the charge for the consultation should be doubled. For treatment necessitating hospitalization, a per diem charge equal to the price of board and room should be made in the strictly medical services, and a charge equal to twice the price of board and room for the surgical services, to which should be added a charge for the use of the operating room (if it was used) to be regulated by the lowest schedule of the municipal *maisons de santé*. A reduction of 50 per cent. of the medical fees and the operating room charge should be made in favor of persons suffering from industrial accidents and of army and navy pensioners.

The conclusions of Dr. Lapointe's report were adopted with only one dissenting vote.

Liability of a Pharmacist for Error Committed by an Assistant

By mistake, a pharmacist's assistant had affixed to the container of a mixture intended for external use the label of a certain potion, while to the latter he had attached the red label: "For external use." The mixture intended for external use (extract of eucalyptus and tincture of benzoin) was administered to a child suffering from grave bronchopneumonia, to which disease he succumbed. The medical expert testified that the real cause of death was the disease bronchopneumonia in the advanced stages, and that the mixture had produced no internal disturbances, as its toxicity was very slight. Nevertheless, the court found in favor of the plaintiff, basing the decision on three items:

Though it is not definitely established that the absorption of the mixture was the direct cause of the death of the child, it is nevertheless true that death followed shortly after its absorption.

Though the death of the child should be attributed to the double bronchopneumonia in the advanced stages, it is not established that the condition of the patient was not markedly aggravated by the absorption of an irritating, toxic liquid which, through a dangerous error, was substituted for a sedative.

Charged as they are with extremely delicate and minute tasks, on which the life and health of patients may depend, it becomes the duty of pharmacists and their aids and representatives to use the utmost care in the exercise of their profession, particularly as regards the filling of prescriptions.

Physicians for French Colonies

Physicians who hold diplomas showing that they have pursued special courses in colonial medicine are being sought to serve in the French possessions of western Africa. They will be given contracts assuring them an initial annual income of from 25,000 to 26,000 francs; namely, 20,000 francs salary; from 1,500 to 2,000 francs for field work, and from 3,000 to 5,000 francs in the form of various bonuses. Other large colonies, such as Indochina, Madagascar and French equatorial Africa, will doubtless soon make similar offers to European civilian physicians.

Second Congress of School Hygiene

The Ligue française d'hygiène scolaire and the Société des médecins-inspecteurs des écoles de la Ville de Paris have organized a congress of school hygiene to be held, April 1-3, 1921, in the halls of the medical department of the University of Paris. The congress is placed under the patronage of the ministers of public instruction, public hygiene and public welfare. These are the subjects that are on the order of the day for discussion: (1) the hygienic and pedagogic organization of open-air schools; (2) instruction in hygiene in schools, and (3) medical inspection of schools; school canteens or lunch rooms.

BELGIUM

(From Our Regular Correspondent)

Feb. 4, 1921.

Public Health in the Belgian Congo Region

The middle of December, there met at Brussels a so-called colonial congress, which endeavored to solve divers problems of an economic, political and industrial nature affecting the colonies. But in addition to such questions, the members of the congress also sought to strengthen the public health service and to find ways and means of spreading information with regard to the new regulations pertaining to the campaign against tropical diseases and depopulation. Monsieur Francq, colonial minister, told what had been accomplished so far in the fight against infectious disease; and several things that he brought out in his report merit attention. As he had recently returned from a trip to the Congo, he was in position to give a first-hand account of the actual needs, and, for that reason, great value may be attached to his statements. Speaking of the comparative hygienic conditions among the white and black races, the minister pointed out that in the Congo region the whites suffer less from tropical diseases than the blacks. The progress in public health that has been made by Europeans is truly remarkable, as is shown by statistics and proved by daily experience. The hospitals for the whites are almost empty. As regards the natives, the conditions are not so good—not among the Belgians nor among our neighbors, the French and English. However, it is an exaggeration, and not justified by authentic reports, to say that the population of the Congo has decreased one half since the arrival of the Europeans. It is, however, undoubtedly true that the population is decreasing instead of increasing, that the death rate for children is entirely too high, that the young natives are succumbing in great numbers to epidemic scourges, and that there are very few old persons to be seen. What should be done to remedy this state of affairs? The reply is: Increase the number of physicians. After the war there were only forty physicians all told, but by the end of next year this number will be doubled. The budget for public health work is to be tripled. What the Belgians are doing in this respect in their colony is at least on a par with what our neighbors are doing. A good many of the nurses who were taking care of our soldiers at the front have gone to Africa and are fulfilling their mission with great success. The missionaries, whose absolute devotion deserves the greatest admiration, by taking a course of study in tropical medicine will increase their sphere of usefulness among the natives, with whom they have lived for many years in all parts of the colony. If the native people are to be developed, we must be able to count on them, as well, in the campaign against disease. With this idea in view, it has been decided to organize training schools for native medical assistants—these to be located in various parts of the country, but more especially in the interior, near to villages and mission and post stations. They will be equipped with a small dispensary and a moderate supply of drugs. They will be under the surveillance and inspection of physicians. By the end of ten or more years, it is thought possible to train several hundred native medical assistants. The negroes think that almost all diseases are due to witchcraft. If, some day, some one of their own race succeeds in demonstrating to them the true origin of disease, that will sound the death-knell of the profession of sorcerers, and will mark an era in the progress of medicine.

The Native Population of the Congo Region

In a previous letter, the return of the mission headed by Dr. Marcel Dossin, a pediatrician of Brussels, was mentioned. His instructive report greatly interested the colonial authorities. He found high mortality among children in the

Congo. He concluded that in order to combat successfully this condition, it would be necessary to entrust to the missionaries the development of child welfare work; for the colonial physicians, although their devotion to duty is worthy of all admiration, have not the time for it, for they are already overworked by their extensive practice among the white population, having to accommodate themselves to many inconveniences, or they are frequently absorbed in laboratory work.

Furthermore, the physicians, for the most part, are located in the principal centers, where there are few children. The success of the child welfare work that has already been launched at Kisantu and at Henifu furnishes sufficient evidence of what can be accomplished in this manner. Experience shows that a decrease in the mortality rate in Africa can be effected with a small outlay of money. At the session of the colonial congress, Dr. Groden, director of the school of tropical medicine, confirmed the foregoing statements and cited some interesting figures, which serve as a complement to Dr. Dossin's report. He discusses conditions under three different heads:

THE SANITARY SITUATION AMONG NATIVES

The mortality rate among the blacks in the service of Europeans is much above the average. Recent statistics show a rate of from 5.7 to 10 per cent. for certain units. The same is true of the natives not in the service; at least in the regions invaded by trypanosomiasis, where 10, 30 and even 46 per cent. of the population have sometimes died in two or three years. The birth rate is usually low. Recent statistics show in the regions only slightly affected by trypanosomiasis approximately five children in six households. Child mortality, especially, is high, ranging between 25 and 50 per cent.

THE CAUSES OF THIS UNFAVORABLE INSANITARY SITUATION

The high mortality rate among the blacks in the service is caused partly by affections that were doubtless common before the advent of the Europeans (respiratory and intestinal), and partly by diseases introduced more recently (typhoid, cerebrospinal meningitis, tuberculosis and venereal affections). Among the natives not in the service, trypanosomiasis is one main cause of death. The low birth rate and the high death rate among children are due partly to social causes and partly to disease. Venereal affections and trypanosomiasis play the principal rôle.

THE REMEDIES NEEDED TO IMPROVE THE SITUATION

As a general statement, it may be said that we should make use of the services of the black man, not as if he were a tool easily replaced, but as an object of great value or as if he were a part of an inheritance entrusted to our care. When the natives are to be employed in the service of Europeans, great care should be taken in transportation. They should be given good quarters and good food. Strict hygienic regulations should be enforced, and the medical service should be well organized. Social conditions should be improved with a view to giving them the comforts of family life. Medical assistance among the natives should be much extended and should include prophylaxis against trypanosomiasis. The carrying out of this program will necessitate a numerous sanitary personnel, the basis for which should be the colonial physician. He should be aided, and for some kinds of work might be replaced, by sanitarians, nurses, midwives, missionaries and "sisters." The European personnel could be aided by native microscopists and possibly, later on, by native midwives. This organization, which has already been effected, will raise the birth rate and lower the mortality rate. The same principles should be applied also by the commercial companies.

Conferring of a Special Distinction

Dr. Welch, professor of clinical medicine in Johns Hopkins University Medical Department, has been elected an honorary member of the Royal Academy of Belgium.

BERLIN

(From Our Regular Correspondent)

Feb. 3, 1921.

The Development of Social Hygiene

As social legislation may be said to have begun in Germany and has possibly been more highly developed here than elsewhere, German physicians have devoted themselves earnestly to the study of occupational diseases and their prophylaxis. Their studies have extended to the social conditions prevailing in working men's families and in the families of other industrial classes. It is, therefore, quite natural that in Germany, above all, a field of investigation should have early opened up to which the authors who were the first to study these subjects systematically have applied the terms "social hygiene" and "social medicine." The present ministerial director of the medical department of the Prussian ministry of public welfare, Professor Gottstein, who has been especially prominent in developing this new branch of medical science, has introduced the term "Sozialärzte (social physicians) to designate the physicians who make a specialty of social hygiene, whereas he terms the physicians who pursue the usual course of medicine "Heilärzte" (therapeutists). In regard to the significance and limitation of the terms social medicine and social hygiene, there is no common agreement as yet. Instructors in general hygiene in the universities object, to some extent, to social hygiene's being regarded as a separate subject. In spite of their objections, however, there can be no doubt that social hygiene will hold its place as a special subject in the university curriculum. Social hygiene has been defined as that branch of public hygiene which deals with the influences that human society in general exerts on health conditions. Social medicine or, more exactly, social pathology, to use the term proposed by the social hygienist Grotian, who has been appointed to the chair of social hygiene in the University of Berlin (the first chair of the kind to be established in a German university), deals, in contradistinction to the hospitals, not with the disease of the individual but with the diseases of persons who constitute local and social groups. Gottstein differentiates general hygiene from social hygiene, from the professional standpoint; general hygiene (also called laboratory or biologic hygiene), by the aid of experiment and by the use of generally accepted experimental facts, establishes the needs of the factory workmen as regards food, air, heat, sanitation, working rooms, etc., and describes what is needed to carry out these requirements. Social hygiene, on the other hand, collects and sifts the sum total of knowledge in regard to the actual conditions of health prevailing in the various trades and professions, and considers carefully and critically the question as to what extent the nature of the employment itself and in how far other influences lying outside the trade or profession enter into account. The determination of the minimal age for juvenile employees; the influence of instruction given unskilled workmen in chemical works where poisons are manufactured, and the management of compulsory notification in industrial diseases are matters that cannot be tested out in the laboratory and must be examined into by different methods. From this point of view, aside from industrial hygiene, there are various other endeavors that come under the head of social hygiene, such as infant welfare, child welfare, juvenile welfare, prospective mothers, puerperants, alcoholics, the tuberculous, venereal patients, cripples, and housing problems. Social hygiene and general hygiene overlap along certain lines, and that is one reason why university professors oppose the segregation of social hygiene. Among the "social physicians," to which class, strictly speaking, belong only those physicians who are employed as experts in social hygiene, the physicians who take over the control of the public health of more or less extensive districts, as so-called administrative physicians or communal physicians, play an important rôle. A number of the larger cities already have such communal physicians; for example, Berlin and some of its suburbs (Charlottenburg, Schöneberg), Cologne and Stuttgart, and more and more cities are endeavoring to enter this circle. In the rural districts such communal physicians have charge also of the district public welfare offices, which have sprung into being very rapidly during recent years. In the special training of communal physicians, the Prussian ministry for public welfare established, a few months ago, certain special requirements, according to which physicians who serve the city or county administration as medical advisers in all questions of public health and social hygiene must not only have studied the principal subjects of social hygiene but must have in addition as much knowledge of general hygiene as the state public health officers. Furthermore, they must possess a knowledge not only of social legislation proper but also of all medical and health legislation that bears on social legislation. They must likewise understand statistical methods employed in medicine. The academy for the practice of medicine in relation to social hygiene, planned by Charlottenburg at the instance of Professor Gottstein, will incorporate these ideas. Instruction will be given in the hospitals and the welfare units of the cities, preference being given to those that are conveniently located and are up to date. The courses of instruction will be obligatory (or required electives) for those who intend to apply for appointment as county, communal or school physicians, and wish to give evidence of having received special professional training. The number of those admitted to the required courses will usually be limited to thirty.

Vital Statistics of Berlin During Recent Years

The number of children born in Berlin in 1913 was 40,846, but seven years previously the births reached the remarkably high total of 51,460. In 1914 the births dropped to 37,509, and in the following years of the war were still farther reduced: in 1915, 31,000; 1916, 22,713; 1917, 18,725, whereas in 1918, and more particularly during the second half of the year, an increase was again noted, the statistical report showing 20,228 births, an increase of 1,507 over 1917. The birth rate for 1913 was 19.6; 1914, 18.5; 1915, 16.5; 1916, 12.7; 1917, 10.7, and 1918, 11.6. The birth rate for 1917 is the lowest on record. Not until August, 1919, was there any marked improvement in the birth rate. In the previous months it had ranged between 10 and 11, but in August it suddenly shot up to 16. In the following months, it continued to rise and finally, for certain months, went above that of the prewar period.

The mortality rate has taken just the opposite course. In 1913, the death rate was 13.5; 1914, 14.6; 1915, 15.2; 1916, 15.1; 1917, 19.6, and in 1918, 20.5. The effects of the food blockade do not appear with full force until 1917, but then become very marked. The reappearance of influenza in 1918 added its quota to the mortality and raised the death rate slightly above that of 1917 and 50 per cent. above that of 1913. As regards the causes of death, the number of deaths from tuberculosis of the lung and throat, in men, increased from 1,800 in 1913 to 2,621 in 1917 and 2,411 in 1918. That women were even less able to resist tuberculosis of the lung and throat is shown by the increase in the number of deaths from this cause during the period from 1913 to 1919: 1,465, 1,461, 1,427, 1,665, 2,427, 2,554 and 2,208. As further causes of death during the war period we may compare 628 deaths from old age, in men, with 276 in 1913; 1,742 deaths from heart disease as against 1,232; 1,059 deaths from vascular diseases as compared with 636, and 2,037 deaths from pneumonia and other diseases of the lung and pleura as over against 1,375. Similar findings are recorded for women. In 1913, 3,480 died in the age group 50-60; in 1917, 4,710. For the 60-70 age group the figures are 3,998 and 6,159, for the 70-80 age group, 3,231 and 6,160, and for age 80 and over 1,457 and 2,711. The increase in the number of deaths in 1917, as compared with 1913, rose, for the most part, with each decade, the sixth decade showing an increase of 35.3 per cent.; the seventh, 54.1 per cent.; the eighth, 90.7, and the age group 80 and above, 86.1 per cent.

The infant mortality rate (0-1 age group) tells the same story: 1913, 13.5 per cent.; 1914, 15.2; 1915, 12.5; 1916, 11.3; 1917, 14.3; 1918, 15.1, and 1919, 16.5 per cent. The unusually high rate for 1914 was due, in part, to the excessively hot summer of that year. In July, 1919, the number of births again rose above the number of deaths, and in September and October the excess of births over deaths was remarkably high. The reappearance of the influenza during the last months of 1919 and the beginning months of 1920 brought a slight temporary increase of deaths over births.

The Campaign Against "Patent Medicines"

The fight against "patent medicines," which, in consequence of a lack of adequate legislation, are flourishing in Germany today in spite of many regulations on the part of the authorities, was given a "boost" by recent tax legislation. A law has been passed requiring all professions, physicians included, to pay a certain tax on their gross receipts, and a tax of 15 per cent. of the selling price has been imposed on "patent medicines." According to this law, all therapeutic and prophylactic remedies and tonics, whether intended for man or beast, if the assumption seems warranted that the remedies are injurious to health or at least not beneficial to health, or that they may lead to exploitation or may mislead by the manner in which they are advertised, may be regarded as "patent medicines" (secret remedies). Circumstances that may be taken as justifying such an assumption are that the substances or ingredients or their proportion are kept secret, or that in exploiting the remedies deceptive or exaggerated claims in regard to their therapeutic action are made. Every manufacturer will be given the opportunity of sending to the committee of experts to be appointed by the minister of finance all the material necessary for forming an estimate of their remedies, such as composition, chemical analysis, opinions of physicians, samples, method of manufacture and the selling price. It is hoped that, in view of this legislation, all manufacturers of medicines will find it to their interest to comply with the established requirements, in order to avoid the increased cost of the remedies due to taxation, and to prevent their remedies being classed as "patent medicines." But, owing to the unscrupulous character of "patent medicine" swindlers and the cunning with which they ply their trade, it is to be feared that they will in many instances find means of thwarting the purpose of the law.

Marriages

Leigh Austin Fuller, Col., M. C., U. S. Army, to Mrs. Ruth Steele of Reno, Nev., at Fort Riley, Kan., February 19.

Junius Winfield Stephenson to Miss Ruth Story Walther, both of New York, February 23.

Edward Frank Slavik to Miss Anna Mae Lustig, both of Chicago, February 23.

Alexander Schomer to Miss Ethel Lewitt, both of New York, February 26.

Charles Sidney Bleumel to Miss Elinor Hensley, both of Denver, March 3.

Deaths

Joseph Ransohoff ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1874; F.R.C.S. (Eng.), 1877; aged 67; professor of anatomy, 1879-1881, anatomy and clinical surgery, 1891-1902, principles of surgery, 1902-1905, and surgery and clinical surgery since 1905 in his alma mater; surgeon to the Cincinnati, Good Samaritan, and Jewish hospitals; a member of the American Surgical Association; Southern Surgical and Gynecological Association and Western Surgical Association; died, March 10.

Matthew Derbyshire Mann, Buffalo; College of Physicians and Surgeons in the City of New York, 1871; aged 75; a member of the Medical Society of the State of New York; emeritus professor of obstetrics and gynecology at the University of Buffalo; gynecologist and obstetrician to the Buffalo General Hospital; a member and in 1894 president of the American Gynecological Society; died, March 3.

Carl Wagner ⊕ Chicago; University of Heidelberg, Germany, 1891; aged 57; surgeon to St. Joseph's Hospital and Municipal Tuberculosis Sanatorium; at one time president of the Medico-Legal Society, and North Side Branch of the Chicago Medical Society; died, March 11, from cerebral hemorrhage.

Leo Lake Jameson, Easley, S. C.; Atlanta (Ga.) School of Medicine, 1913; aged 29; a member of the South Carolina Medical Association and at one time secretary and treasurer of the Pickens County Medical Society; health officer of Easley; died, February 27.

Victor O. Humphreys, Port Allegany, Pa.; College of Physicians and Surgeons, Baltimore, 1913; aged 35; died, February 15, from a gunshot wound in the head, self-inflicted, it is believed, with suicidal intent while despondent on account of ill health.

Otto Ehlinger, College Station, Texas; Tulane University, New Orleans, 1900; aged 49; a member of the State Medical Association of Texas; surgeon at the Agricultural and Mechanical College of Texas since 1910; died, February 28, from heart disease.

Robert Allan Torrance ⊕ Asst. Surg., Lieut. (j. g.), M. C., U. S. Navy, Norfolk, Va.; University and Bellevue Hospital Medical College, 1914; aged 31; physician of the U. S. S. *Chattanooga;* died in a hospital at Gillingham, Kent, England, February 25.

Henry Benjamin Wilson ⊕ San Diego, Calif.; Bellevue Hospital Medical College, 1887; aged 64; at one time professor of physiology and hygiene in the Chattanooga (Tenn.) Medical College; died, February 27, from heart disease.

James Milton McComas ⊕ Elk City, Okla.; Hospital College of Medicine, Louisville, Ky., 1875; Kentucky School of Medicine, Louisville, 1880; aged 71; died, February 22, from septicemia following extraction of a tooth.

Thomas Gray, Acton, Ont.; McGill University, Montreal, Que., 1879; L.R.C.P. (Edin.), L.F.P.S. (Glas.), 1883; died, January 24, from septicemia following an infected wound of a finger sustained during an operation.

Alfred W. Latimer, St. Louis; Beaumont Hospital Medical College, 1893; aged 51; was instantly killed at a grade crossing, February 26, when the automobile in which he was riding was struck by a passenger train.

George Washington Allyn, Pittsburgh; University of Michigan, Ann Arbor, 1878; aged 75; a member of the Medical Society of the State of Pennsylvania; a veteran of the Civil War; died, February 26.

Waldo James Lussier, Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1911; aged 41; lieutenant, M. C., U. S. Army, and discharged, Oct. 23, 1917, died, March 7, from nephritis.

Joseph L. Eyman, Eldorado, Kan.; Northwestern Medical College, St. Joseph, Mo., 1887; aged 61; at one time contract surgeon, U. S. Army; died, February 23, from chronic interstitial nephritis.

George Kellogg Welch, Hartford, Conn.; College of Physicians and Surgeons in the City of New York, 1878; aged 64; a member of the Connecticut State Medical Society; died, February 21.

Elmer T. Sherwood, Linton, Ind.; Missouri Medical College, St. Louis, 1882; aged 61; a member of the Indiana State Medical Association; died, February 20, from diabetes.

Ralph Elmer Robinson ⊕ Nunda, N. Y.; University of Buffalo, 1914; aged 29; lieutenant, M. C., U. S. Army, and discharged, Dec. 3, 1918; died, February 18, from Hodgkins disease.

Carl Victor Malmgren ⊕ Virginia, Minn.; Rush Medical College, 1895; aged 53; died in the Presbyterian Hospital, Chicago, February 28, from carcinoma of the stomach.

Nelson W. Washington, Toronto, Ont.; Victoria University, Cobourg, Ont., 1872; for twenty years a practitioner of Milwaukee; died, February 6, from cerebral hemorrhage.

Thomas Hossack, Lucan, Ont. (license, Ontario, 1869); aged 76; coroner of Middlesex County for fifty years; died, February 15, from cerebral hemorrhage.

Stanley P. Black ⊕ Los Angeles and Pasadena, Calif.; Chicago Medical College, 1885; aged 61; at one time health officer of Pasadena; died, February 4.

Samuel George Thompson, Toronto, Ont.; Bellevue Hospital Medical College, 1880; L.R.C.P. (Edin.), L.F.P.S. (Glas.), 1882; aged 64; died, January 30.

Gregory S. Miller, St. Louis; St. Louis Medical College, 1888; aged 53; a member of the Missouri State Medical Association; died, Dec. 23, 1920.

Julius Maltby Dutton ⊕ Westfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1903; aged 43; died, Januery 29, from lethargic encephalitis.

Laura Colby Price, Monmouth, Ore.; Northwestern University Woman's Medical School, Chicago, 1895; aged 63; died, March 6, from diabetes.

Hilem E. Branch, St. Louis, Mich. (license, Michigan, 1900); aged 82; for half a century a practitioner of St. Louis; died, February 22.

Edward Herbert Byron, Riverdale, Calif.; California Medical College, San Francisco, 1900; died in Livermore, Calif., February 23.

James Edward Duncan, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1895; aged 55; died, February 20.

Eli J. Thomas, Willow Grove Pa.; Jefferson Medical College, 1878; aged 72; died, February 18, from cerebral hemorrhage.

Francis Juat ⊕ Raeford, N. C.; University of Berne; Switzerland, 1882; aged 60; died, January 29, from heart disease.

Rosetta Luce Gilchrist, New York; Homeopathic Hospital College, Cleveland, 1890; aged 68; died about February 18.

Marcus Lindsay Cooper, Okolona, Ky.; Kentucky School of Medicine, Louisville, 1859; aged 84; died, February 15.

James W. Smith ⊕ Monroe, Ga.; Georgia Eclectic Medical College, Atlanta, 1879; died, February 2, from pneumonia.

George Spaulding Green, Burlington, Vt.; University of Vermont, Burlington, 1873; aged 82; died, February 12.

William Fletcher Hall ⊕ Crisfield, Md.; University of Maryland, Baltimore, 1885; aged 63; died, February 17.

Archibald Henderson, Hamilton, Ont.; University of Toronto, Ont., 1906; died, February 12, from pneumonia.

Benjamin Franklin Holmes, Indianapolis; Miami Medical College, Cincinnati, 1880; aged 71; died, February 19.

Tobias S. Gerhart, Reading, Pa.; University of Pennsylvania, Philadelphia, 1864; aged 85; died, February 21.

John Broadus Stepp, Spartanburg, S. C.; Atlanta (Ga.) Medical College, 1887; aged 58; died, February 21.

Max Otto Klotz, Ottawa, Ont.; University of Toronto, Ont., 1895; aged 46; died, January 31, from pneumonia.

Hugh Smith Bingham, Toronto, Ont.; Trinity Medical College, Toronto, 1885; aged 66; died, Dec. 22, 1920.

Samuel P. Schwing, Plaquemine, La.; Tulane University, New Orleans, 1887; aged 57; died, February 19.

John Sumpter King, Toronto, Ont.; Victoria University, Cobourg, Ont., 1879; aged 78; died, February 14.

John H. Spitler Dayton, Ohio; Medical College of Ohio, Cincinnati 1879; aged 69; died, February 21.

Ralph C. Klepser, Altoona, Pa.; Bellevue Hospital Medical College, 1878; aged 65; died, February 21.

E. A. Taylor, Kenton, Tenn. (license, Tennessee, 1889); aged 75; died, February 7, from smallpox.

Isom Burton, Mitchell, Ind.; University of Michigan, Ann Arbor, 1868; aged 80; died, February 2.

Jesse Hall Reed, San Diego, Calif. (license, Michigan, 1901); aged 66; died, recently.

⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

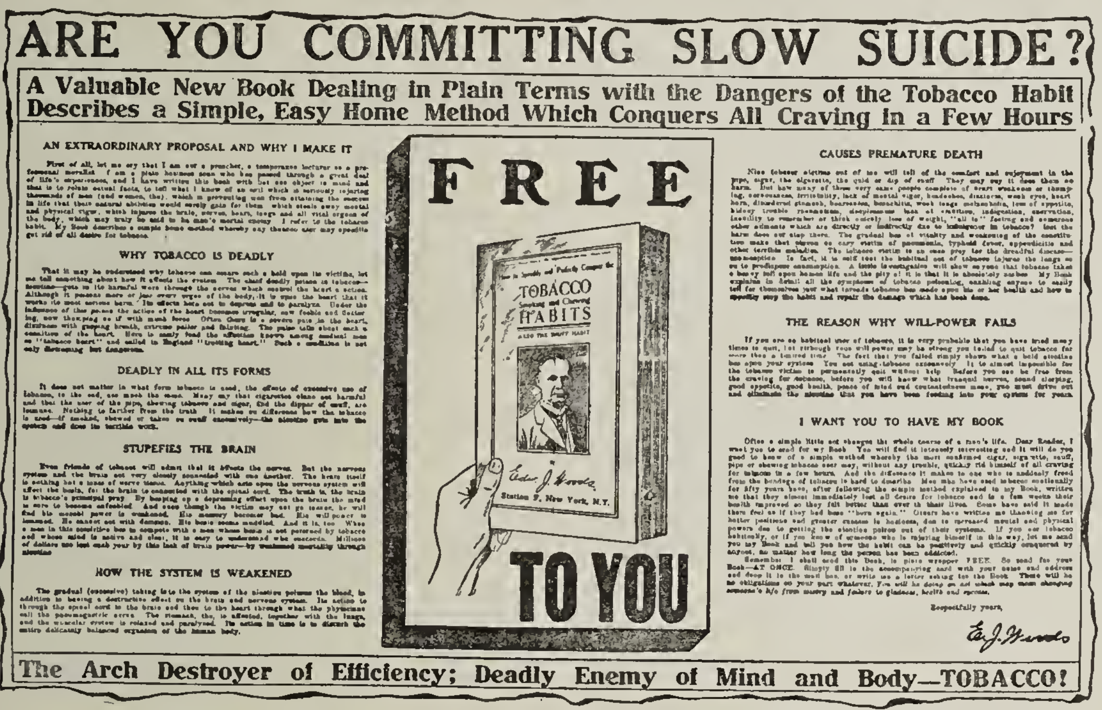
EDWARD J. WOODS, INC.—A FRAUD

A Fake Tobacco Habit Cure Is Denied the Use of the Mails

No longer will the Edward J. Woods fakery, exploiters of fraudulent drink and tobacco habit cures mulct the American public. On Feb. 24, 1921, "the Postmaster-General issued a fraud order against Edward J. Woods, Inc., and its officers and agents as such, at Station F, and 534 Sixth Avenue, and 142 East 32nd Street, New York."

More than nine years ago—to be exact Feb. 17, 1912—Edward J. Woods' fraudulent "cures" for the liquor habit and the tobacco habit, were exposed in these pages. This article, which has been reprinted in full in "Nostrums and Quackery" (second edition) summarized the case against Woods' cure for the drink habit as follows:

"Edward J. Woods, then, who is willing to acknowledge that he 'was rarely sober in sixteen years,' is at present engaged in selling a mixture of tartar emetic and milk sugar under the fraudulent claim that it will cure alcoholism in 72 hours. As an accomplice, he has employed a woman physician who is a disgrace to her profession — a woman, whose wicked falsehood regarding, and inferential slander of, a dead President makes it easy to classify the concern that stands sponsor for it. By means of lying advertisements and fake analyses, Woods will rob the wives and children of inebriates on the specious claim that his worthless mixtures when secretly given will release the father or husband from the thraldom of alcoholism. Week after week money that in many cases should go to purchase the necessaries of life is emptied into the coffers of a man whose past life he admits was a disgrace and whose present existence we believe is a calamity. Knowing that the chances are not one in a thousand that those who are, in their ignorance, trying secretly to cure members of their immediate family of alcoholism, will be willing to risk the publicity that a demand for the return of their wasted money would bring, Woods calmly continues his nefarious trade unmolested and unafraid."



ARE YOU COMMITTING SLOW SUICIDE?

A Valuable New Book Dealing in Plain Terms with the Dangers of the Tobacco Habit Describes a Simple, Easy Home Method Which Conquers All Craving in a Few Hours

AN EXTRAORDINARY PROPOSAL AND WHY I MAKE IT

WHY TOBACCO IS DEADLY

DEADLY IN ALL ITS FORMS

STUPEFIES THE BRAIN

HOW THE SYSTEM IS WEAKENED

CAUSES PREMATURE DEATH

THE REASON WHY WILL-POWER FAILS

I WANT YOU TO HAVE MY BOOK

Respectfully yours,

E. J. Woods

The Arch Destroyer of Efficiency; Deadly Enemy of Mind and Body—TOBACCO!

Greatly reduced reproduction of one of the circulars sent to those who answered the Woods advertisement. The original of this was 16 in. wide by 10 in. deep.

So much for the "drink cure." Woods' "tobacco cure" was also analyzed in the A. M. A. Chemical Laboratory and it was found that among the tablets that constituted the treatment there were some of asafetida and methylene blue. The purchaser was told that one of the signs of a cure was that of offensive-smelling perspiration and a strong odor from the bowel excrement, while the "greenish color" of the urine was "proof positive" that the tobacco poisons were being eliminated through the kidneys! In the closing paragraphs on the "tobacco cure" we said:

"That individuals who have made up their minds to give up the use of tobacco may do so coincidently with the taking of Woods Treatment is doubtless true. That the treatment itself has any value as a cure for the tobacco habit, no one who is competent to express an opinion could admit. While not as cruel a humbug as his 'cure' for alcoholism, his tobacco habit cure is just as fraudulent and just as worthless."

While it is not necessary to give in any great detail the government's case against Edward J. Woods, Inc., there are some interesting facts brought out by Judge W. H. Lamar, Solicitor for the Post Office Department, in his memorandum to the Postmaster-General recommending the issuance of a fraud order. The Woods concern was called upon July 12, 1920, to show cause on or before Aug. 10, 1920, why a fraud order should not be issued against it. A continuance was granted to August 31 and later postponed further to September 9, both delays being given on the application of W. J. Fallon, a New York lawyer who was counsel for Woods. On September 9, W. J. Fallon, accompanied by associate counsel I. Lazarus and G. R. Simpson, both of New York, appeared at the office of the solicitor for the Post Office Department for the hearing. Practically all of the government's case was put in on that day and at the conclusion of that day's session the attorneys for Woods requested a further continuance to September 20. This was granted and the taking of testimony in the case was completed on September 20 and 21, Woods being represented on those dates by Messrs. Fallon and Simpson. These gentlemen then asked that they be allowed to appear on October 5 for the purpose of arguing the case and filing any further matter which they might desire to offer. Their request was granted. The lawyers did not appear on that date and the office of W. J. Fallon telephoned the government that Mr. Fallon would appear on October 6 or 7. He did not appear and on October 20 was advised that the case would be held open until October 26. On October 25 another telephone message was received from Mr. Fallon's office stating that he had been ill and asking a further extension until November 8. This extension, also, was allowed but Fallon again failed to appear nor did any other person connected with the Woods concern appear in connection with the case at any time.

The government's case dealt exclusively with the alleged cure for the tobacco habit, although, as the fraud order has been issued against Edward J. Woods, Inc., this will have the effect of putting the "drink cure" out of business also. The solicitor's memorandum calls attention to the fact that Edward J. Woods, Inc., was selling through the mails medicines alleged to be for the cure of the tobacco habit and that business was solicited, as is always the case, by means of advertisements placed in newspapers and other publications. Those who answered the advertisements received a pamphlet alleged to have been written by Edward J. Woods. Of this pamphlet the memorandum says:

"The representations contained in this circular matter are obviously designed, first, to create in the mind of the reader fear of the disastrous effects of the tobacco habit, and thereby stimulate demand for the Woods remedies, and, second, to induce the reader to believe that he should not rely upon his own will power to stop the habit, but should purchase the Woods treatments."

In addition to the pamphlet there were leaflets. Thus the memorandum:

"Accompanying the circular matter containing the foregoing representations are leaflets containing large cuts depicting so-called 'hypothetical cases' showing the dire results following the use of tobacco. One picture is headed 'Almost Deliberately Committing Suicide' and shows a physician bandaging a man's leg. Another picture is headed 'Failing

Eyesight and Blindness due to Tobacco.' Another shows 'How Terrible Diseases are Spread,' with an alleged scene in a tobacco factory. One picture shows a man in the midst of his family suddenly gone insane, and is headed 'He Was an Inveterate Cigarette Smoker.' Another picture shows a deathbed scene, under which is printed 'Why He Died Forty Years Too Soon.'

"The evidence shows that while the immoderate use of tobacco aggravates some of the conditions referred to above, the foregoing representations with respect to the harmful effects directly attributable to the immoderate use of tobacco are false. It is deemed unnecessary to set forth in detail all of the testimony with respect to the foregoing representations. However, it may be stated that the experts who testified on behalf of the respondent agreed with those produced by the Government as to the falsity of the statements to the effect that 'if a comparatively small quantity of tobacco were swallowed by a person, there would probably be terrible agony followed by death,' and that syphilis and cancer are 'contracted chiefly through smoking pipes which have been in the mouths of others, etc.,' and the 'nicotin-poisoned fathers' may transmit 'symptoms of tobacco poisoning' to their offspring. It was pointed out by one of the experts who testified for the Government that tobacco is an antiseptic and that the germ of syphilis can not live in ordinary room temperature.

"All of this literature is written in the first person and purports to have been written by E. J. Woods, himself. In one of the circulars appears a 'sworn affidavit' by E. J. Woods, who 'states that he personally receives and handles primarily the correspondence of Edward J. Woods, Inc.' The literature is so drawn as to lead the reader to believe that Woods, himself, was formerly a 'heavy smoker' and that he cured himself of the 'tobacco curse.' However, the evidence shows that Woods is a tobacco smoker."

Throughout the advertising matter sent out by the Woods concern the impression is left that Woods himself is the discoverer of these remedies. But as Judge Lamar points out:

"In this connection the evidence shows that Woods, who is not a physician, was for a number of years employed as a nurse in the alcoholic ward of St. Vincent's Hospital, New York, New York; that he does not know whether these remedies are efficacious and that he consulted with Dr. John L. Corish in getting up the formulas. Dr. Corish, a witness for the respondent at the hearing, testified that he furnished the formulas for these medicines."

In this connection it is worth reminding the reader that Corish is the quack whose name was used by the Okola Laboratory fraud that was put out of business by the federal authorities in February, 1914. This fraud was exposed in The Journal, May 9, 1914, and the entire matter is reprinted in the pamphlet "Medical Mail-Order Frauds."

WOODS' VIGOR TABULES

A Potential, Safe, Guaranteed, Reliable, Highly Satisfying Invigorative Remedy

Woods' Vigor Tabules are for stimulating strength and vigor. They are beneficial in certain weakened conditions of the human system where the results of excesses, in the use of tobacco and alcohol, drug taking or other forms of indiscretion, have manifested themselves. They are recommended particularly for the following disorders:

Loss of appetite, unnatural craving, thinness, enervation, nervousness, sleeplessness, depression of spirits, impaired memory, bad dreams, lacking in natural vigor, morbid thoughts, irritability, worry, fear of something intangible, tired or sleepy feeling when no rest or sleep is due, effects of indiscretions, nervous debility, effects of overwork or overstudy, brain-fag, inability to look others in the eyes, lack of courage, bashfulness, weakness of will-power, effects of "late hours" and other dissipations, weak heart, general dullness, tobacco heart, melancholy, neurasthenia, paleness, dull eyes, anemia, etc., etc., etc. A better stimulant or nerve soother than alcohol, tobacco or opium without any of the "morning-after-the-night-before" misery. Sent postpaid on receipt of price.

Price of Woods' Vigor Tabules, 50 Cents per Box; Triple Size Box, $1.00, Postpaid

In addition to a cure for the drink habit and tobacco habit Woods also has a "weak men cure" as a side-line. Here is a reproduction greatly reduced of an advertising leaflet enclosed with the tobacco cure material.

Throughout the circular matter sent out by the Woods concern, it was repeatedly asserted that a person cannot and should not by the exercise of his will power, stop the tobacco habit, and the victim was led to believe that the Woods medicines contain some drug which would inhibit the craving for tobacco. Of course, the treatment contained no drug or combination of drugs which do any such thing. The memorandum continues:

"When five dollars is sent for the 'C Treatment Set' a package containing several boxes of different colored pills and tablets, numbered from 301 to 308 inclusive, and a leaflet containing 'Directions for Taking the Woods C Treatment Set' is sent. This leaflet contains a so-called 'Monograph' signed 'Experienced Physician,' who, the evidence shows, is Dr. Corish, in which the patient is advised that if he can not win with the Woods C Treatment Set, it is his 'own fault' and that 'after the splendid aid given by the Woods C Treatment, any man who says he has not the moral courage to control himself surely ought to hang his head in shame.' The 'Experienced Physician' then prescribes seven 'Health Rules,' and the patient is advised that 'if you find that the cathartic effect is more than you can bear, you can omit one dose of No. 303. . . .'

Following this 'Monograph' appears 'Health Rule No. 8,' which is printed in italics and reads as follows:

"No tobacco of any kind is to be used during the three days that the C Set of Remedies is being taken. Use no tobacco after you have taken the first (No. 301) tablet at 7 p. m. of the day that you begin."

"Before he parts with his money the patient is led to believe that he will secure a treatment which contains some drug which will stop the craving or inhibit the desire for tobacco from the time he begins taking it. He is repeatedly told that he can not and will not stop the use of tobacco himself. Yet, when he parts with his money and receives the 'treatment' he is for the first time told that he must use no tobacco after he has taken the first tablet. All of the experts who testified at the hearing before this office, including Dr. Corish, who wrote the formulas, agreed that this rule is the most important feature of the 'treatment.' Unless the patient himself stops the use of tobacco, the 'treatment' is worthless. On the other hand, if the habitue will stop the use of tobacco, he can 'cure' himself without the aid of drugs.

Tobacco Habit Easily Conquered

A New Yorker of wide experience has written a book telling how the tobacco or snuff habit may be easily and completely banished in three days with delightful benefit. The author, Edward J. Woods, TA-160, Station F, New York City, will mail his book free on request.

The health improves wonderfully after the nicotine poison is out of the system. Calmness, tranquil sleep, clear eyes, normal appetite, good digestion, manly vigor, strong memory and a general gain in efficiency are among the many benefits reported. Get rid of that nervous feeling; no more need of pipe, cigar, cigarette, snuff or chewing tobacco to pacify morbid desire.

A typical Woods advertisement notifying the public that the tobacco habit may be "easily and completely banished in three days."

"The patient is also advised in the above mentioned leaflet that 'the best time to begin—for most persons—is on a Friday evening.'

"A witness who took the 'treatment' and followed all of the directions, in testifying for the government stated that the only effects he noticed from the 'treatment' was its 'extremely vigorous' cathartic action and a 'marked diuretic action.' He stated that he had 'the desire, the craving' for tobacco from the beginning to the end of the 'treatment,' and 'as the time proceeded it got stronger.' The fact that the 'treatment' is recommended for the week-end would indicate that the promoters realize that, owing to its cathartic effect, it can not be followed in all cases without loss of time, as they so unqualifiedly state in the literature offering the 'treatment' for sale."

The composition of the various pills and tablets in the "C Set" is given in the memorandum as follows:

No. 301: Cascarin 2 gr., Podophyllin 1/8 gr.
No. 302: Powdered Extract of Quassia 1/20 gr., Artificial Brown Color 3/100 gr., Milk Sugar 1 gr., Powdered Acacia 1/30 gr., Starch and Oil *q. s.*
No. 303: Aloin 3/8 gr., Podophyllin Resin 1/16 gr., Extract of Nux Vomica 1/90 gr., Oleoresin Capsicum 1/16 gr., Croton Oil 1/100 min.
No. 304: Powdered Valerian 1 gr., Powdered Sumbul 1 gr., Gum Asafetida 1 gr.
No. 305: Powdered Extract of Gentian 1/4 gr., Iron and Ammonium Citrate 1/4 gr.
No. 306: Blaud's Ferrous Carbonate Mass 3 gr., Extract of Nux Vomica 1/90 gr.
No. 307: Methylene Blue 1/2 gr., Powdered Nutmeg 1/4 gr., Extract Kava Kava 1 gr., Oil Sandalwood *q. s.*
No. 308: Purified Willow Charcoal 1 gr., Papain 1/4 gr., Oil of Betula 1/25 gr.

Regarding the methylene blue and asafetida tablets, Judge Lamar reports:

> "The methylene blue contained in No. 307 of the 'C Set' adds a greenish blue color to the urine. The asafetida in No. 304 makes the excrement very malodorous. The effects mentioned naturally follow, in all cases, the use of those drugs whether or not the patient uses tobacco. It was brought out at the hearing that formerly the patient on being sent the remedy was told to watch for 'favorable signs,' such as bluish green urine and malodorous excrement, which would indicate that the nicotin poison was being eliminated from the system. The 'directions' now being sent out with the 'treatment' contain no admonition to 'watch for favorable signs,' but the ingredients which manufacture those 'signs' are still retained in the 'treatment,' the patient being left to discover the 'signs' himself. The use of these trick ingredients indicates that the originators and promoters of this so-called 'treatment' realize the worthlessness of the drugs employed.
>
> "Counsel for the respondent stated at the hearing that the 'Woods CC Set' for the treatment of tobacco habit secretly was discontinued several months before the citation was issued."

The case against these quacks is summed up in the closing paragraph of the memorandum:

> "The evidence shows that none of these so-called 'treatments' contain any drug or combination of drugs which will create an 'abhorrence' or 'associated distaste' for tobacco, and that the principal feature of the 'C' and 'CCC' 'treatments' is the direction to stop the use of tobacco. In effect the patient pays his five dollars to be told to quite tobacco.
>
> "The postmaster at New York, New York, reports that this concern receives on an average of two-hundred letters a day.
>
> "I find that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and therefore recommend that a fraud order be issued against the name set forth in the caption of this memorandum."

Correspondence

"THE NAMING OF ANIMAL PARASITES"

To the Editor:—Dr. A. G. Ellis' criticisms of zoological nomenclature in The Journal, March 5, deserve a reply defending zoologists and making clear what is being done to stabilize nomenclature.

Zoological classification and zoological nomenclature are necessary parts of zoological study. Only the person who has monographed some group of organisms can have a full appreciation of zoological classification and nomenclature. If one can ever become thoroughly versed in a subject, it is only by actual first hand working in the field covered by that subject. When the average medical man needs zoological knowledge and advice he should consult a zoologist in the same measure that a zoologist will consult a physician on medical matters.

Every one regrets "all the multitudinous names of all the parasites." With so many workers in the field, often wide apart geographically and chronologically, and with scattered literature and changing ideas of classification, it is practically impossible to avoid making synonyms and to assign an organism always to its proper genus and species. With perfect knowledge, if such can ever be attained, one of the "multitudinous names" will be selected as the proper designation of a parasite or other organism and the others relegated to synonymy. The synonyms are not entirely useless, as in looking over the list much of the history of the species is seen.

As for "an international clearing house," there is already in existence an International Code of Zoological Nomenclature which is followed by most zoologists. When there is a disagreement as to the applicability of some of the rules in certain cases there is the International Commission on Zoological Nomenclature to make a decision. Dr. C. W. Stiles of the Public Health Service is secretary of the commission. The membership of the commission is given in *Science* (**52**:603 [Dec. 24] 1920). Mimeographed copies of the International Code may be obtained for a nominal sum from Mr. John Smallwood, 524 Tenth Street, N.W., Washington, D. C.

The way "for bettering present conditions" is to study parasites intensively, peruse literature diligently, apply the rules of the International Code, and abide by the decisions of the International Commission.

M. W. Lyon, Jr., M.D., South Bend, Ind.

AN ADVENTURE IN ATROPISM

To the Editor:—The present tendency toward the socialization of medicine, as shown by the desire to do things on a wholesale scale, particularly among the schoolchildren of our land, while carrying with it much that is good and desirable, is fraught with certain elements of danger. A mistake made on a single child is bad enough, but a mistake made and realized, there is a chance to correct the error before another patient is treated.

There is on record, for example, the case of a large number of schoolchildren who were given the Schick test by a well-meaning but absent-minded physician who had made up his solution some ten or hundred times stronger than the usual potency. The result was a series of slow healing ulcers with more or less cicatricial contraction of the arms, and a similar number of law suits against the city which had employed him.

Recently the school authorities of a small but enterprising and public-spirited town in western New York wrote me that they were desirous of having a number of their children, whose sight was defective, examined for glasses. The appointment was made and a 2 per cent. solution of homatropin prescribed, 5 drops of which were to be instilled into each eye of each child before they reached my office, about a 40 mile trip on the train from their town.

At 11 o'clock on the appointed day the nurse in charge arrived in Rochester with thirteen children, eight of whom had had their drops and the other five still with active pupils, because, beyond a few drops in the bottle, there had not been enough to go around. She called my attention to the fact that the eight children were exceedingly thirsty and had drunk freely from the train filter on the way down. Examination showed this entire group to be suffering from most of the classical symptoms of atropism as evidenced by their flushed skins, rapid feeble pulses, parched throats and lips, with difficulty in talking, and a constant desire to wet their lips with their tongue. Two children had diarrhea, fortunately under control, and all were more or less dizzy, on standing.

During the progress of the examinations two of the youngsters developed delirium, and saw mice running around the room. Later in the day, when taken out to lunch, they saw "worms" and, according to the nurse, acted like patients with delirium tremens. The five children under the stock office solution of 2 per cent. homatropin showed no toxic symptoms.

I wrote the pharmacist who had dispensed the alleged homatropin, and received this reply:

> As you supposed, the drug dispensed by our pharmacist, a recently engaged college graduate, was atropin. He said that he thought atropin and homatropin were the same thing: in short, that homatropin was another name for atropin. We regret exceedingly that this mishap has occurred, and as the young man has learned his lesson, we trust that it will never occur again.

If there are any conclusions to be drawn from this adventure they are these: 1. Atropin as a drug for children is comparatively harmless, the average dose being $\frac{1}{200}$ grain; while these eight children received 5 drops of a 2 per cent. solution in each eye, or $\frac{1}{5}$ grain in all, about forty times the usual dose. 2. In sending prescriptions for homatropin to any one but one's regular druggist, the "hom" should be emphasized either by underlining, printing in red ink or attention being called to the fact in a note below that it is the milder cycloplegic that is wanted. 3. In carrying out any public health work, whether it be wholesale tonsils, wholesale refraction or wholesale vaccination, one should make sure that the amount of caution exercised bears a direct relation to the number of cases involved. Leonard W. Jones, M.D., Rochester, N. Y.

HOOKWORM AND TUBERCULOSIS

To the Editor:—In a recent account of a hookworm survey at Guayaquil, Equador (The Journal, Dec. 18, 1920, p. 1702), Dr. Royer states that in no case was hookworm found in patients suffering from tuberculosis. The survey included 1,109 cases, with nearly 60 per cent. hookworm infestation. There were forty-six cases of tuberculosis in the series. The suggestion by Dr. Royer that this may be merely a coincidence is confirmed by findings here in Cuba. My records for the last six months show five cases of tuberculosis with tubercle bacilli in the sputum. Four of these, one Haytian and three Jamaican laborers, had hookworm ova in the stool.

N. Nedergaard, M.D., D.T.M. (Eng.), Preston, Cuba.
Physician, United Fruit Company Hospital.

DR. MAYO AND THE DRUGLESS HEALER

To the Editor:—From time to time I receive marked newspaper clippings containing the statement:

> The drugless healer is one of the best things that has come into the life of the present.—Charles Mayo, M.D., Rochester, Minn.

Needless to say, I never made such a statement.

Charles H. Mayo, M.D., Rochester, Minn.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CASTOR OIL IN THE INDUCTION OF LABOR

To the Editor:—In The Journal, July 3, 1920, Charles B. Reed recommended castor oil for the induction of labor, but does not specify the mode of employment, doses, form of application, time, etc. So far in my obstetric experience, I have employed only quinin, Champetier de Ribes' bag and pituitary extract. I should like to know the technic and use of castor oil. N. V. Montejo G., M.D., Campeche, Mexico.

Answer.—Castor oil and quinin are prescribed in combination. One ounce of castor oil and 10 grains of quinin are given when it is decided to commence the initiation of labor. One hour later, a second dose of quinin, 10 grains, is given, and this is repeated at the end of the second hour. Thus, one dose of castor oil and three doses of quinin are administered.

WIDELY ADVERTISED "CURE" PROVED UNTRUE

To the Editor:—Is it true that Prince Don Jaime of Spain, who is reported as having been born deaf and dumb, was cured by osteopathic treatment? H. R. C.

Answer.—An authoritative statement from abroad is to the effect that whatever treatment may have been administered by the so-called "bone-setter," it has had no effect on Prince Don Jaime's condition.

Housing and Health.—To improve housing conditions is to influence the standards of living favorably. Higher standards of living, in turn, advance public welfare and decrease physical and mental defects and diseases and raise the moral qualities essential for effective citizenship. Poor housing breeds disease and crime; disease and crime lower potential earning capacity, with consequent inability to pay for hygienic surroundings; thus a vicious circle is established.—I. S. Wile, *Am. J. Pub. Health*, April, 1920.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Colorado: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

Hawaii: Honolulu, April 11. Sec., Dr. Guy C. Milnor, 401 S. Beretania St., Honolulu.

Idaho: Boise, April 5. Director, Mr. Paul Davis, Boise.

Iowa: Des Moines, April 12-14. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Louisiana: New Orleans, May 3. Sec., Dr. F. H. Hardenstein, 702 Macheca Bldg., New Orleans.

Minnesota: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, May 2. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

Rhode Island: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

West Virginia: Charleston, April 13. Health Commissioner, Dr. R. T. Davis, Charleston.

Illinois September Examination

Mr. F. C. Dodds, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held at Chicago, Sept. 20-22, 1920. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 57 candidates examined, 39 passed and 18 failed. Twenty-seven candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Number Licensed
University of Colorado	(1919)	1
Chicago Coll. of Med. and Surg.	(1913) 1, (1915) 1, (1916) 1,	3
Chicago Hospital College of Medicine	(1918)	2
Chicago Medical School	(1920)	4
Rush Medical College	(1917) 1, (1920)* 12,	13
Loyola University	(1917) 1, (1918) 1, (1920)* 1,	3
Northwestern University	(1920)*	1
University of Illinois	(1920)	3
St. Louis University School of Medicine	(1920)	1
Eclectic Medical College	(1920)	1
Ohio State University College of Medicine	(1920)	1
Meharry Medical College	(1917) 1, (1920) 1,	2
School of Medicine and Pharmacy of Jalisco, Quadalajara	(1915)† 1, (1916)† 1,	2
Queen's University	(1920)	1
McGill University	(1920)	1
FAILED		
Chicago College of Medicine and Surgery	(1917)	1
Chicago Hospital College of Med.	(1915) 1, (1918) 2, (1919) 1,	4
Chicago Medical School	(1920)	1
Homeopathic Medical College of Missouri	(1904)	1
Kansas City Medical College	(1897)	1
Meharry Medical College	(1902) 2, (1910) 1, (1913) 3, (1914) 1, (1915) 1, (1916) 1, (1920) 1,	10

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Phys. and Surgs., Los Angeles	(1917)	California
American Medical Missionary College	(1903)	Nebraska
Chicago College of Medicine and Surgery	(1915)	Nebraska
Loyola University	(1918) Missouri, (1918)	W. Virginia
Rush Medical College	(1913)	Nebraska
University of Illinois	(1916)	Iowa
Drake University College of Medicine	(1909)	Iowa
State University of Iowa College of Medicine	(1916)	Iowa
Hospital College of Medicine, Louisville	(1892)	Indiana
Louisville National Medical College	(1903)	Indiana
University of Louisville	(1919)	Kentucky
Johns Hopkins University	(1918)	Maryland
University of Maryland	(1902) Minnesota, (1904) (1913) Maryland	Maryland
St. Louis University School of Medicine	(1912)	Iowa
Washington University Medical School	(1919)	Missouri
Cornell University	(1908)	New York
Syracuse University College of Medicine	(1917)	New York
Western Reserve University School of Medicine	(1915)	Ohio
Meharry Medical College	(1911) Louisiana, (1915) (1919) Kentucky	Arkansas
Marquette University	(1914)	Wisconsin
Wisconsin College of Phys. and Surgs., Milwaukee	(1906)	Wisconsin
University of Toronto	(1918)	New York

* These candidates received temporary licenses pending completion of their hospital internships.

† Graduation not verified.

Virginia December Examination

Dr. J. W. Preston, secretary, Virginia State Board of Medical Examiners, reports the written examination held at Richmond, Dec. 14-17, 1920. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the eleven candidates examined, 10 passed and 1 failed. Eight candidates, including 1 osteopath, was licensed by reciprocity. Two candidates were licensed on Navy credentials. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Howard University	(1918)	79
Southern College of Medicine and Surgery	(1912)	87
University of Virginia	(1918) 91, 92 (1919) 90, (1920)	92
Medical College of Virginia	(1918) 77, (1920) 84, 85,	88

FAILED

College	Year Grad.	Per Cent.
Medical College of Virginia	(1918)	68

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
University of Louisville	(1915)	Kentucky
Baltimore Medical College	(1907)	W. Virginia
University of Maryland	(1917)	Maryland
University of Michigan Medical School	(1916)	Michigan
Missouri Medical College	(1887)	Oklahoma
University and Bellevue Hospital Medical College	(1917)	New York
Medico-Chirurgical College of Philadelphia	(1914)	Penna.

ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Endorsement with
Medical College of Virginia	(1917)	U. N. Navy
Jefferson Medical College	(1917)	U. S. Navy

Book Notices

ESSENTIALS OF TROPICAL MEDICINE. By Walter E. Masters, M.D., M.R.C.S., L.R.C.P., Present Medical Officer, Gold Coast, West Africa. Cloth. Price, $11. Pp. 702, with illustrations. New York: William Wood & Co., 1920.

This book is an outline of tropical diseases prepared by the author for his own use. He has endeavored to present all of the different views current at the time the book was prepared. He states the facts and opinions succinctly without attempting to give any personal observations or to discuss them. In presenting treatment, he gives all of the various treatments which have been recommended again without any opinion as to the probable success or failure. On many subjects he is not quite up to date, notably yellow fever, Rocky Mountain spotted fever and skin diseases. The last two chapters are concerned with the general subjects of tropical sanitation and laboratory examinations. These chapters contain practical hints based on the author's own experience. The form of presentation makes the book unnecessarily bulky. The illustrations, most of them original with the author, are exceptionally interesting.

NITROUS OXID-OXYGEN ANALGESIA AND ANAESTHESIA IN NORMAL LABOR AND OPERATIVE OBSTETRICS. F. H. McMechan, M.D., Editor. A Monograph Prepared for the Benefit of All Those Concerned in Safer and More Efficient Obstetrics and Anaesthesia. Leather. Price, $2.50. Pp. 97. Columbus: National Anaesthesia Research Society.

This monograph, "prepared for the benefit of all those concerned in safer and more efficient obstetrics and anesthesia," is the first of a series which the National Anaesthesia Research Society proposes to publish on the application of anesthesia and analgesia to the specialties in the practice of medicine and dentistry. It combines the unified and cooperative scientific researches and clinical results of the foremost obstetricians and anesthetists of America. It consists of well digested information covering an exceptionally complete review of the literature. The scope and manner of presentation are indicated by the chapter headings, which cover the historical evolution; general considerations; relative evalution; circulatory changes; obstetric analgesia; obstetric anesthesia; mother and child; studies of results, and operative obstetrics. Each chapter is a summary of the important conclusions reached in the development of the subject under consideration. Attention is frequently called to certain points in the administration of the anesthetic which may not be appreciated but which may have a decided influence on success or failure. The subject is handled in an authoritative and at the same time practical manner, is free from controversial points, and consists of clearly expressed deductions derived from experience and the literature. It is stated that the monograph "has been undertaken to provide all those interested with an exhaustive survey of what has been and what may be accomplished by nitrous oxid analgesia and anesthesia in normal labor and operative obstetrics. It should be emphasized in this connection that the obstetrician or anesthetist who uses this newer method for the relief of labor pains, without first grounding himself thoroughly in its physiopathology and the technic of administration, is not doing himself, his patients and the method the justice they deserve. In anesthesia, as in all other arts and sciences, 'a little learning is a dangerous thing.' Only those who drink deeply of the inexhaustible spring of knowledge eventually succeed." The two chapters on obstetric analgesia and anesthesia are especially valuable, as the technic of administration is fully considered and the Guedel and McKessen sign charts are included to serve as basic and determining guides. Physicians and anesthetists actively engaged in the practice of obstetrics will find the brochure a valuable addition to their library.

TROPICAL OPHTHALMOLOGY. By Robert Henry Elliot, M.D., B.S., Sc.D., Lecturer in Ophthalmology, London School of Tropical Medicine. Cloth. Price, $12.50. Pp. 525, with 124 illustrations. New York: Oxford University Press, 1920.

It has been the privilege of comparatively few residents of temperate climates to enjoy an extensive professional practice in the tropics, and fewer yet have the courage and persistence to collect the data derived from their observations, and compile them in book form. Colonel Elliot, who, because of his numerous valuable contributions to ophthalmic literature, is known by ophthalmologists the world over, has written this most interesting book on tropical ophthalmology particularly for the surgeon, especially for those just beginning work in the tropics, where there is such an immense field for original research, with abundant clinical material and opportunities waiting on every hand. In a book with such a mission, therefore, the fundamentals of ophthalmology are virtually ignored, and the author has attempted to set forth only such knowledge as has been gained by past workers in tropical lands. Eye diseases common to all climes are briefly mentioned when possessing some conditions in relation to behavior or treatment peculiar to those regions; and the technic of various operations is explained. Although the large majority of American oculists who may read this book will never be called on to enlarge their knowledge on trematodes, cestodes, *Filaria bancrofti, Loa loa,* onchocerciasis, thelaziasis, ancylostomiasis, etc., they nevertheless will find the book one of unusual interest. The author prefaces the book with general information on conditions in tropical countries, the centers of distribution of ophthalmic relief, railway facilities, the poverty and mental attitude of the people, the prevalence of eye diseases, and the like. The effect of exposure of the eyes to the strong light as well as the wind and dust; eye injuries from flying insects, from chemicals, from stings and bites, and the invasion of the eyes by various parasites, are all dealt with in detail. The last section of the book is devoted to the general constitutional diseases having definite relationships to the eye. A carefully selected bibliography accompanies the different sections into which the book is divided. Colonel Elliot is to be congratulated on the successful publication of this pioneer treatise on tropical ophthalmology.

THE HEART AND THE AORTA. Studies in Clinical Radiology. By H. Vaquez, Professeur agrégé à la Faculté de Médecine de Paris, and E. Bordet, Chef de Laboratoire adjoint à la Faculté de Médecine de Paris. Translated from the Second French Edition by James A. Honeij, M.D., and John Macy, M.A. Cloth. Price, $6. Pp. 256, with 181 illustrations. New Haven: Yale University Press, 1920.

This work received favorable comment in our columns when it appeared in French. It is a pleasure to add that the translation has been well done and the many illustrations well reproduced, though one of them is upside down. While there is no essential difference between the second and third French editions, it is to be regretted that the translation does not represent the latest edition, as this translation was going through the press when the third edition appeared in France.

Medicolegal

Good Indictments Under Harrison Narcotic Law

(Dean v. United States (U. S.), 266 Fed. R. 694, and 695, Two Cases)

The United States Circuit Court of Appeals, Ninth Circuit, affirms judgments of conviction in two cases against defendant Dean. The court says that in the first case the indictment charged that the defendant did knowingly, etc., "purchase, sell, dispense and distribute cocain in and from a certain tin box, which said tin box was not then and there the original stamped package containing said cocain. That is to say, the said defendant" did have in his possession the said tin box containing cocain, consisting of about one-half ounce, and that the "said tin box then and there containing said cocaine did not then and there bear and have affixed thereon appropriate tax paid stamps as required by the act of Congress approved Dec. 17, 1914, known as the Harrison Narcotic Law." The defendant contended that no offense against the act as amended by act of Feb. 24, 1919, was involved in the charge that the defendant had cocain in his possession, and that a violation of the statute can be committed only by purchasing, dispensing and distributing narcotics from packages which have not affixed thereon appropriate tax paid stamps. But the court finds no merit in the objection to the indictment. It may be conceded that the purpose of the statute is to prohibit the purchase, sale and distribution of narcotics; but it is also clear that it provides that prima facie proof is made of the violation of the statute by evidence that the accused had the possession of prohibited narcotics to which are not affixed appropriate tax paid stamps. In this respect the offense is not dissimilar to some other offenses against the United States, such as the offense of having in possession dies adaptable to counterfeiting, or having possession of imported opium. Nor was there merit in the contention that the term "original stamped package," as used in the act of 1919, is meaningless. Its meaning is made sufficiently clear by the terms of the act and the amendment thereto.

In the other case, the indictment charged that the defendant did knowingly, etc., "sell, dispense and distribute morphin and cocain in six paper bags, ten small cardboard boxes, one small celluloid box and one metal box, which said bags and boxes and either and each of them were not then and there the original stamped packages containing said morphin and said cocain." It was contended that to charge that the receptacles were not the "original stamped package" was not equivalent to charging that there was failure to pay the special tax required, that the words might mean many things, such as a reference to the label or brand of the package, or the date of purchase stamped on the receptacle, and that they failed to apprise the accused of the crime charged. But when the words were construed with reference to context and the other provisions of the law, there could be no question of their meaning. If they seemed obscure or indefinite to the defendant, he had his remedy in the court below by demanding a bill of particulars. Having gone to trial on the indictment as sufficiently charging an offense, he could not in this court take advantage of any defect or imperfection in matter of form only which did not tend to his prejudice.

Conclusiveness of Records of Proceedings to Revoke Licenses

(Jordan v. Alderson et al. (Calif.), 192 Pac. R. 170)

The District Court of Appeal of California, First District, Division 1, in affirming a judgment refusing, on certiorari as it is called, to annul an order of the state board of medical examiners revoking the petitioner's license to practice medicine in the state of California, says that the complaint charged the petitioner with unprofessional conduct under Subdivision 1 of Section 14 of the medical practice act, by procuring a criminal abortion on a pregnant woman. The petitioner contended that the record of the proceedings before the board showed such an absence of proper evidence as to amount to a lack of jurisdiction in the board to make the order under review. But this court considers that the record showed a sufficiency of proper evidence to prove that the woman operated on was pregnant at the time of the offense charged. She herself so testified, and on oath reaffirmed the truth of a full statement giving circumstances, conditions and symptoms, signed by her at the emergency hospital shortly after the offense. Also, expert medical testimony given by a physician who had made an examination of the patient shortly after the offense was proper evidence of a convincing character. There was a conflict in the testimony of the expert witnesses, which is quite usual, and the petitioner complained that his cross-examination of the woman at the hearing on her belief as to her previous pregnancy was erroneously limited by the board. But it is well settled that on this proceeding the court had nothing to do with the conflict of testimony nor with irregular or erroneous rulings on admission of evidence where the record showed the jurisdictional requirements with respect to these matters to have been fulfilled. The record also showed by the same testimony, and by proper and legal evidence, the performance of the illegal operation by the petitioner. The testimony and denials of the petitioner, who was a witness for himself, only created a conflict in the evidence before the board, with which the court had nothing to do on the hearing of the writ of certiorari. The fact that the act complained of was called a criminal abortion did not make the proceedings before the board a criminal proceeding to the extent of making applicable to the hearing the provisions of the penal code with respect to the evidence necessary to convict of a crime. The trial court determined in favor of the correctness of the record of the proceedings before the board returned into court under the writ. If the matter were open to the district court of appeals it could do no more than refer to the oft-repeated rule that the determination of the trial court on conflicting evidence will not be interfered with by the appellate court. However, not only the trial court but also the board of medical examiners determined the existence of these jurisdictional facts. It not only determined these facts impliedly, by making its order revoking the license, but again expressly, on a motion to reconsider made by the petitioner on this ground after unfavorable action had been taken. Its record showing this fact affirmatively made unnecessary the taking of testimony on the point. The record of the proceedings before the board showed that the board did not act without jurisdiction in making the order complained of, and the court properly refused to annul the order on the hearing of the writ.

The district court of appeal denied the petitioner a rehearing, and the Supreme Court of California afterward denied him a hearing.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 19-21.
American Association of Anatomists, Philadelphia, March 24-26.
American Assn. of Genito-Urinary Surgeons, Richmond, Va., May 2-3.
American Assn. of Pathologists and Bacteriol., Cleveland, March 25-26.
American Association of Physicians, Atlantic City, May 10-11.
American Society for Clinical Investigation, Atlantic City, May 9.
Arizona Medical Association, Tucson, April 15-16.
Arkansas Medical Society, Hot Springs, May 3-5.
California, Medical Society of the State of, San Diego, May 10-12.
Florida Medical Association, Pensacola, May 10-11.
Georgia, Medical Association of, Rome, May 4.
Iowa State Medical Society, Des Moines, May 11-13.
Kansas Medical Society, Wichita, April 26-28.
Louisiana State Medical Society, New Orleans, April 19-21.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-28.
Mississippi State Medical Association, Laurel, May 10-11.
Nebraska State Medical Association, Lincoln, May 9-12.
New Mexico Medical Society, Albuquerque, April 28-30.
New York, Medical Society of the State of, Brooklyn, May 3.
North Carolina, Medical Society of the State of, Pinehurst, April 26-28.
Ohio State Medical Association, Columbus, May 3-5.
South Carolina Medical Association, Columbia, April 19-20.
Tennessee State Medical Association, Nashville, April 12-14.
Texas, State Medical Association of, Dallas, May 10-12.
Western Electro-Therapeutic Association, Kansas City, Mo., April 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

February, 1921, **161**, No. 2

*Acute Psychoses Arising During Course of Heart Disease. D. Riesman, Philadelphia.—p. 157.
*Whooping Cough Contracted at Time of Birth; Report of Two Cases. J. Phillips, Cleveland.—p. 163.
*Experimental Studies in Diabetes: II. Internal Pancreatic Function in Relation to Body Mass and Metabolism. III. Effects of Exercise. F. M. Allen and M. B. Wishart, New York.—p. 165.
*Retention of Protein During Diet Reduction to Relieve Glycosuria in Diabetes Mellitus. R. L. Fenlon, Iowa City.—p. 193.
*Bacteriology of Fasting Stomach and Duodenum: Experimental Study Based on Findings in Thirty Dogs. P. H. Poppens, Chicago.—p. 203.
*Leukemia: Type Diagnosis by Oxydase Method of Blood Staining. G. L. Lambright, Cleveland.—p. 209.
*Curability of Tuberculous Meningitis. F. Harbitz, Christiana, Norway. —p. 212.
*Classification of Goiter: Analysis of One Hundred Cases. C. Williams, Richmond, Va.—p. 223.
Multiple Fluid Collections in Chest in Course of Therapeutic Pneumothorax. B. P. Stivelman and J. Rosenblatt, Bedford Hills, N. Y.—p. 229.
Nephrolithotomy in Horseshoe Kidney. K. P. A. Taylor, Philadelphia. —p. 238.
Infection of Kidneys Following Prostatectomy. J. W. Marchildon, St. Louis.—p. 243.
*Urinary Antisepsis: Study of Antiseptic Properties and Renal Excretion of 204 Anilin Dyes. E. G. Davis, Omaha, Neb.—p. 251.
Fourth Venereal Disease, Ulcerative and Gangrenous Balanoposthitis: Case Report. W. M. Donovan, Madison, Wis.—p. 267.
Amnesia After Childbirth. C. W. Burr, Philadelphia.—p. 271.

Acute Psychoses in Heart Disease.—Riesman discusses hallucinations of sight and sound, more rarely of smell; a state of confusion; excitation with decided disorientation; acute mania, delusional states and a state of mental excitement or delirium which subsides during the apneic period. The causes of the cardiogenic psychoses are also considered.

Whooping Cough Contracted at Birth.—The infection in each of the cases cited by Phillips was from the obstetric nurse, who was in the first week of her attack of whooping cough. Her cough was not of sufficient severity that she considered it necessary to report it to the obstetrician. In the first case reported she assisted, at the time of labor the regular nurse for twenty-four hours, and then went to the second case, this baby being born three days later. Although her cough grew steadily worse, its nature was unsuspected.

Diet and Exercise in Diabetes.—Dependence for the actual control of the diabetes is placed by Allen and Wishart on diet, and exercise is limited to the requirements of comfort and hygiene. The thorough dietetic treatment thus involves two changes from former practice: on the one hand, heavy exercise, as advocated by the earlier clinicians for burning up surplus sugar, is discouraged; on the other hand, the hygienic benefits of lighter exercise are made available to many patients to whom exercise was formerly forbidden.

Retention of Protein in Diabetic Diet.—This paper is based on forty cases treated according to the method of protein retention in the diet previously described by Fenlon and abstracted in The Journal, Feb. 28, 1920, p. 627.

Bacteriology of Fasting Stomach and Duodenum.—The stomachs and duodenums of normal fasting dogs were examined bacteriologically by Poppens. *Bacillus coli* was much more frequently found in the duodenum than in the stomach. Nonhemolytic streptococci were rarely found in either stomach or duodenum and hemolytic streptococci not at all. Staphylococci were found in eleven of fifteen stomachs and in but three of fifteen duodenums.

Type Diagnosis in Leukemia.—In a blood examination of leukemia Lambright claims the distinction between the large lymphocytes and myelocytes is of greatest importance. In order to do this the best plan is to stain all blood smears from cases of leukemia by the oxydase method. In the use of the oxydase method, alpha-napthol and dimethylpara-phenylendiamin are brought together in the presence of an oxidizing agent which is present in the leukocytes. An alkaline medium is required. When this is done a rapid precipitation of indophenol blue occurs which produces blue granular staining of their protoplasm. The reaction is given by neutrophil, eosinophil and basophil leukocytes and by myelocytes in bone marrow and leukemic blood. The reaction is not given by lymphocytes nor red blood cells. The method is described in detail and summarized blood findings are given which illustrate a possible error in failure to recognize myelocytes by simple method of staining.

Curability of Tuberculous Meningitis.—From the results of his observations Harbitz concludes that tuberculous meningitis may heal, and even in cases in which rather extensive lesions with exudate and tubercle formation have developed. This curable form of meningitis has occurred largely in persons who have suffered from chronic and relatively benign forms of tuberculosis. It is probable, however, that a more important factor is increased resistance on the part of the body, which bears some relation to the age of the patient. It is interesting to note that while about 60 per cent. of all cases of tuberculous meningitis occur in the first two years of life and quite regularly result in death, the cases with recovery have occurred in older children and in adults.

Classification of Goiter.—Group 1 of Williams' classification contains the simple goiters; Group 2, the cases of hyperthyroidism; Group 3, the exophthalmic goiters.

Antiseptic Property of Anilin Dyes.—Of 204 anilin dyes investigated by Davis, sixty-one were found to possess antiseptic properties in agar, and twenty-eight of these were efficient as antiseptics when added to voided urine. Selective action against various organisms was exhibited by forty-four dyes; in every case the colon bacillus proving more resistant than the staphylococci. There were only twenty-four dyes which inhibited the colon bacillus in urine in a dilution of 1:1,000. There was almost no exception to the rule that antiseptic action was exhibited in higher dilution in alkaline urine than in acid urine. Attention is, therefore, called to the fact that these dyes are most efficient in urine of a reaction which renders hexamethylenamin inert. Dyes of the triphenylmethane, xanthone, acridin and azin groups (particularly the latter) give most promise of value.

American Journal of Ophthalmology, Chicago

February, 1921, **4**, No. 2

*Effects of Carbon Monoxid on Eye. W. H. Wilmer, Washington, D. C.—p. 73.
Epibular Carcinoma Nine Years After Removal of Papilloma of Corneoscleral Margin; (2) Small, Spindle Celled Hemangiosarcoma of Eyelid of Child Aged Five Months, Excision Followed by Radium Treatment; (3) Pathologic Histology of a Concussioned Eye Following Gun-Shot Wound of Orbit. G. E. DeSchweinitz, Philadelphia.—p. 91.
Primary Epibular Carcinoma. F. P. Calhoun, Atlanta, Ga.—p. 101.
Thermophore Studies in Glaucoma. W. E. Shahan and L. Post, St. Louis.—p. 109.
*Visual Fatigue. E. Jackson, Denver.—p. 119.

Effects of Carbon Monoxid on Eye.—Through its effect on the sensitive fabric of the central nervous system, Wilmer says, carbon monoxid causes ocular paralyses, hemianopsias, disturbances of normal pupillary reactions, optic neuritis and optic atrophy. Like pure asphyxiation, it is the source of great ocular congestion, and in this way it causes subconjunctival and retinal hemorrhages; while in the milder cases of carbon monoxid poisoning congestion of the respective cerebral centers causes hallucinations of vision, hearing and touch. In one case reported by Wilmer an optic neuritis was due entirely to carbon monoxid poisoning. In the second case, carbon monoxid was the probable cause of optic atrophy by reason of the very clear history of ocular and other disturbances that followed each exposure to its fumes, and the exclusion of all other toxic sources. The treatment seems to resolve itself into remedies suggested by the symptoms, prophylaxis, hygiene and, Wilmer says, the legislation that should follow the proper education of the public in regard to the insidious toxicity of this "Frankenstein" of advanced civilization.

Visual Fatigue.—Some analysis of the different forms of visual fatigue, and attempt to localize the essential change that gives rise to fatigue, and a recognition of the extremely important part that efforts of coordination play in producing fatigue. Jackson believes ought to be useful in giving a better conception of a condition that passes easily from physiologic to pathologic significance. It should, he says, be borne in mind that normal visual fatigue rarely rises into consciousness. Only when the organism in response to long continued or repeated excessive fatigue has developed a method of translating this into discomfort or pain does it develop into symptoms.

Archives of Neurology and Psychiatry, Chicago

February, 1921, **5**, No. 2

*Epidemic (Lethargic) Encephalitis. Cultural and Experimental Studies. Preliminary Communication. W. Thalhimer, Milwaukee.—p. 113.
*Juvenile Tabes. H. L. Parker, Rochester, Minn.—p. 121.
*Interpretation of "Paretic Curve" in Lange's Colloidal Gold Test. L. J. Thompson, Boston.—p. 131.
Degeneration Granules in Brain Cells in Epidemic Encephalitis. H. E. Meleney, New York.—p. 146.
*Psychiatric Features of So-Called Lethargic Encephalitis. Case Reports and a Review of Literature. B. L. Jones, Detroit, and T. Raphael, New York.—p. 150.
Case of Alternating Hemiplegia (Millard-Gubler); Paths of Pupillo-Dilator and Vestibulo-Ocular Fibers in Brain Stem. A. Lutz, Havana, Cuba.—p. 166.
Endocrine Stimulation as Affecting Dream Content. C. S. Finley, New York.—p. 177.

Epidemic Lethargic Encephalitis Virus.—Thalhimer presents evidence which he believes to be confirmatory of the results of Loewe and Strauss with respect to the filtrability of the virus obtained from cases of epidemic encephalitis and the specific nature of the minute filtrable organism cultivated with special methods by these investigators. Thus investigation is based on the central nervous system obtained from four cases of epidemic encephalitis, two of the fulminating type, one with marked myoclonus and one showing the usual form of lethargy, and the spinal fluid from one of the patients with a fatal, fulminating case of epidemic encephalitis and from one patient convalescing from epidemic encephalitis of several months' duration, who had manifested marked lethargy and at the time of lumbar puncture still had headache, nausea, vomiting and a slow pulse. An extremely minute filtrable micro-organism, successfully cultivated in ascitic fluid tissue medium from the brain material and spinal fluid obtained from these patients with epidemic encephalitis, is believed to be identical with the micro-organism that has been cultivated and reported by Loewe and Strauss. The investigations strongly indicate that epidemic encephalitis is caused by a filtrable virus.

Juvenile Tabes.—Parker reviews the literature and gives a summary of seven cases. In all seven cases Westphal's sign was present, in six some degree of diminution of sensibility was found, in four the pupils were immobile, in three there were noted Argyll Robertson pupils, optic atrophy, crises, lightning pains, incoordination, signs of congenital syphilis, or syphilis outside the central nervous system, and hypotonia, and in two there was incontinence of urine. In one only was ataxia present. The serum Wassermann test was triple positive in all but one case. In six cases a spinal fluid examination was made. In half that number the Wassermann test was negative. One of three cases in which the spinal fluid Wassermann test was negative had a cell count of thirty-six. A colloidal gold test was performed once only, and the result was a "syphilitic curve." The patient who gave a negative serum Wassermann reaction also gave a total inhibition spinal fluid Wassermann reaction. Parker directs attention to the insidious onset, the lengthy and even latent course of the disease, during which time no subjective complaint may be made, as being in contrast to the frequent optic and total blindness that may also occur. The frequency of incontinence of urine, the relative rarity of such striking phenomena as ataxia, girdle sensations and lightning pain, and finally the frequent paretic termination, are features that stamp juvenile tabes with a distinctive mark and distinguish it from the adult type.

Value of Paretic Curve in Colloidal Gold Test.—About 8,400 colloidal gold tests have been made in the Massachusetts State Psychiatric Institute on about 7,100 different cerebrospinal fluids. Of this number, 677 fluids gave paretic curves, and these constitute the basis for Thompson's study. His findings lead him to conclude that a paretic curve points toward parenchymatous involvement of the brain, while the milder gold curves are obtained in meningitis, vascular disease and other conditions. The paretic curve is not only of diagnostic value, but also of prognostic value.

Psychiatric Features of Lethargic Encephalitis.—Jones and Raphael maintain that the psychiatric phase of epidemic encephalitis has not received the same study and attention as has the neurologic aspect. Looking at the disease from the psychiatric aspect, there seem to be two stages—the irritative stage in which the mental picture is not unlike that of other noninfectious psychoses, and the period of "low grade" stupor, lethargy or, better still, the substuporous period. The former may be marked by euphoria, hypomania, depression, hallucinations, paranoid stages, or even the Korsakoff syndrome, and frequently there are features that simulate those of severe hysterical excitement. The latter is rather an extreme apathy from which the patient may be roused; there is, as it were, a paralysis of the emotional field, frequently accompanied by masklike or parkinsonian facies. This apathy or stupor in some cases amount almost to a catalepsy, but it should be remembered that it is possible, except in the terminal stage, to rouse the patient. The keynote is that the mental condition is variable, this condition being an infectious tonic one, the whole dominated at some time by an apathy or substupor in which the personality is fairly well preserved but blurred by torpor. Four cases are reported. The disease can be diagnosed from the psychiatric picture; the substuporous stage, however, is strongly suggestive of the disorder, and when found in conjunction with spasmodic twitchings, lost knee reflexes, bladder disturbances, cranial nerve palsies and other symptoms is almost if not truly diagnostic.

Canadian Medical Association Journal, Toronto

February, 1921, **11**, No. 2

Treatment of Acute Empyema. A. T. Bazin, Montreal.—p. 89.
Traumatic Abdomen. R. F. Webb, Grand Rapids, Mich.—p. 95.
Acute Abdomen Following Abdominal Operation. G. E. Seldon, Vancouver, B. C.—p. 97.
Treatment of Diffuse Suppurative Peritonitis. J. S. McEachern, Calgary, Alberta.—p. 100.
Diverticulitis of Large Bowel. J. C. Masson, Rochester, Minn.—p. 106.
Treacherous Symptoms Caused by Appendix in Pelvis. W. A. Lewis, Barrie, Ontario.—p. 112.
Bright's Disease in Practice. H. B. Anderson, R. W. Mann and N. C. Sharpe, Toronto, Ontario.—p. 114.
Esophageal Strictures. D. W. Graham, Swift Current, Saskatchewan.—p. 120.
Prevalence of Malnutrition in Public School Children of Toronto. A. Brown and G. A. Davis.—p. 124.
Case of Diphtheritic Ulceration of Skin. H. A. Dixon, Toronto.—p. 127.
Observations from Dermatologic Clinic of Department of Soldiers' Civil Re-establishment of Canada, Toronto Branch. D. K. Smith, Toronto.—p. 128.
Primary and Secondary Nitrous Oxid Saturation from Relaxation and as Test of Patient's Capacity for Operation. E. I. McKesson, Toledo, Ohio.—p. 130.
*An Unusual Abdominal Condition Complicating Hour-Glass Stomach. W. A. Lincoln, Calgary, Alberta.—p. 137.

Hernia of Stomach, Transverse Colon and Small Intestine.—In the case cited by Lincoln the stomach and transverse colon had dropped, and the whole small intestine had herniated through the transverse mesocolon into the lesser sac and again through the gastrohepatic omentum, so that the stomach and transverse colon were pushed down into the pelvis and to the back, the small intestines filling the central and upper portions of the abdomen. These were replaced and an anastomosis made between the proximal pouch of the stomach and the first part of the jejunum near its origin. The opening in the transverse mesocolon was closed and the distal pouch thus obliterating the opening and preventing any possibility of a recurrence. Patient made an uneventful recovery.

Georgia Medical Association Journal, Augusta

February, 1921, **10**, No. 9

Review of Forty-Three Gallbladder Operations with Reference to End Results. R. M. Harbin, Rome.—p. 267.
Some Orthopedic Principles in Treatment of Wounds. F. G. Hodgson, Atlanta.—p. 268.
Is Present Frequent Removal of Tonsils Justifiable? D. Roy, Atlanta.—p. 269.
Gunshot Wounds of Chest and Their Treatment. T. C. Davison, Atlanta.—p. 277.
Complemental Breast Feeding of Babies. W. A. Mulherin, Augusta.—p. 285.
Group Medicine, or a Community of Specialists vs. A Community of Doctors. A. D. Little, Thomasville.—p. 287.
Focal Infection. W. C. Pumpelly, Macon.—p. 288.
Radium; Report of Cases. C. K. Wall, Thomasville.—p. 290.
Hystereotomy Under Local Anesthesia. L. W. Grove, Atlanta.—p. 293.

Johns Hopkins Hospital Bulletin, Baltimore

February, 1921, **32**, No. 360

*Significance of Bacteria Found in Throats of Healthy People. A. L. Bloomfield, Baltimore.—p. 33.
*Experimental Inoculation of Human Throats with Avirulent Diphtheria Bacilli. W. L. Moss; C. G. Guthrie and B. C. Marshall, Baltimore.—p. 37.
Clinical Method for Quantitative Determination of Calcium and Magnesium in Small Amounts of Serum or Plasma. B. Kramer and F. F. Tisdall, Baltimore.—p. 44.
*Surgical Treatment of Rhinophyma; Report of Case. E. M. Hanrahan, Jr., Baltimore.—p. 49.
*Isolation of B. Dysenteriae (Flexner) from Urine of Infant with Dysentery. C. Creighton, C. E. Wagner and W. C. Davison, Baltimore.—p. 50.
*Staining of Phagocytes and Exudates. H. B. Cross, Baltimore.—p. 51.
*Clinical Study of Tuberculous Salpingitis. J. P. Greenberg, Baltimore.—p. 52.

Bacteria in Healthy Throats.—Cultures were made by Bloomfield of the throats of six healthy individuals about once a week over a period of from one to three months. In practically every plate the predominating organisms were gram-negative cocci and nonhemolytic streptococci. Members of the group of hemophilic gram-negative bacilli were found in most of the cultures. Hemolytic streptococci of the typical beta type were not obtained in any case. Pneumococci were occasionally found. Meningococcus was never found. Staphylococci were found occasionally, but never constantly, in the same normal throat. Diphtheroid bacilli, gram-positive cocci of various sorts, and other organisms are not uncommonly present, but only as transients.

Avirulent Diphtheria Bacilli Not Pathogenic.—Certain facts stand out among the results of the experiments reported on by Moss and others. Two points, however, are of great importance. First avirulent diphtheria bacilli are devoid of pathogenic importance for man; and secondly, the carrier of avirulent diphtheria bacilli does not constitute a menace to the health of the community.

Operation for Rhinophyma.—Hanrahan reports a case operated on by Mont. R. Reid. The technic used was similar to that of Seelig in so far as the entire mass, including the skin, was excised, but differed in that a Thiersch graft taken from the thigh was used to cover the denuded surface.

Dysentery Bacillus in Urine of Infant.—There were no vaginitis, pyelitis, cystitis or other urinary lomplication in this case. The organism was discovered as the result of routine cultures on the sixteenth and nineteenth days. Stool cultures on admission and on the three following days, as well as three weeks later, were negative for *B. dysenteriae*.

Staining of Phagocytes.—In composition the stain used by Cross is somewhat similar to the one originally employed by Pappenheim for staining plasma cells, but the nuclei and bacteria are more sharply and constantly stained, annoying precipitates are generally absent, while the uniformly shaded cytoplasm makes possible a clear definition of the cell configuration, and permits a rapid and accurate enumeration of even the smaller and most irregular organisms. Preparation of stain: distilled water (neutral), 100 c.c.; glycerin, 20 c.c.; alcohol, 95 per cent., 20 c.c.; phenol, 2 c.c. To this is added: crystal violet, 0.06 gm. and pyronin, 0.2 gm. The flask is agitated to insure complete solution. The stain is not filtered and is ready for immediate use. It may be preserved indefinitely if direct sunlight is avoided and the container is kept tightly closed to prevent evaporation of the alcohol.

Tuberculous Salpingitis.—Greenberg analyzed all the cases of tuberculous salpingitis which have occurred on the gynecologic service of the Johns Hopkins Hospital during the last thirty years, but a clinical study was made of those cases only (200) which showed definitely, on microscopic examination, that tuberculosis was present. This does not give the actual morbidity of the disease; for many patients having tuberculous peritonitis with tubal involvement did not have their tubes removed. There were sixty-seven such patients; twenty-three had tubal tuberculosis. A family history of tuberculosis was reported in 22.5 per cent., while in an additional 2.5 per cent. the consort had active pulmonary tuberculosis. About one fourth of the patients had pulmonary tuberculosis. The correct diagnosis before operation was made in only 13 per cent. of the cases and, in more than half of these, the diagnosis was aided by the presence of ascites. The order of frequency of involvement of the pelvic organs was as follows: Tubes, uterus, ovaries, cervix and vagina. Tuberculosis of these organs was found associated with tubal tuberculosis as follows: Uterus, 72.6 per cent.; ovaries, 33.1 per cent.; cervix, 3.5 per cent., and vagina, 0.5 per cent. In 99 per cent. of the cases both tubes were involved. In 68 per cent. of the cases the peritoneum was involved, and in 3 per cent. the appendix was tuberculous. In 17 per cent., myoma uteri was associated with the tuberculous process. In only 2 per cent. was there an associated involvement of the urinary tract.

Journal of Infectious Diseases, Chicago

February, 1921, **28**, No. 2

*Hemotoxin Production by Streptococcus in Relation to Its Metabolism. M. W. Cook, V. Mix and E. O. Culvyhouse, Berkeley, Calif.—p. 93.
*Hemolytic Streptococci of Appendix Vermiformis. A. Kraft, Chicago.—p. 122.
*Influenza Studies. II. A Search for Obligate Anaerobes in Respiratory Infections. An Anaerobic Micrococcus. I. C. Hall, Chicago.—p. 127.
Gonococcus Types. I. J. Hermanies, Cincinnati.—p. 133.
*Influenza Studies. III. Attempts to Cultivate Filtrable Viruses from Cases of Influenza and Common Colds. S. E. Branham and I. C. Hall, Chicago.—p. 143.
Mercury Compounds in Chemotherapy of Experimental Tuberculosis in Guinea-Pigs. I. Studies on Biochemistry and Chemotherapy of Tuberculosis. XXI. L. M. DeWitt, Chicago.—p. 150.
Effect of Body Cells and Fluids on Certain Dyes. T. D. Beckwith, Berkeley, Calif.—p. 170.
Improved Technic for Micro or Little Plate Method of Counting Bacteria in Milk. W. D. Frost, Madison, Wis.—p. 176.
Study of Thrush Parasite. B. C. Fineman, Minneapolis.—p. 185.

Hemotoxin Production.—This is a study on the hemotoxic and other metabolic properties of a single strain of human *Streptococcus pyogenes* (Holman) grown under two conditions: (1) artificial medium since isolation (laboratory strain); (2) the same passed repeatedly through the pleura of rabbits (passage strain). A summary of the entire study indicates only that hemotoxin production is due to, and controlled by, conditions that influence growth. Therefore, hemotoxin production is an expression of the summation of activities of the organism and is capable of varying with every variation of environment and nutrition.

Hemolytic Streptococci in Appendix.—Kraft endeavored to determine the frequency with which hemolytic streptococci are found in the normal appendix and in acute and chronic appendicitis and, if possible, the rôle they play as a primary etiologic factor in appendicitis. Of 125 appendixes, forty-eight were normal and seventy-seven pathologic. Two strains of hemolytic streptococci were isolated from the forty-eight apparently normal appendixes. They belong to the type *Streptococcus infrequens* (Holman). Four strains of hemolytic streptococci were found in the seventy-seven pathologic appendixes. All belong to the type *Streptococcus infrequens*, except one which belonged to the type *Streptococcus hemolyticus II*. From this it appears that hemolytic streptococci occurred in this series in normal appendixes in 4.17 per cent. and in pathologic appendixes in 5.2 per cent. No hemolytic streptococci were isolated from twenty-five appendixes presenting evidence of chronic inflammation. The instances of acute appendicitis yielding hemolytic streptococci presented either ulcerative or gangrenous appendixes. Other findings were: 108 strains of nonhemolytic colon bacilli, of which forty-five strains were found in forty-eight normal appendixes and sixty-three strains in seventy-seven pathologic appendixes; fifty-one strains of hemolytic colon bacillus, of which nineteen were found in forty-eight normal appendixes; thirty-two strains of *Streptococcus viridans* were isolated from forty-eight normal appendixes. Two probable pneumococcus strains, one case of pinworm, and many large unidentified bacilli, which were, no doubt, nonpathogenic, were the other results. In the normal appendix, hemolytic streptococci, when found, occurred only in small numbers.

Obligate Anaerobes in Respiratory Infections.—Cultures were made by Hall of thirty-three specimens taken from twenty-five persons suffering from inflammatory conditions of the upper respiratory tract, chiefly rhinitis, simple or complicated with pharyngitis, tonsillitis, or bronchitis. Six of the specimens came from patients supposed to have become ill with influenza from four to nine days previously, but there is unsatisfactory clinical proof of influenza in all these cases. No organisms resembling those described by Tunnicliff were seen in the cultures examined in this series. The results seem more comparable to those recorded by Norton, who failed to find any obligate anaerobes in the cultivation by anaerobic methods of sputum, nasopharyngeal swabs and blood from influenza patients. There is nothing to show that the obligate anaerobic coccus found in one instance was pathogenic.

Filtrable Virus Not Cause of Influenza.—Experiments made by Branham and Hall offer no evidence in support of the theory that the cause of either common colds or influenza is a filtrable virus. In attempting to cultivate filtrable viruses from the nasopharyngeal secretions in colds and influenza, no bodies were found in the "cultures" which could not be found also in those from normal persons, in controls in all simple mediums examined, and on blank slides.

Journal of Nervous and Mental Diseases, New York

February, 1921, **53**, No. 2

Study of Glioma. S. Uzematsu, Hathorne, Mass.—p. 8.
*Epidemic Encephalitis Residual Symptoms Chronicity and Relapsing Tendency. F. A. Ely, Des Moines, Ia.—p. 19.

Epidemic Encephalitis.—Ely claims that in some cases of epidemic encephalitis a distinct relapsing tendency may be observed in which newly localized symptoms may appear, and in which an almost typical recurrence of the symptoms observed at the onset may be produced. Even the most mild attacks of epidemic encephalitis frequently leave the afflicted person incapacitated for many months.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

February, 1921, **17**, No. 1

Influence of Colloids on Action of Noncolloidal Drugs. I. W. S. Van Leeuwen, Leiden.—p. 1.
Effect of Some Antipyretics on Behavior of Rats in Circular Maze. D. I. Macht and W. Bloom, Baltimore.—p. 21.
*Optical Isomers. VII. Hyoscins and Hyocyamins. A. R. Cushny, Edinburgh.—p. 41.
*Astringency and Protein-Precipitation by Masked Tannin Compounds. T. Sollmann, Cleveland.—p. 63.

Hyoscins and Hyoscyamins.—Two hyoscins, each of them racemized in the oscine component, but opposed in the direction of rotation of the tropyl radicle, were examined by Cushny, and it was found that the laevorotary hyoscin is from fifteen to eighteen times as powerful as the dextrorotary in action on the terminations of the nerves in the salivary glands and in other "specific" atropin effects. *D*-hyoscin and *d*-hyoscyamin are more slowly destroyed in the tissues than *l*-hyoscin and *l*-hyoscyamin. The action of the hyoscins on the nerve ends in striated muscle, on unstriated muscle, and on the central nervous system is identical. It is suggested that the "specific" effects of the atropin group arise from the physical properties of some chemical compound formed with an optically active substance in the tissues, while the less specific effects may be explained by the properties of the uncombined alkaloid.

Astringency of Masked Tannin Compounds.—The astringencies of "masked tannin compounds" were compared with each other and with those of tannic acid by Sollmann, under conditions simulating those occurring in the digestive tract. Various criteria of astringency were applied, including a new method employing blood corpuscles. All methods gave fairly concordant results. The simplest, and therefore the most satisfactory, appeared to be the precipitation of protein solutions. This, Sollmann says, in relation to the solubility and taste of the drug, should give a fairly complete picture of its field of usefulness. The tannin-protein compounds, contrary to prevailing opinions, dissolve rather better in artificial acid-gastric juice than in bicarbonate-trypsin solutions. Their solubility is so slow, however, that they could be only slightly astringent in the stomach. Considerable astringency would develop in the duodenum, when the acidity is reduced; and the effects would continue somewhat into the lower intestine, following the cleavage of the undissolved proteinate. Slow solubility in bicarbonate solution is therefore a desideratum if the action is intended to continue beyond the duodenum. As to the tanninacetyl esters, commercial brands are evidently mixtures of varying quality; some specimens apparently containing considerable free tannin. The best specimens, however, appear fairly uniform, and but slightly soluble and astringent in acid solution. Bicarbonate dissolves them, and hydrolyzes them slowly. The astringency goes parallel to the hydrolysis, so that the action would continue for several hours, and could thus extend into the lower intestines. However, Sollmann insists that they do not deserve full confidence until the commercial products are more uniform.

Kentucky Medical Journal, Bowling Green

February, 1921, **19**, No. 2

Year's Development in Pediatrics. H. E. Tuley, Louisville.—p. 32.
*New Occupational Pain; Case of Chorea. J. J. Moren, Louisville.—p. 43.
Foreign Bodies in Eye; Report of Four Cases. A. O. Pfingst, Louisville.—p. 44.
Cesarean Section. C. Skinner, Louisville.—p. 46.
Visceral Reflexes. C. Thompson, Louisville.—p. 53.
Cerebrospinal Meningitis: Recovery. B. F. Underwood, Louisville.—p. 63.
Indications for Removal of Faucial Tonsils. S. S. Watkins, Louisville.—p. 65.
Mackenzie's Method of Clinical Research. F. C. Askenstedt, Louisville.—p. 68.
Life or Death of Medical Societies. W. E. Reynolds, Hopkinsville.—p. 71.

New Occupational Pain from Handling Compressed Air Motor.—Moren relates the case of a man, aged 48, a railroad mechanic who during January, 1920, began to complain of pain in his right elbow; in May the left elbow became involved. He has had all kinds of treatment without relief. He suffers a great deal of pain after he quits work. There is practically no pain on extension. The pain sometimes radiates up and down the arm. No particular portion is affected more than another. Contraction of the muscles by the electric current produces the same pain as on voluntary flexion of the elbow. Physical examination was negative. On making inquiries as to occupation it was found that he was handling a compressed air motor drilling holes in various pieces of machinery. His position in the use of this air motor was one of flexion of the arm, lifting the weight and at the same time holding it in position, and was accompanied by more or less vibration. Rest gave relief.

Missouri State Medical Association Journal, St. Louis

February, 1921, **18**, No. 2

Pathology of Thyroid. G. Ives, St. Louis.—p. 37.
Study of Influenzal Pneumonia by Serial Roentgen-Ray Examination. L. R. Sante, St. Louis.—p. 43.
Ovarian Substance. G. D. Royston, St. Louis.—p. 48.
An Infant Welfare Station in St. Louis in 1906. A. Bleyer, St. Louis.—p. 51.
*Poisoning from Wearing Dyed Shoes. F. Neuhoff, St. Louis.—p. 53.
Fracture of Os Calcis with Dislocation of Astragalus. Report of Cases. G. A. Beedle, Kansas City.—p. 54.

Poisoning from Shoe Dye.—Five, and again three, hours before becoming ill Neuhoff's patient had dyed his shoes while wearing them. The dye was found to contain a large amount of nitrobenzol, an intermediate product formed in the manufracture of anilin from benzene. Taken internally, 7 drops have caused death. It is also poisonous when inhaled or applied to the skin. It is used in the manufacture of explosives and anilin derivatives. Workmen who inhale too much of it, or spill it on themselves, are poisoned by it, death even at times resulting. The symptoms of poisoning come on several hours after the application of the poison to the skin and are favored by perspiration. They are cyanosis, anxiety, vomiting, formication, ringing in the ears, disturbed coordination, low blood pressure. The blood becomes a brownish color. In fatal cases there may be jaundice, convulsions and coma preceding death. The treatment recommended is blood letting, artificial respiration, inhalation of oxygen, and stimulants, but no alcohol.

New Orleans Medical and Surgical Journal

February, 1921, **73**, No. 8

*Tapping of Heart. Y. R. Le Monnier, New Orleans.—p. 303.
*Congenital Malformations of Anus and Rectum; Report of Cases. F. D. Fenner, New York.—p. 305.
Vertigo or Dizziness. S. C. Jamison.—p. 313.
Occipito-Posterior Positions. E. L. King, New Orleans.—p. 316.
Menace to Public Health. O. Dowling.—p. 321.

Tapping of Pericardial Sac.—Following repeated attacks of arthritis, Le Monnier's patient suddenly developed a very acute pericarditis with effusion. After the withdrawal of one ounce of a black bloody fluid, the urgent symptoms of distress disappeared and a very distinct "bruit de cuir neuf" and a rasping sound were heard. The patient recovered.

Congenital Malformation of Rectum.—In one of Fenner's cases the rectum and colon were normal, but in three different places the small intestine exhibited a gap, the free ends of the loop where the hiatus occurred appearing as blind pouches swinging from the mesentery. In a second case the condition was one of imperforate anus, with a fistulous communication between the rectum and the urinary tract. In the third case examination revealed an imperforate anus, but just back of the posterior vaginal commissure a fistulous opening on the perineum permitted the free escape of feces. Palpation and roentgenograms of the bowel indicated that the termination of the rectal pouch was high in the pelvis, but the fistulous tract was wide enough to permit easy evacuation of the bowel.

Southern Medical Journal, Birmingham, Ala.

January, 1921, **14**, No. 1

- *Relativities in Medicine. E. H. Cary, Dallas, Tex.—p. 1.
- *Problems Raised by Recent Development of Medicine: A Plea for Extensity as Well as Intensity in Our Work. C. L. Minor, Asheville, N. C.—p. 9.
- *Thrombosis of Coronary Arteries: Report of Cases. J. E. Paullin, Atlanta, Ga.—p. 16.
- Overmedication in Infancy and Childhood. J. D. Love, Jacksonville, Fla.—p. 21.
- Roentgenology in South. R. H. Lafferty, Charlotte, N. C.—p. 24.
- Relationships in Medical and Public Health Work. H. S. Cumming, Washington, D. C.—p. 26.
- Child Welfare: Strategic Point of Attack in Public Health Work. E. A. Hines, Seneca, S. C.—p. 32.
- *Newer Phases of Cancer Problem. W. D. Haggard, Nashville, Tenn.—p. 35.
- Railway Surgeon and His Job. H. A. Royster, Raleigh, N. C.—p. 41.
- *Past, Present and Future of Orthopedic Surgery. W. S. Baer, Baltimore, Md.—p. 42.
- Prostatectomy. J. T. Geraghty, Baltimore, Md.—p. 48.
- Future Needs of Ophthalmology and Otolaryngology. J. A. Stucky, Lexington, Ky.—p. 52.
- Semi-Suspension in Treatment of Tonsil Infections. F. D. Sanger, Baltimore.—p. 54.
- Medical Curriculum. G. C. Robinson, Nashville, Tenn.—p. 57.

Relativities in Medicine.—Adverting to the greater hospitalization of a community as a plan which would care for those who need medical attention and in a modest way are able to pay for it, a zoning of districts according to the population, with hospitals built to fit the need of the community, Cary says would be a step in the right direction. These institutions could be built either by the county or the city, or both; or by various organizations interested in the establishment of hospitals. The trustees of such hospitals could organize, each for themselves, a staff quite capable of meeting the needs of the people. A hospital in any community, solvent and well supplied with sufficient means for scientific work, should have a scientific library. A hospital should be the home of the county and district medical society. The big problems affecting public health cannot be accomplished by the state, therefore federal interest in the health and welfare of the people are things much to be desired. When our people reach a point where they will demand a National Department of Health they will get it, but the masses must be further educated. When this is done, we shall become a more efficient people. Centralization of authority is essential for the accomplishment of a great work.

Specialization in Medicine.—Specialization, Minor states, is today an essential means for the division and perfection of labor, for bringing an ever-widening field of knowledge within the grasp of finite minds, and for improving the practice of medicine. It is clear, however, that in it lie the seeds of a disease that will injure it and upset its results unless those who follow it are awake to this and hold it in check by keeping alive an interest in the problems of general medicine and by taking an active part in general as well as in special reading and study. Today each specialty is calling for recognition in the medical curriculum, but colleges have difficulty enough in turning out competent doctors without asking them to turn out finished specialists who can only be developed wisely by the experience of general practice and by the development of a special inclination and skill and by careful postgraduate study for those who feel the call. Each new addition to the curriculum only tends to make medical education, already too complicated, more complex to overburden the student's mind with a mass of various medical knowledge which cannot be absorbed till the basic studies of a medical education have been fully assimilated and taken to heart, even though by cramming creditable examinations may be passed.

Thrombosis of Coronary Arteries.—Early diagnosis is of the greatest importance, in Paullin's opinion. Absolute rest in bed for days and weeks is necessary. The only hope for recovery lies in securing for the infarcted area as rapidly as possible, an adequate supply of blood through its collateral circulation. By administering, intravenously or hypodermically, either strophanthus or digitalis, the heart is helped to establish this collateral circulation. To be of value the remedy must be used early and in sufficient dosage to get a quick effect. Paullin has not seen good result from the use of nitroglycerin or the nitrites. Morphin in sufficient dosage to relieve pain is absolutely necessary.

Cancer Problem.—Of 320 cases of deep-seated malignancies, reported on by Haggard and which were treated by various methods, of those who had recurrences 66 per cent. had only one method of treatment, whereas of those who had the combined method, only 33 per cent. recurred, which seems to justify the extensive use of radiation in connection with surgery. Efficient radiation makes operation more radical and increases the percentage of cures in early as well as advanced cases and delays recurrence in all cases. Radium has done its best work in hopeless inoperable cancer of the cervix and in recurrences after operation. In the operable cases, preoperative radiation and postoperative radiation should be associated with radical operation. Radioactive substances have proven valuable in the superficial epithelioma which can be cured by one application. It is bad surgery to treat a local growth without removal of adjacent lymphatics. Both local and metastatic conditions are most safely handled by operation plus radiation.

Status of Orthopedic Surgery.—Who is to do the reconstruction work? Who is to restore function to the injured joint or bone? Who is to restore these men to their economic value in society? And if they cannot be restored who is to estimate the amount of their disability? The orthopedist, is Baer's answer.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

January, 1921, No. 246

- Danger of Coolidge Tube for Screen Work. A. E. Barclay.—p. 225.
- Unexpected Solution of a Pelvic Radiograph Problem. N. Macleod.—p. 234.
- Roentgen-Ray Motor Ambulance Wagon for Use at Home and in Tropical Countries. J. Cantlie.—p. 236.
- Pastilles and Their Color Measurement. H. E. Donnithorne and F. E. Baker.—p. 239.

Journal of Pathology and Bacteriology, Edinburgh

January, 1921, **24**, No. 1

- *Enterococcus and Fecal Streptococci; Their Properties and Relations. J. H. Dible.—p. 3.
- *Variation in Bacteria in Relation to Agglutination Both by Salts and by Specific Serum. J. A. Arkwright.—p. 36.
- *Testing Diphtheria Toxin and Antitoxin by Intracutaneous Injection into Guinea-Pigs. A. T. Glenny and K. Allen.—p. 61.
- Normal Bacterial Flora of the Bee. P. B. White.—p. 64.
- *Gases in Human Arterial Blood in Certain Pathologic Pulmonary Conditions, and Their Treatment with Oxygen. J. Meakins.—p. 79.
- Studies in Diabetic Acidosis. G. B. Calvert, E. B. C. Mayrs and T. H. Milroy.—p. 91.
- The Silver Reduction Method for the Demonstration of Connective-Tissue Fibres. J. R. Perdrau.—p. 117.

Enterococcus and Fecal Streptococci.—Dible's paper is based on the study of 152 strains, and deals solely with the bacteriology of the organisms as found in the saprophytic state in the human body. It makes no attempt to deal with them as agents of pathologic processes. Dible's observations lead him to believe that *Streptococcus enteritis* comprises the large group of true chain forming streptococci of the feces, many of which are undoubtedly surviving salivary types. The *Streptococcus fecalis* of Andrewes and Horder comprises the group of the enterococcus and possibly some other types mentioned. It omits many true enterococci since nonmannite fermenting variants are not recognized. The characters of enterococci and certain other fecal streptococci are described. It would appear that the former comprise a well defined group, worthy of specific rank within the streptococcus genus.

Variation of Bacteria to Agglutination.—Eight out of nine strains of *B. dysenteriae* (Shiga) examined by Arkwright have been made to yield two forms ("S" and "R"), which remain constant in broth when subcultured weekly; they have different cultural characters in broth and on agar, but are identical and resemble the stock culture as regards sugar reactions and the absence of indol production, and of motility. The remaining strain only grew in the "R" form. The "S" form makes a good stable emulsion in salt solution, and in broth cultures causes uniform turbidity. The "R" form agglutinates in 0.85 per cent. solution of sodium chlorid. The "S" form, when agglutinated by specific serum, forms large clumps. The "R" form makes small clumps and the deposit is readily shaken up into a turbid suspension. The two forms differ very decidedly in their agglutinating, antigenic, and absorbing properties with specific serums. The "S" forms obtained from different strains of *B. dysenteriae* (Shiga) resemble each other serologically, but are distinct from all the "R" forms, and the "R" forms of different strains appear to have little relation to any "S" forms, but to be closely related to each other. "S" and "R" forms showing similar properties have been obtained from one strain of *B. dysenteriae* (Flexner-Y). Similar "S" and "R" forms have been obtained from several strains of *B. typhosus,* but the serologic differences between the two forms were less distinct than in the case of *B. dysenteriae,* in the case of one strain of *B. typhosus,* in which specific serum reactions were tested. Forms resembling the "S" and "R" forms as regards cultural characters and "spontaneous" agglutination have also been obtained from cultures of *B. paratyphosus* B, *B. enteritidis* (Gaertner) and other members of the *B. coli-typhosus* group, but the serologic characters have not been examined by means of specially made serums.

Testing Diphtheria Toxin and Antitoxin.—The intracutaneous method of Romer has been adopted by Glenny and Allen for all preliminary determinations of the antitoxic value of diphtheria serums. Their experience has shown that this method is of great practical value and that it deserves wider recognition.

Gases in Arterial Blood.—In four cases of lobar pneumonia the carbon dioxid content of the arterial blood was determined by Meakins and found to vary between 42 and 44 volumes per cent. This conspicuous decrease might be explained by the febrile condition. However, it seems more probable that this decrease is the result of the increased total pulmonary ventilation which has been found to occur in these cases. There would appear to be a striking analogy between the character of respiration in these cases of pneumonia and that found in cases of chronic gas poisoning as exemplified by the case reported.

Journal of Tropical Medicine and Hygiene, London

Feb. 1, 1921, **24**, No. 3

*Mites as Internal Parasites of Man. W. E. C. Dickson.—p. 25.
Suggestions for Further Rsearch in Schistosomiasis. F. Milton.—p. 27.

Mites Found in Urine.—Two cases of infection of the urinary tract by mites are cited by Dickson. The parasites were present in large numbers in very carefully taken catheter specimens of urine. In one case the mite was *Tyroglyphus* (Aleurobius) *farinae* De Geer, found usually in flour, grain, stored foods, etc. Clinically, the case had been diagnosed as chronic Bright's disease and cystitis. The patient got well under proper treatment. The second case was suggestive of lymphadenoma or lymphatic leukemia. Examination of the urine for mites disclosed the *Tarsonemus,* which infests various plants, on which it causes the formation of small galls. This patient became seriously ill, with symptoms of cystitis and pyelitis, and died soon afterward.

Lancet, London

Feb. 12, 1921, **1**, No. 5085

*Seventy-Six Cases of Uterine Fibroids and Chronic Metritis Treated by Roentgen Rays. T. W. Eden and F. L. Provis.—p. 309.
Removal of Appendix in Quiet Period. W. H. Battle.—p. 313.
Quinin Treatment of Malaria. P. Hehir.—p. 317.
*Squint, Mancinism and Tubercle. W. C. Rivers.—p. 319.
*Incidence of Congenital Syphilis Among Newly-Born. S. M. Ross and A. F. Wright.—p. 321.
Case of Myoclonic Encephalitis. J. P. Stewart and E. S. Scott.—p. 323.
Relative Activity of Fat Soluble Accessory Factor in Cod Liver Oil and Butter. S. S. Zilva and M. Miura.—p. 323.

Roentgen-Ray Therapy of Uterine Fibroids.—Eden and Provis are of the opinion that roentgen-ray treatment should be regarded as the method of choice in women over 38 for all uncomplicated cases of severe hemorrhage due to chronic metritis, or other conditions in which no neoplasm is present. These cases yield more readily to the treatment than do fibroid tumors. The presence of inflammatory disease of the tubes and ovaries is a contraindication. Fibroids of the size not exceeding the height of the umbilicus may be treated with roentgen rays if the patient is over 38 years old, if the hemorrhage is of the regular monthly type, and if there is no evidence of inflammatory disease of the tubes and ovaries or of advanced degenerative changes in the tumor. If intercurrent conditions which tend to increase operative risks are present, roentgen-ray treatment should be regarded as the method of choice; in other cases the choice may usually be left to the patient. No case should be submitted to roentgen-ray treatment without a careful gynecologic examination being previously made, to exclude malignant disease, inflammatory complications and degenerative changes in fibroids. The risks of failure with roentgen-ray treatment in suitably selected cases are so small as to be negligible; the roentgen-ray menopause may be attended by more severe flushings than the normal menopause, but in other respects there is no difference between them; there is no tendency to corpulency or to psychologic changes.

Squint, Mancinism and Tubercle.—Rivers discusses further evidence in support of his claims that squint is about three times commoner in consumptives, and probably also in consumptives' parents, than in the nontuberculous; that such squint seems to favor the left eye, and that tuberculous squinters are left-handed, and give a family history of left-handedness oftener than do nonsquinters. Squint is excessive in lung tubercle and in lymphatic gland tubercle, but not in bone and joint tubercle. Squint is excessive among the clinically nontuberculous mothers (at any rate) of nonsquinting consumptives. Left-handedness, or mancinism, occurs in from 2 to 4 per cent. of the general population. Rivers found it in 2.7 per cent. of nonsquinting consumptives. All the left-handers are left-eyed squinters; all the ambidexters are right-eyed. Of sixty nontuberculous squinters, six were left-handed. All the left-handers squinted with the left eye. Two ambidexters had a left divergent sqint. Of the sixty phthisical squinters, twenty-one know of left-handed relatives. Out of sixty nontuberculous squinters, twenty-two know of left-handed relatives. All the left-handed squinters in the phthisical series know of left-handed relatives, and two thirds of the nontuberculous left-handed squinters. Right eye and left eye, the latter kind gives a slightly more frequent family history of mancinism. It is reasonable to conclude, then, that, whether in phthisical or in nontuberculous subjects, left-eyed concomitant strabismus is somewhat associated with mancinism and with a family history of mancinism.

Congenital Syphilis Among Newly Born.—The 300 cases examined by Ross and Wright were entirely unselected, and in no instance had either parent been treated for recognized syphilis. The blood was taken from the placental end of the umbilical cord immediately after it was severed from the infant. Each investigator employed a different method of test. Thus, Ross employed Dean's technic, in which the complement factor is constant with variations in serum, whereas Wright used Harrison's method, in which the serum factor is constant and the dose of complement varies. In 284 cases, or 94.6 per cent., the results of both workers were identical, ten cases, or 3.5 per cent., being definitely positive. In five cases Wright found a trace of complement deviation which was not found by Ross. In five cases there was marked disagreement. The facts are that 3.5 per cent. specimens of placental blood were found positive by two observers using entirely different methods in different laboratories.

Tubercle, London

February, 1921, **2**, No. 5

*Value of Diagnostic Methods in Pulmonary Tuberculosis of Children. S. H. Stewart.—p. 193.
Case of Perforation of Lung Following Artificial Pneumothorax. B. Hudson.—p. 203.
Coordination of Statistics of Pulmonary Tuberculosis. F. R. Walters. —p. 206.
Employment for Tuberculous Persons in Industrial Settlements. F. J. C. Blackmore.—p. 209.

Diagnosis of Pulmonary Tuberculosis in Children.—The investigation reported on by Stewart was undertaken in 300 children whose ages varied from 5 to 14 years. Of these 223 were considered to be suffering from pulmonary tuberculosis. It is evident that family and personal history lead but a very little way toward a diagnosis. Laboratory investigation is limited to the very few instances in which sputum is available. Of course, if tubercle bacilli can be demonstrated microscopically or by inoculation, the diagnosis can be regarded as final. Other laboratory methods are not established. Physical examination is very valuable but its results are sometimes indefinite both as regards the existence of active disease and very often indefinite as regards the nature of the disease if signs suggesting morbid change are found. Of specific tests, the subcutaneous is inadvisable. The quantitative cutaneous is of great value. Its shortcomings are that it is negative where the resistance is high and also where toxemia is marked. Radioscopic examination would appear unsatisfactory in that its definitely positive assertions lead to such a margin of inaccuracy. It is obvious that no one method can be relied on in making a final diagnosis of pulmonary tuberculosis in children, except, of course, demonstration of tubercle bacilli. Before the disease is localized and its nature and activity established, all the safe approaches may have to be explored, but two combined methods are preeminently reliable, namely, physical examination associated with quantitative cutaneous testing.

South African Medical Record, Cape Town

Jan. 22, 1921, **19**, No. 2

Action of Heart. W. E. Burrows.—p. 22.
Fulguration for Bladder Growths. H. T. Mursell.—p. 25.
*Recurring Dislocation of Shoulder Joint. T. L. Sandes.—p. 27.

Operation for Recurring Dislocation of Shoulder Joint.—The operation performed by Sandes in five cases was devised on the principle of strengthening the suspension of the limb at the site, and by means analogous to those of a normal joint. An anterior incision is made in the deltopectoral sulcus from the clavicle as far down, if necessary, as the insertion of the deltoid. This muscle is reflected, exposing the anterior and lateral aspects of the capsule. With the arm in abduction to relax the deltoid a drill of large size is driven anteroposteriorly through the humerus, medial to the tendon of the biceps, and through or close to the insertion of the subscapularis tendon about the level of the middle of the articular surface of the head. The drill passes backward horizontally, and emerges through the great tuberosity behind. The diameter of this tunnel should be about 1 cm. The capsule of the joint is not opened. A strip of fascia lata is excised about 30 cm. long, and about 4 cm. broad. The excised strip is rolled or folded up into a compact cord, and sewn with a running stitch of linen thread or silk into a firm ligamentum teres. A silver wire with a loop, or a pliant probe, is used to draw a strong linen thread through the tunnel, and this in turn, being fixed to the extremity of the artificial ligament, pulls it anteroposteriorly through the bone. A small incision is made on the upper aspect of the clavicle lateral to the coracoid process, exposing the bone, from which the soft parts are freed. With a curved pair of forceps passed in front of the clavicle and burrowed through the deltoid the posterior extremity of the artificial ligament is pulled up and slung over the clavicle. Both ends are seized in forceps drawn taut (with the arm at an angle of 45 degrees from the side), overlapped and sewn securely together with silk or linen thread. Thus a firm figure-of-8 ligament is made to suspend the humerus through, approximately, its axis of rotation in the movement of abduction to a fixed osseous buttress above. Any looseness of the capsule is repaired by taking in a reef usually in front and below. The arm is well supported in a sling and rested for six weeks.

Annales de Médecine, Paris

1920, **8**, No. 5

*Deposits of Cholesterin. A. Chauffard, G. Laroche and A. Grigaut.—p. 321.
Experimental Concussion of Spinal Cord. G. Roussy, J. Lhermitte and L. Cornil.—p. 335.
*The Urea in Epilepsy. H. Boutter and B. Rodriguez.—p. 354.
*The Effusion with Artificial Pneumothorax. F. Dumarest, F. Parodi and J. Lelong.—p. 367.
*Test for Reaction of Biologic Mediums. J. Blanc and E. Pozerski.—p. 392.

Local Deposits of Cholesterin. — Chauffard and his co-workers present evidence that the normal content of cholesterin in the blood may be increased by abnormal production of cholesterin for which the suprarenals may be responsible, or the hypercholesterinemia may be passive, from retention on account of insufficiency of the liver. Their research has demonstrated that xanthelasma or xanthoma must be regarded as analogous to a tophus in gout, a cholesterin tophus. When the cholesterin is deposited in the eye, we find senile arc of the cornea, or retinitis with white patches or synchysis scintillans. In all persons with a tendency to cholelithiasis, the cholesterin content of the blood is abnormally high, whether there is jaundice or not. In one case a woman with old nephritis and high blood pressure, but no uremia, developed a xanthelasma on the lid, but there was nothing to indicate liver or biliary derangement. The blood however showed a cholesterin content of 3.3 gm. In the pregnant, on account of the excessive production of cholesterin (of ovarian and suprarenal origin), white patches are liable to develop on the retina exactly like those of nephritis and diabetic retinitis. The hypercholesterinemia is the common factor which explains the occurrence of analogous lesions in the retina in the course of such widely different states as Bright's disease, gestation and diabetes. Local causes of sluggish circulation determine the location of the precipitation.

The Urea in Epilepsy.—The research in the eleven cases described failed to show any retention of urea immediately before or after an epileptic seizure. It is evident that the metabolism of proteins plays an insignificant part in the pathogenesis of epileptic seizures.

The Effusion with Artificial Pneumothorax.—This is a clinical and cytologic study of the pleural effusion observed with induced pneumothorax. The cells in the effusion show its nature from the start.

Reaction of Biologic Mediums.—Blanc and Pozerski report experiences with colorimetry as a simple and easy method for determining the acidity or alkalinity of biologic fluids. They explain the principles of the method and its records, and describe the standard indicators which give the best results. They list the findings in blood, urine and gastric juice.

Archives des Maladies du Cœur, etc., Paris

December, 1920, **13**, No. 12

*The Pulse Rate in Nephritis and Arteriosclerosis. W. Janowski.—p. 529.
Pathogenesis of Congenital Heart Disease. C. Laubry and C. Pezzi.—p. 534.

The Pulse Rate in Nephritis and Arteriosclerosis.—Janowski describes his method of estimating the velocity of the pulse by a geometric average. The coefficient thus derived has diagnostic and prognostic value, he explains.

Archives Médicales Belges, Liége

November, 1920, **73**, No. 11

*Jules Bordet. E. Renaux.—p. 899.
Sex Gland Implantation. G. Frank Lydston (Chicago).—p. 909.
*Lethargic Encephalitis. Rorive.—p. 916.

Bordet.—Renaux reviews Bordet's scientific work, especially the complement fixation test, and its effect on the medical sciences. The Nobel prize in medicine was recently conferred on him.

Epidemic Encephalitis.—Rorive outlines the present status and differential diagnosis of this disease, saying that a sporadic case was published at Paris in 1904 by Achard.

Bulletin de l'Académie de Médecine, Paris

Jan. 25, 1921, **85**, No. 4

*Vaccination Against Typhoid. H. Vincent.—p. 123.
*Ileus in Lethargic Encephalitis. P. Mauclaire.—p. 134.
*Energy-Generating Drugs. G. Bardet.—p. 136.
*Acidosis in Diabetes. H. Labbé.—p. 139.
*The Semicircular Canals. A. Broca.—p. 141.

Vaccination Against Typhoid.—Vincent relates a number of instances in which the civilian population of villages and towns have been vaccinated against typhoid during and since the war. He quotes statistics from Spain where Peset vaccinated 21,000 of the inhabitants of Seville in 1918, and Arnal in a small town vaccinated 700 although there was no typhoid in the place at the time. Other Spanish physicians vaccinated large numbers of persons at Barcelona and elsewhere, and Belgium has an especially fine record of civilian populations vaccinated. Vincent relates a number of instances in which the nonvaccinated persons in a family contracted typhoid while all the others escaped. He states that children bear the vaccination better than adults.

Ileus in Epidemic Encephalitis.—In the case described by Mauclaire the extreme tympanism and other signs of ileus were explained by the course of the case, showing symptoms of epidemic encephalitis. The occlusion was evidently of spastic origin, from traumatic injury of certain parts of the intestine from the incessant contractions of the diaphragm and the muscles of the abdominal wall. In several cases on record the mistake was made of operating, instead of trying to combat the spasm.

Energy-Generating Drugs.—Bardet explains that a certain number of substances display an action which is in the nature of generation of energy, not merely stimulating the energy of the subject by purely chemical action. As an example of a substance of the kind he mentions hexamethylenamin, which, he says parenthetically, was introduced into medicine by Trillat and himself. This induces physiochemical changes, in addition to its chemotaxic action. The enormous effects produced by imponderable quantities of toxins and various viruses cannot be explained by the assumption of pure chemotaxis.

Acidosis in Diabetes.—Labbé has confirmed by recent research, he says, that beta-oxybutyric acid is the substance that generates the acetone bodies. This shows the difference between the acidosis of normal fasting and the diabetic acidosis, but the two may be combined. Fasting, which creates acidosis in the normal, reduces it in the diabetic

The Semicircular Canals.—Broca's research has confirmed the peculiar advantages of the somewhat slanting arrangement of the semicircular canals. In case of injury of either the horizontal or vertical system, by bending the head a little the other system can accomplish its work.

Bulletin Médical, Paris

Jan. 8, 1921, **35**, No. 2

*Convergent Strabismus. R. Onfray.—p. 19.
Open Air Schools in Cities. J. Génévrier.—p. 20.

Convergent Strabismus.—Onfray enumerates the reasons for treatment of convergent strabismus by glasses at the age of 3; functional exercises at 8, and surgical reenforcement of the abductors at 10 if correction is not realized before.

Bulletins de la Société Médicale des Hôpitaux, Paris

Dec. 31, 1920, **44**, No. 41

Epidemic Encephalitis. Lemierre and others.—pp. 1628, 1633 and 1637.
Improved Stethoscope. C. Lian.—p. 1639.
Phono-Sphygmometer. C. Lian.—p. 1643.
*Tuberculosis in Infant. L. Bernard and R. Debré.—p. 1658.
*Ulcer of Second Portion of Duodenum. G. Parturier and J. Aimard. —p. 1666.
Myoclonia with Mitral Insufficiency. Halbron and Joltrois.—p. 1671.
*Serotherapy in Tetanus. G. Etienne and J. Benech.—p. 1674
*Negative Wassermann Reactions. M. Pinard.—p. 1682.
*Residual Nitrogen. F. Rathery and F. Bordet.—p. 1683.
*Fluid in Fasting Stomach. III. G. Hayem.—p. 1686.
*Bubonic Plague in Paris. L. Guinon and others.—pp. 1723, 1724, 1730, 1734, 1739 and 1756.

Tuberculosis in Infant.—Bernard and Debré report an instructive case in an infant 1½ months old, removed from its tuberculous mother at once, when it soon threw off the tuberculosis completely. The thriving of the child after this clinical, radiologic and biologic confirmation of tuberculosis testifies anew to the importance of prompt isolation.

Ulcer of Second Portion of Duodenum.—Parturier and Aimard found ptosis of the stomach in 80 per cent. of their eighteen cases and in 50 per cent. the duodenum sagged very low. The pain was not influenced by inspiration, but there was tenderness at a point about the center of a line drawn from the tenth rib to a point on the center of a line joining the tips of the iliac crests. There was also a tender point in the left side of the neck. The pain was relieved by atropin rather than by opium. The symptoms are liable to be mistaken for gallstone colic, but rapid evacuation of the stomach points to duodenitis.

Serotherapy in Tetanus.—Etienne and Benech add eight new cases to their former series, a total of twenty grave cases of tetanus with three deaths. All the others recovered under massive antitetanus serum in large doses. The incubation was from one to five days in six with no deaths, and from six to ten days in five, with one death. They do not hesitate to affirm that tetanus can be cured by serotherapy if the patient does not die in forty-eight hours after the first injection.

Negative Wassermann Reactions.—Pinard expatiates on the necessity for investigating the family when the Wassermann test is negative in dubious cases.

Residual Nitrogen in Grave Nephritis.—A case of fatal nephritis is described in which the total nitrogen in the blood increased remarkably but the residual declined as the fatal uremia developed.

Fluid in Fasting Stomach.—Hayem presents evidence that the concentration of the fluid found in the fasting stomach is the only reliable element in the diagnosis of postdigestive hypersecretion. The presence in the fasting stomach of fluid may be due to extragastric secretions or stomach mucus, and even large amounts of fluid do not necessarily indicate stenosis or ulcer. When there is pronounced dilation of the stomach, he reduces the number of meals to two with an interval of nine hours. In some cases he aids in the evacuation of the first meal by having the patient recline for an hour before dinner with the hips raised. By these means he very seldom has to resort to lavage of the stomach.

Bubonic Plague in Paris.—Summarized in News department, February 12, p. 460.

Journal de Chirurgie, Paris

1921, **17**, No. 2

*Fracture of the Neck of the Femur. A. Basset.—p. 81.
*Present Status of Treatment of Aneurysm of the Carotid. C. Lenormant.—p. 121.

Fracture of the Neck of the Femur.—Basset gives a detailed, illustrated description of the simple apparatus which facilitates driving a screw lengthwise into the neck of the femur, through the head to the acetabulum according to Delbet's technic. He has applied this method in ninety-five cases for recent fracture or pseudarthrosis, and regards it as reliable and simple and sure to succeed. He uses an ordinary screw from 7 to 10 cm. long, with wide spirals, preferring this to a screw made of dead bone as stronger and more reliable. It may be possible, however, to use the dead bone with a metal guide insert. The method can be applied without the apparatus for orientation, but the screw is liable to go astray.

Present Status of Treatment of Aneurysm of the Carotid.—Lenormant has compiled twenty-six cases since 1911 of operative treatment of aneurysm of the carotid, and sixty-four of aneurysm involving both the carotid and the jugular vein.

Journal de Médecine de Bordeaux

Jan. 25, 1921, **92**, No. 2

The Oscillometer Curves in Relation to Force of Heart Action. R. Alexandre and R. Moulinier.—p. 39.
The Histo-Physiology of the Sense of Touch. G. Dubreuil.—p. 41.
Case of Dolichostenomelia. R. Dupérie, Dubourg and Guénard.—p. 43.
*Injection of Oxygen in Mushroom Poisoning. J. Hubert.—p. 47.

Injection of Oxygen in Mushroom Poisoning.—Hubert supplemented the usual measures by injection of oxygen twice a day into the thigh for the first three days, in two members of a family of three all showing severe mushroom poisoning. Both recovered while the other, not given the oxygen, died.

Journal de Radiologie et d'Electrologie, Paris

December, 1920, **4**, No. 12

*Radiotherapy of Uterine Sarcomas. A. Béclère.—p. 529.
*Radium Therapy of Uterine Fibromyomas. T. Nogier.—p. 537.
*Radiometry of the Pelvis. Guilbert.—p. 547.

Radiotherapy of Uterine Sarcomas.—Béclère confesses that he has never encountered a case of sarcoma of the uterus, but he cites the chapter devoted to this subject in the recent work on deep roentgen-ray treatment by Seitz and Wintz. They comment on the sarcomatous degeneration of uterine myomas, and state that their method of deep radiotherapy will cure these as well as primary sarcomas in the uterus. They report eighteen cases which sustain this assumption. Béclère quotes the first three cases in full, as the interval of three or four years since the treatment has apparently confirmed the complete cure. These patients were girls of 14, 16 and 24, exsanguinated, cachectic and inoperable, with microscopically confirmed sarcomas, one as large or larger than a child's head. Under three or four applications of radiotherapy, the tumors subsided and the patients are now, four years later, strong and healthy, with full earning capacity restored. Four of the fifteen others have died but eleven are in perfect health, the complete cure lacking only, apparently, the test of time. The fear of sarcomatous degeneration therefore should not deter from the application of radiotherapy to a tumor in the uterus, he remarks in conclusion, to judge from this work in Germany.

Radium Treatment of Uterine Fibromyomas.—Nogier concludes his advocacy of this treatment by saying that among its special advantages are that it rapidly arrests menorrhagia and metrorrhagia even in young women; that it usually causes the retrogression if not the complete subsidence of fibromyomas, and it accomplishes this in a short time and without risk for the patients. But the principal advantage is that it is the only treatment that can be applied to patients too anemic or with heart or kidney disease too far advanced to permit operative intervention.

Pelviradiometry.—Guilbert's method is based on geometrical calculations from orthogonal projection.

Lyon Chirurgical

November-December, 1920, **17**, No. 6

Radiology of Shoulder and Hip Joint. F. Arcelin.—p. 669.
Surgery of Lower Bladder. V. Rochet.—p. 687. Cont'n.
*Epigastric Hernia. E. Villard.—p. 700.
*Capillary Circulation. R. Leriche and A. Policard.—p. 703.
*Pneumococcus Arthritis. Plisson and Brousse.—p. 705.
Multilocular Cyst of Lower Jaw. L. Laroyenne and P. Wertheimer.—p. 713.
Large Mixed Tumor of Soft Palate. L. Moreau.—p. 721.
Histology of Six Cases of Undescended Testes. L. Michon and P. Porte.—p. 731.
Pathogenesis of Curvature of the Radius. R. Tillier.—p. 739.
*The Lymphocyte in the Defense Against Cancer. R. Noël.—p. 744.

Epigastric Hernia.—Villard recalls that epigastric hernia is merely a hernia of the round ligament of the liver through the linea alba.

Capillary Circulation.—Leriche and Policard show the changes in the size of the capillaries during stimulation of the peri-arterial sympathetic innervation, and also during ligation of the artery. The contraction of the capillaries confirms the effects of peri-arterial sympathectomy.

Pneumococcus Arthritis.—Plisson and Brousse have compiled 185 cases of pneumococcus arthritis, but in only twenty-six cases was the arthritis primary, with no other pneumococcus lesion to be found; fourteen were in children. They report a case of purulent arthritis of the knee in a young man. Passive mobilization was begun as early as possible, and the results were satisfactory after arthrotomy, drainage and immobilization.

The Lymphocyte in the Defense Against Cancer.—Noël describes here the work that has been done in America in this line.

Presse Médicale, Paris

Jan. 29, 1921, **29**, No. 9

Present Status of Treatment of War Wounds. P. Lecène.—p. 81.
*Action of Atropin in Epidemic Encephalitis. A. Radovici and J. F. Nicolesco.—p. 83.
History of Cervical Ribs. M. Nathan.—p. 86.

Action of Atropin in Epidemic Encephalitis.—Radovici and Nicolesco give charts showing the attenuation of the involuntary movements in five cases of severe epidemic encephalitis under the influence of atropin. The doses were 1 or 2 mg. and all the patients experienced more or less relief from the choreiform jerking which had prevented sleep.

Revue de Chirurgie, Paris

1920, **39**, No. 7-8

*Disarticulation of Foot to Heel. G. Küss and L. Houdard.—p. 465.
*Ulcer of the Colon. R. Soupault.—p. 480.
*Excision of the Spleen. G. Léo.—p. 525.

Disarticulation of Foot to the Heel.—Küss and Houdard show by several illustrations the importance of retaining a long and broad flap of the skin of the sole after the Ricard operation. This flap can be brought up to suture in front of the heel, giving a fine stump.

Ulcer of the Colon.—Soupault recently had occasion to operate in a case of perforated ulcer of the ascending colon. In connection with this case he reviews what has been written on the subject, summarizing twenty cases in men and six in women. In several of the cases the perforation was the first sign of trouble; with the finding of a sound appendix, perforation of an ulcer in the colon should be suspected. In all cases of chronic intestinal stasis, a perforated simple ulcer should be sought. Twenty-one of the twenty-seven cases proved fatal. He is inclined to advise simple suture of the perforation unless conditions compel resection. He merely sutured the perforation in the young woman whose case he reports in detail.

Excision of the Spleen.—Léo reports a case of seton wound of the spleen in which he excised the injured area. He arrested the parenchymatous hemorrhage by drawing up the lips of the wound in the spleen, and the young man was sent to the rear in a sitting position, the twenty-fifth day after the operation, in good condition.

Revue de Médecine, Paris

1920, **37**, No. 12

*Blood and Cerebrospinal Fluid in General Paresis. C. Levaditi and A. Marie.—p. 569.
*Tracings of Radial and Jugular Pulse. E. Guilleaume.—p. 589.
*Constitutional Dysthymia. R. Benon.—p. 610.

The Blood and the Cerebrospinal Fluid in General Paresis.—Levaditi and Marie report the findings in twenty-nine patients with general paresis, examined repeatedly to determine the relations between and the fluctuations in the findings in blood and spinal fluid in respect to complement fixation, etc. They confirm the importance of the physical changes in the body fluids induced by the spirochetes.

Simultaneous Pulse Curves.—Guilleaume remarks that the heart, more perhaps than any other organ, requires frequent reexamination to obtain insight into its functional capacity. Nothing is so instructive for this as simultaneous tracings of the arterial and venous pulse, and this graphic method is simple and rapid. The right jugular vein is so closely connected with the right auricle that it is easy to obtain a legible curve with the apparatus applied to the vein, the patient reclining. With good compensation, mitral insufficiency does not modify the venous tracing, nor aortic or pulmonary lesions nor hypertrophy of the heart of aortic or renal origin. But stenosis of the tricuspid valve early modifies the venous pulse, and with failing compensation the jugular pulse soon warns that the heart is becoming dilated. He gives a number of typical tracings, urging that the simultaneous study of the radial and jugular pulse is liable to yield important information at the moment when it is most needed. It shows the tendency to dilatation in the anemic and the obese before any other signs give warning. In diseases accompanied with high blood pressure it shows the danger from the obstacle thus revealed, before the obstacle has made its presence felt otherwise. It has even permitted the diagnosis of nephritis before the urine showed albumin, and has proved the reliable basis for the prognosis in nephritis threatening to become chronic.

Constitutional Dysthymia.—Benon expatiates on the necessity for differential diagnosis of conditions with alternation of excitement and depression according as they are the result of a periodic psychosis, a manic-depressive psychosis, or of an individual constitutional emotivity, Magnan's loss of psychic balance. He describes two typical cases, and emphasizes that the term cyclothymia must not be applied to the former group.

Policlinico, Rome

Jan. 24, 1921, **28**, No. 4

New Form of Epidemic Encephalitis.* P. F. Zuccola.—p. 113.
*Luxation of Fingers. E. Borelli.—p. 115.
Total Fracture of the Acetabulum. E. Casati.—p. 118.
Hematuria from Hexamethylenamin. L. Andalò.—p. 119.
Prophylaxis of Malaria. D. Falcioni.—p. 120.

Jan. 1, 1921, **28**, Medical Section No. 1

Comparative Radiography of Pulmonary Tuberculosis in Children and in Adults. P. Alessandrini.—p. 1.
Pathogenesis of Effusions with Induced Pneumothorax. F. Dumarest and F. Parodi.—p. 12.
Induced Pneumothorax in Pulmonary Tuberculosis. Rodano.—p. 32.
Mechanism of Respiration During Induced Pneumothorax. U. Cassinis. —p. 43.

Luxation of Fingers.—Borelli was able to reduce three of the fingers but for the forefinger it was necessary to release the metacarpal bone as it had slipped through the ligament to the palm. The child had hit its fingers first in falling.

Riforma Medica, Naples

Jan. 8, 1921, **37**, No. 2

*Pleurisy and Peritonitis in the Syphilitic. F. Schupfer.—p. 25.
*Kleptomania. C. Todde.—p. 32.
*Early Diagnosis of Cancer of the Rectum. G. Sofrè.—p. 34.

Pleurisy and Peritonitis in the Syphilitic.—The case reported responds to all the requirements for a syphilitic pleurisy, as there were other lesions of syphilis apparent and the disease subsided under mercurial treatment. But Schupfer presents arguments to prove that in this case, as in the overwhelming majority of similar ones on record, the pleuritis was in fact of tuberculous origin. The development in a syphilitic conferred special features on it, modifying the clinical picture. The tuberculosis is generally primary, and treatment of the syphilis improves conditions even for the tuberculous disease. He protests against Letulle's statement in 1918 that the seventy-four patients with a positive Wassermann reaction in his 154 cases of Laennec's cirrhosis of the liver confirm that the ascites in such cases is due to syphilitic peritonitis. Letulle never succeeded in isolating spirochetes in these cases, but Schupfer found that the results of treatment in this cirrhosis were identical whether the Wassermann test was negative or not. He has traced many of the cases of supposed syphilitic pleurisy on record, and has found that they developed frank tuberculosis sooner or later.

Kleptomania.—Todde reports a case in which the kleptomania in the child of 12 seemed to form part of the epileptic syndrome.

Early Diagnosis of Cancer of the Rectum.—Sofrè warns that in addition to the hemorrhage, constipation and pains, or even in their absence, an oozing of fluid from the anus is strong presumptive evidence of cancer of the rectum. In one patient the slight soiling of the linen found on rising in the morning was almost the only sign to attract the man's attention, but Sofrè found an enlarged gland which had developed recently in the inguinal region. The rectoscope revealed a cancer which would have escaped examination with the finger. Vague abnormal sensations in the rectum and false desires to defecate are also instructive. The inguinal region should always be examined for enlarged glands on suspicion of disease in the rectum.

Anales de la Facultad de Medicina, Montevideo

September-October, 1920, **5**, No. 9-10

*Cinematization. G. Bosch Arana.—p. 453.
Calcium in Epilepsy. H. J. Rossello.—p. 487.
Epistaxis and Its Treatment. P. J. Martino.—p. 506.
*Atypical Tetanus. D. Prat.—p. 539.
*Complement in the Wassermann Test. A. Prunell.—p. 549.
*Diagnosis of Syphilis. R. Capurro.—p. 562.
Silver Salvarsan and Sulphoxilate. G. Pelfort.—p. 570.

Cinematization.—Bosch Arana's article has sixteen illustrations. It was delivered as an exchange lecture, summarizing his extensive work in this line of adapting amputation stumps for volitional muscle control of prostheses. He calls it the new mutilating surgery of cineplastic amputations.

Atypical Tetanus.—In the first case reported by Prat the tetanus did not develop until four months after the wound, and it was not grave, and recovery followed the excision of the area in the thigh injured by a gunshot wound. In another case the tetanus developed in a child after herniotomy, and the infection is ascribed to the catgut, "one of the best North American makes." In a third case the tetanus developed twenty-eight hours after compound fracture of the humerus in a boy of 7, and five hours after injection of antiserum, but the child recovered under chloral and camphorated oil treatment plus a total of 90 c.c. of antiserum.

Complement in the Wassermann Test.—Prunell concludes from his analysis of recent literature and his own experimental research that the complement may undergo great variations in vitro so that its activity should be determined each time. He makes a point of titrating the alexin in contact with the antigen with a mixture of ten various negative and positive serums, to test the properties of each antigen. He found that the reaction occurs with a tenth less of the complement when there is alcohol present. He examined thirty-six guinea-pigs under the same conditions to determine the exact quantity of complement in their serum and its activity. The amboceptor unit is the smallest amount which with a given quantity of complement and physiologic saline produces hemolysis in thirty minutes. The unit for guinea-pig serum is that amount which diluted to one tenth produces hemolysis with 0.3 c.c. of the solution. The guinea-pigs were punctured under the same conditions and at the same hour. The range of pure complement necessary was from 0.02 to 0.05 c.c. in the different animals.

Diagnosis of Syphilis.—Capurro remarks that a well equipped laboratory must be the basis for an institution of syphilography. He describes Vernes' recent work as throwing much light on the matter of the serologic tests. The latter declares that if the cerebrospinal fluid is normal after provocative injection of an arsenical, and if the negative reaction in the fluid keeps up for eight months, examined monthly, either the subject never had syphilis or has completely recovered. The problem of the diagnosis of latent syphilis thus blends with the problem of the adequacy of treatment. Capurro comments on this law of Vernes that his ten years of experience have not been enough to sustain this eight month limit as infallible, as syphilis is such a long and capricious disease, but experience to date has shown nothing to conflict with it. The effect of arsenical medication causing the subsidence of dubious superficial lesions cannot be accepted as a reliable sign of the syphilitic nature of these lesions, as the action of the arsenicals is far from specific, and they may cure pathologic conditions of other origin as well. On the other hand, the persistence of true syphilitic lesions may be explained by the action of associated microorganisms.

Brazil-Medico, Rio de Janeiro

Dec. 4, 1920, **34**, No. 49

*Primary Dementia from Arteriosclerosis. U. Vianna.—p. 805.
*Urticaria in Malaria. J. A. G. Fróes.—p. 807.
*The Passiflora. U. Paranhos.—p. 807.

Jan. 1, 1921, **35**, No. 1

Vaccination Against Dysentery. A. de Vasconcellos.—p. 1.
Leeches as Intermediate Hosts of Trematodes in Natural Conditions. C. Pintó.—p. 3.
Medicolegal Testimony. L. Ribeiro.—p. 4. Conc'n in No. 2, p. 20.

Arteriosclerosis of the Brain.—Vianna recalls that in primary dementia from cerebral arteriosclerosis, the mental disturbances develop slowly, following the course of the anatomic process. But in secondary dementia, the lesions occur precipitately, and the dementia develops by comparatively sudden focal symptoms, paralysis, aphasia, etc. With the primary form there is gradual impairment of attention, memory and association of ideas.

Urticaria in Malaria.—Fróes reports a case of quartan malaria with no chill, no fever, no sweats, the only manifestation being attacks of urticaria, with two days between free from symptoms. The four day intermissions were explained by the discovery of the quartan hematozoa in the blood, tenderness of the liver and slight enlargement of the spleen.

The Passiflora.—Paranhos reports experimental research on the different Brazilian species of passiflora.

Crónica Médica, Lima

October, 1920, **37**, No. 688

Teaching Psychology in Medical Course. H. F. Delgado.—p. 325.
*Puerperal Sepsis in Peru. J. Silva Velasquez.—p. 331.
*Pathogenesis of Arthritism. M. Arias Schreiber.—p. 340.
*Operation for Ureter Calculus. C. Morales Macedo.—p. 342.

Puerperal Fever in Peru.—Silva Velasquez has been unable to find any mention of febrile childbirths in the early medical history of Peru, while many writers refer to the rapid and easy deliveries of the native women. The maternity was founded at Lima in 1830, and the mortality from puerperal fever there was 4.38 per cent. of 1,711 births in 1915 but only 1.66 per cent. of 2,109 births in 1918. He holds syphilis and gonococcus infection responsible for much of this morbidity.

Endocrine Factors in Arthritism.—Arias Schreiber explains how the disturbances in metabolism which accompany and characterize arthritism are intimately related to the modifications of the nerves which preside over catabolism and anabolism, that is, the vagus and sympathetic nervous systems. Treatment should be addressed to these to restore the normal balance between them.

Calculus in Ureter.—Morales Macedo diagnosed a calculus impacted in the lower segment of the ureter, from the various symptoms, above all, the persisting, exaggerated pollakiuria with violent contractions of the bladder. Cystoscopy revealed a small tumor at the mouth of one ureter, and he resected 1 cm. of the edematous tissue surrounding the meatus. This disclosed the calculus and it was dislodged, dropping into the bladder. Before operating for a ureter calculus, the catheter should be passed into the ureter and cocain and oil injected. Only when these and similar measures fail, should an operation be considered.

Gaceta Médica de Caracas, Venezuela

Nov. 15, 1920, **27**, No. 21

*The Pathology of Venezuela. F. A. Risquez.—p. 263.
*Hemoglobinuric Fever. A. Herrera Vegas.—p. 270.

The Pathology of Venezuela.—This is an address delivered by Rísquez at a meeting of the Tropical Medical Society at Paris. He describes the country from the medical standpoint, recalling that every climate is to be found there, from the torrid coast to the perpetual snow of the mountains. Malaria, tuberculosis, and syphilis are the great scourges of the country, and all are avoidable. If these can be exterminated, he declares, Venezuela would be a Mecca for the sick, the paradise of the new world, only five days from New York and fifteen from Europe.

Hemoglobinuric Fever.—Herrera Vegas quotes Nogué on the value of infusion of artificial serum in treatment of blackwater fever. Drinking large amounts of fluid is equally effectual, but when the disease is at its height the patient is unable to drink, and infusion is the only choice. Some have found useful a 92.5 per thousand artificial (lactose) serum or glucose serum at 45 per thousand. Hypertonic serums seem to do harm. In a series of twenty-three cases, artificial serum by rectal drip proved successful, but these were followed by a group of three cases which proved rebellious to all measures showing that none of them are infallible, especially if not given in time. Nogué described a case in which quinin seemed to have been an unmistakable factor, but Ochoa has encountered cases in persons who had not taken quinin. Ayala related that his main reliance is on a 20 per thousand solution of sodium chlorid, such as he used to find effectual in yellow fever, when this latter disease had a foothold in the country.

Gann, Tokyo

December, 1920, **14**, No. 4. Paging refers to English summaries

*Fat in Diet of Chickens as Affecting Tumors. N. Akamatsu.—p. 27.
*Carcinoma in Child's Testicle. C. S. Lee.—p. 33.

Fat in Diet as Affecting Tumors in Hens.—Akamatsu describes the dietetic effect of rectified wool-fat on the transplantation and proliferation of transplantable chicken fibromas. The article is illustrated, with an extensive bibliography. In the process of transplantation over many generations, all such growths undergo various changes in shape and biologic characteristics, but the lipemia induced by feeding fat seems to have a special influence in this line, altering the biologic characteristics of the transplantable fibromas, and affording them more favorable conditions for their growth in the hen body.

Carcinoma in Child's Testicle.—This tumor in the right testicle of a boy of 6 was an adenocarcinoma, with metastases in the epididymis, in both lungs, in the lymphatics of the posterior abdominal wall, in the left parietal lobe of the brain, and in the right kidney. Lee remarks that both blood and lymph circulation must have been involved in this metastasis. This article also is illustrated, with bibliography.

Deutsches Archiv für klinische Medizin, Leipzig

Sept. 10, 1920, **133**, No. 5-6

*Innervation of the Stomach. P. Klee.—p. 265.
*Fluctuations of the Sugar Content of the Blood in Mountain Climate. H. C. Frenkel-Tissot.—p. 286.
*Soft Parts and Blood Pressure Measurements. E. Hering.—p. 306.
*Patent Interventricular Septum. H. Müller.—p. 316.
*Tests of Kidney Functioning. F. Haastert.—p. 332.
*Alkalinity of the Blood. B. Kuhlmann.—p. 346.
*The Heart in Acute Nephritis. Alwens and Moog.—p. 364.
Atypical Electrocardiograms. H. v. Hoesslin.—p. 377.
*Comparison of the Venous and Capillary Blood. Bogendörfer and Nonnenbruch.—p. 389.
*Resistance of the Erythrocytes to Hypotonic Saline. E. Brieger.—p. 397.

Innervation of the Stomach.—Klee found that atropin always affected peristalsis in the stomach and retarded evacuation, but it did not relieve spasm of the stomach wall unless sympathetic tonus reinforced the action of the atropin. Without this, the tension and the spastic contraction were uninfluenced. This experimental research on decerebrated cats confirmed the empirical observation that atropin aids in the differentiation between organic and functional stenosis only when there is relaxation in the region involved.

Fluctuations of the Sugar Content of the Blood in Mountain Climate.—Tissot relates experiences with large numbers of young men who had escaped from the Italian prison camps and were fleeing over the mountains back to Austria and Hungary. They were kept at the Samaden hospital for five days' observation, at an altitude of 1,750 m. (5,800 feet). The behavior of the sugar in the blood was studied under the influence of altitude, sunbaths, and overheating. The sugar content of the blood was approximately the same at this altitude as in the lowlands, but under the influence of the sunbaths and electric light, the normal sugar content was increased, as he describes in detail.

Influence of the Soft Parts on Blood Pressure Measurements.—Hering calls attention to the source of error from the varying size of the soft parts of the arm. The blood pressure is always lower in the atrophic arm than in the natural arm.

Patent Interventricular Septum.—Müller describes the findings in nine cases of open septum without other complications, and compares them with fifty-nine from the literature.

Tests of Kidney Functioning.—Haastert does not describe the technic applied, which was according to Strauss' method, but his findings in 100 tests on 75 patients showed that the determination of the residual nitrogen in the blood is an important element for the diagnosis in connection with repeated functional tests and clinical study of the case. Even with apparently normal findings, otherwise, the residual nitrogen may be found abnormally high, and thus reveal latent disease. The indican reaction is not an adequate substitute, and the potassium iodid test is not reliable.

Alkalinity of the Blood.—Kuhlmann reports research which has confirmed the reliability of the aerotonometric method of investigating the blood for disturbances in the balance of acids and bases, especially by the Morawitz and Walker technic. He describes this method in detail.

The Heart in Acute Nephritis.—Alwens and Moog have traced to date twenty cases of acute nephritis to estimate the effect on the heart. The heart is involved in the early stage of acute nephritis almost without exception, but this is evident only with radioscopy.

Comparison of the Venous and Capillary Blood.—The number of blood corpuscles, and amount of serum albumin and serum sodium chlorid in the venous and capillary blood are tabulated for a number of cases. The findings show that the capillary blood from the finger differs considerably from the blood from a vein in the arm. This difference can be overcome by placing the hand in hot water (45 C.) for five minutes and rubbing the hand afterward. This equalizes the blood so that there is no difference between the capillary blood and the venous blood. The research showed further that the three elements varied widely, independently of each other.

Resistance of the Erythrocytes to Hypotonic Saline.—Brieger uses a colorimeter and a set of centrifuge tubes containing saline of different strengths, adding 20 c.mm. of blood to each tube. The charts thus obtained are more reliable than with any other method he has ever tried.

Deutsche medizinische Wochenschrift, Berlin

Nov. 11, 1920, **46**, No. 46

*Treatment of Carcinoma of Larynx and Pharynx. Amersbach.—p. 1269.
Estimation of Curative Effects of Treatment in Pulmonary Tuberculosis. H. Zondek.—p. 1271.
Clinical Aspects and Pathologic Anatomy of High Blood Pressure. P. Schenk and G. Töppich.—p. 1271.
Leukocyte Count Before and After Operative Reduction of Suprarenals in Epilepsy (H. Fischer Method). F. Schlund.—p. 1273.
Blood Platelets. V. Schilling.—p. 1274.
Operative Treatment in Rachitis. F. Loeffler.—p. 1274.
Hemorrhage of Suprarenals. Freudemann.—p. 1275.
"Parasyphilis." C. Stern.—p. 1276.
Peculiar Case of Epidemic Cerebrospinal Meningitis. E. Neter.—p. 1278.
Bladder Injuries in Vagina Operations. E. Solms.—p. 1279.
Friedmann's Lecture on "Friedmann's Treatment and Prophylaxis of Tuberculosis in Men and Animals." B. Lange.—p. 1280.
Hemorrhages of the Urinary Passages. L. Casper.—p. 1280.

Roentgen-Ray Treatment of Carcinoma of the Larynx and Pharynx.—Amersbach gives an account of the recent experiences in the University Eye, Nose and Throat Clinic at Freiburg, Baden. So far no cancer of the larynx or pharynx has been cured by roentgen-ray treatment. Results from operative treatment in the case of tumors of the larynx in the beginning stages are favorable. The results of operations on extensive carcinomas, especially of the pharynx, which require a transverse resection by the Gluck method are usually bad. However, a cure was effected in a few cases, and the patients were made fairly comfortable. Experience from a large number of operations shows that repeated irradiation preceding operation markedly injures the healthy tissues, causing greater danger from hemorrhage both during and following operation. It also endangers primary and secondary plastic intervention. If the cancerous area is irradiated after the operation, the injuries to the tissues need not be taken so seriously. In the case of large tumors, especially of the pharynx, irradiation before operation is indicated in some cases. In the case of inoperable tumors, irradiation is of course indicated.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1920, **159**, No. 1-6. Von Eiselberg Number

Action of Dakin's Solution. A. Ritter.—p. 1.
*Suicides by Electric Current. H. Jaeger.—p. 33.
*Blocking the Splanchnic Nerves. G. A. Preiss.—p. 59.
Tetanus. A. T. v. Beust.—p. 102.
*Blindness After Puncture of Lung. K. Schlaepfer.—p. 132.
Gravity Abscess in Anterior Mediastinum. H. R. Schinz.—p. 163.
Neo-Arthrosis with Luxation of Head of Radius. Vonwilier and G. A. Preiss.—p. 174.
The Arterial Blood Supply of the Stomach. S. Jatrou.—p. 196.
Primary Actinomycosis of the Stomach. P. Hadjipetros.—p. 224.
Idem: Roentgen Findings. H. R. Schinz.—p. 242.
The Wirsung and Santorini Ducts from Surgical Standpoint. P. Clairmont and P. Hadjipetros.—p. 251.
Congenital Duodenal Stenosis. E. Bosch and H. R. Schinz.—p. 284.
Duodenal Diverticulums. P. Clairmont and H. R. Schinz.—p. 304.
*Acute Pancreatitis after Resection of Duodenum. R. Peicié.—p. 362.
Subphrenic Abscess. E. Liebmann and H. R. Schinz.—p. 389.

Suicides with Electric Current.—All the articles in this volume issue from the clinics of Zurich, and the volume is dedicated to von Eiselsberg. Jaeger describes an attempt at suicide on a wire carrying 45,000 volts, by a boy of 15. The comparatively slight injury from the electric shock was remarkable. Jaeger has found records of twenty-two attempts at suicide by this means; in seventeen the attempt succeeded, but the others were resuscitated. All were men accept a boy of 12 and this one of 15. As it was raining, the clothes of the latter were wet; there were several small holes burned in the clothing and the epidermis had scaled off and clung to the charred area.

Blocking the Splanchnic Nerves.—Preiss analyzes the anatomic and physiologic conditions involved in blocking the splanchnic nerves and the rami communicantes of the lumbar innervation, with numerous illustrations, and review of 143 articles on the subject. His conclusions are that the preferable technic is to inject the anesthetic on a level with the third lumbar vertebra, instead of Kappis' lower site for the two injections. This modification is best for operation on kidneys, spleen and colon. A secondary injection can be made from the front, after the abdomen is opened, to supplement the original Kappis technic. The best results were obtained with a 2 per cent. procain-epinephrin solution, with addition of potassium sulphate. If the needle pricks a vessel, this does no harm, but injection of any of the anesthetic into the vessel may be serious. Acute procain intoxication was observed in two cases (from the fluid being injected into a vein), as severe collapse, with cramps and arrest of the respiration, but there was no permanent injury therefrom. This technic has been applied in 192 cases at the surgical clinic, after extensive research on the cadaver. The excellent postoperative condition is particularly striking, and he commends the method with a clear conscience as reliable and its future assured. The dangers with it are no greater than with general anesthesia.

Transient Blindness After Puncture of the Lung.—Schlaepfer reports a case in which the needle used for the exploratory puncture was left open as the syringe was removed. Air was aspirated and it was drawn into a vein in the lung, and induced air embolism in the brain. This was evident from the loss of consciousness for two and a half hours and total blindness for three days. Air aspiration and embolism explain many of the cases recorded as pleural shock; in others, slight shock on a nervous basis in the predisposed may be assumed.

Postoperative Acute Pancreatitis.—After resection of the duodenum on account of ulcer, acute suppurative pancreatitis developed, with multiple foci of necrosis in the subcutaneous adipose tissue. The patient recovered finally, after several operations. This is the second case of complicating pancreatis after an operation on the duodenum, and is one of the few cases on record of subcutaneous fat necrosis with acute pancreatitis. The patient was a previously healthy iron worker of 20.

Wiener klinische Wochenschrift, Vienna

Oct. 21, 1920, **33**, No. 43

*Ileus and Peritonitis During Pregnancy, etc. R. Köhler.—p. 937.
Laceration of Horseshoe Kidney from Contusion. H. Hinterstoisser.—p. 942.
*Experimental Thermopenetration. W. Kolmer and P. Liebesny.—p. 945.
*Thermopenetration in Intermittent Claudication. R. Grünbaum.—p. 946.

Ileus and Peritonitis During Pregnancy, Childbirth and Childbed.—Köhler gives an account of his experiences with two cases of peritonitis and four cases of ileus complicating pregnancy, childbirth or childbed. Summing up his experiences, he says that both ileus and peritonitis are to be regarded in most cases as only accidental complications of pregnancy and childbirth. The cases in which a pregnant uterus alone produces the ileus are rare. The bad outcome of his cases would seem to indicate that the prognosis of the combination is unfavorable. As regards the management, he recommends in most cases delivery by vaginal section as the method of choice. The operation is always indicated, but in hopeless cases it is better to refrain from intervention unless thereby the life of the child can be saved.

Experimental Investigations on Thermopenetration.—Kolmer and Liebesny report the results of their experiments on dogs to determine the mode of action of high frequency currents. The electrodes were applied directly to the testicles of the animals. The strength of the current was about 0.2 ampere. By means of this electrodiathermy a distinct and persistent hyperemia of the testicles and the spermatic vessels could be produced at a depth without burning the skin. This experimental finding is in accordance with clinical experience.

which goes to show that whenever it is desirable to produce a marked thermic effect and thus hyperemia of the deeper-lying tissues, comparatively weak currents and protracted application are indicated. Microscopic examination of the enucleated testicles revealed that no round cell infiltration had been brought about in the normal tissues, which however cannot be taken as proof that under pathologic conditions, as in the presence of tumor tissue, a round cell infiltration might not be produced. Investigations covering this point are under way.

Thermopenetration in Intermittent Claudication.—Grünbaum has been much encouraged by results of thermopenetration in his eight cases of intermittent claudication. Six men and two women whose ages ranged from 40 to 56 were treated. Of the men, four were heavy smokers, one smoked occasionally and one was a nonsmoker; of the two women, one was a heavy smoker of cigarets, while the other smoked very moderately. Syphilis was denied in all cases. In seven of the cases the manifestations were bilateral; in only one case, that of a physician who had smoked very moderately, the disease process was confined to the right lower extremity. The subjective symptoms were described by all the patients in much the same manner. The most important objective symptom is the absence of pulse in the arteria dorsalis pedis. Blood pressure was usually normal. The results of electrodiathermy extending over a period of from four to eight weeks were very satisfactory. To be sure, the cases were all of the milder type. In some cases the patients have become able to walk a considerable distance without pain. The technic of the treatment is very simple and is described in detail.

Zeitschrift für klinische Medizin, Berlin

1920, **90**, No. 1-2

Etiology of Orthostatic Albuminuria. C. Sonne.—p. 1.
*Influence of Venesection on Waste Products. E. Becher.—p. 7.
Influence of War Diet on Secretion of Urine. Clara Happel.—p. 29.
*The Albuminuria from Sports. H. C. Frenkel-Tissot.—p. 54.
*Hematuria as Only Symptom of Nephritis. Zehbe.—p. 68.
*Early Diagnosis of Cerebral Arteriosclerosis. C. Stein.—p. 88.
Origin of Lipase in Blood. S. Bergel.—p. 117. Idem. Caro.—p. 124.
Nature of Diabetes Insipidus. E. Hecht.—p. 120.

Influence of Venesection on Retained Waste Products.—Becher found that in nephrectomized dogs, with complete anuria, the residual nitrogen accumulated in the muscles as well as in the blood, as even in normal conditions the muscles are the chief storage place for it. After extensive venesection, more of the residual nitrogen was found in the blood than before, which might lead to the erroneous assumption that the amount of waste had been increased. But it must be borne in mind that the amount of noncoagulable nitrogen escaping in the drawn blood represents only a small percentage of the total amount accumulated in the body. Hence it is futile to expect to clear the system of waste products by any venesection.

Albuminuria from Sports.—Frenkel-Tissot's research was done mainly on ski runners in the Swiss mountains. He found albuminuria in all of ten examined after a ski racing match, and tube casts were found in 80 per cent. and erythrocytes in 30 per cent. Comparison of these findings with others in the literature and with the condition of the athletes in later years, has confirmed, he says, that this albuminuria is a physiologic phenomenon, like fatigue, and that it can be overcome by training, just as the tendency to fatigue grows less and less with longer training. Years of observation of athletes have never revealed, he states, a single instance of a facultative albuminuria of this nature becoming transformed into albuminuria of true nephritic origin. Constitutional conditions in regard to the circulation, however, might form a bridge to actual organic changes in the kidneys, the *débilité rénale congénitale* of the French. The familial cases that have been encountered of alternating benign and nephritic albuminuria compel this assumption. It explains also orthostatic albuminuria.

Hemorrhagic Nephritis.—Zehbe reports five cases of hematuria appearing without other symptoms from the kidneys. They formed 1.64 per cent. of a total of 304 cases of nephritis. The hemorrhagic focal or diffuse glomerular nephritis may affect one or both kidneys, and although the urine may show formed elements at first, they may disappear and the hematuria be the only symptom. It may long continue, possibly for years; in one of his cases increasing insufficiency of the kidneys is evident. The differential diagnosis may be extremely difficult. It can be made only by exclusion. No therapeutic measures displayed any efficacy, and treatment had to be restricted to averting further damage of the kidneys. In one case severe exacerbation followed tonsillectomy. The duration of the hematuria was from over one to thirteen months, and in only one was function normal at the end of this period. Another was much improved but still had occasional hematuria; one patient shows no signs of improvement, and one shows incipient contracted kidney.

Tests of Internal Ear Functioning in Diagnosis of Cerebral Arteriosclerosis.—Stein reports that he has been studying this subject for nineteen years, and has recorded 1,026 cases. In the majority, the ear disease overshadowed pathologic conditions elsewhere. Vertigo was usually the symptom for which the internists sent the patients to have the ears examined. Stein regards as the most important result of his research that he found it possible by repeated examinations to detect and trace the progress of arteriosclerosis of the arteries of the brain. This was revealed by the manner of onset, the course, and the intensity of the phenomena presented by the ear rather than by the single symptoms themselves. Tinnitus is especially instructive in this respect; it may occur at intervals or continuously, but in the course of perhaps many years, organic disease of the auditory nerve becomes manifest. The complete failure of all treatment of the tinnitus indicates actual organic injury in the domain of the auditory nerve. Among the numerous instructive points brought out by his research is that with vasomotor changes the hearing may fluctuate, while with arteriosclerotic changes the findings keep at about the same level.

Zentralblatt für Chirurgie, Leipzig

Oct. 30, 1920, **47**, No. 44

Etiology of Osteochondritis Deformans Coxae. R. Levy.—p. 1338.
Cystic Tumor in Sheath of Tibial Nerve, Inducing Symptoms Simulating Flatfoot. F. Loeffler and J. Volkmann.—p. 1339.
*Volvulus of the Sigmoid Flexure. W. Lange.—p. 1341.
Inflammatory Tumor of Ascending Colon. E. Schultze.—p. 1343.
"Incarceration of Stomach in Femoral Hernia." P. Ahrens.—p. 1345.

Radical Cure of Volvulus of the Sigmoid Flexure.—Lange describes the Grekow-Kümmell invagination method as used in the Obuchoff Hospital in Petrograd in over twenty cases. It gave good results, though he is not able to give the mortality rate. He thinks that the invagination method has undeniably certain advantages over resection. The operation is simple, short, and can be performed by those who have not mastered the difficult technic that enters into resections of the large intestine. Furthermore, it fulfils two main requirements: total removal of the flexure and absolute asepsis. The mobilized portion invaginated in the rectum sloughs off spontaneously and is expelled in a few days.

Zentralblatt für Gynäkologie, Leipzig

Oct. 30, 1920, **44**, No. 44

*Mucous Membranes and Latent Microbism. A. Loeser.—p. 1254.
Device to Prevent Omission of Filter in Deep Roentgenotherapy. L. F. Driessen.—p. 1258.
Unilateral Roentgen Castration and Restoring of Tone to the Uterus in So-Called Metrasthenia. O. P. Mansfield.—p. 1260.

Constitution of Mucous Membranes in Relation to Latent Microbism, with Especial Reference to the Vaginal Flora and Puerperal Fever.—Loeser refers to the fact that nonpathogenic latent microbes inhabit the mucous membranes of healthy persons, and states that this latent microbism has (for example, in the intestine and the vagina) certain functions to perform, contributing to the normal course of biologic processes of the mucous membranes. The character of the latent microbism depends on the condition of the mucous membranes. The stronger the local condition of the mucous membranes, the stronger and therefore more nearly approaching a pure culture appears the latent microbism. If through disease, of either a local or a general character, the condition of the mucous membranes is impaired, then the latent microbism also becomes of an inferior character, especially as regards its behavior toward infections from without. In other words, the disposition to exogenic infection depends on the character of the latent flora of the mucous membrane. These facts Loeser claims to have established by his bacteriologic investigations on constitutional inferiors; more especially with reference to the vaginal flora. The article has five photomicrograms showing the wide range of vaginal bacterial findings. It supplements one summarized on page 626.

Zentralblatt für innere Medizin, Leipzig

Oct. 30, 1920, **41**, No. 44

Reconstruction of Socket for Artificial Eye in Total or Partial Loss of Conjunctiva. A. Knappstein.—p. 753.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Dec. 25, 1920, **2**, No. 26

*Ophthalmic Herpes Zoster. C. O. Roelofs.—p. 2876.
*Attitude of the Head and the Muscles in the Limbs. J. H. O. Reijs. —p. 2883.
*Examination of the Blood in Malaria. B. Hylkema.—p. 2893.
Abscess in the Palate. J. J. de Vries.—p. 2896.
Medical Impressions of America. M. A. van Herwerden.—p. 2926. Cont'n.

Ophthalmic Herpes Zoster with Complications.—In Roelofs' case the girl of 12 had paralysis of the ocular muscles, keratitis and iritis as complications of herpes zoster in the right eye. The localization of the patches in the cornea indicated that this keratitis had something to do with the trigeminal nerve.

Influence of Position of the Head on the Muscles in the Limbs.—Reijs comments on the influence of the attitude of the head and cervical spine on the tonus of the fingers, a reflex action which has been studied in decerebrated animals. The effect was most pronounced on the right ring finger.

Examination of the Blood for Malaria.—Hylkema advocates examining the blood in a thick drop. This renders it easier to find the malaria parasites. His experience has shown that at least one or two of the parasites can be found in the drop of blood during the stage preceding the febrile attack, when the temperature just begins to rise.

Acta Chirurgica Scandinavica, Stockholm

August, 1920, **53**, No. 1

*Osteitis Fibrosa. F. Langenskiöld.—p. 1.
*Roentgen Diagnosis of Hydronephrosis. S. Ström.—p. 71.
Successful Antethoracic Esophageal Plastic Operation. G. Bohmansson. —p. 91. In English.

Osteitis Fibrosa.—Langenskiöld gives the clinical and microscopic detail of seven cases in connection with a survey of previous studies of identical or allied conditions. In localized lesions and especially where the bones become soft, resection of larger or smaller portions of osseous structures is indicated. Diffuse lesions are hopeless. (In German.)

Roentgen Diagnosis of Nephrosis with Calculus.—Ström succeeded in several cases in obtaining good pictures of renal calculi in various kidney diseases where the pathological modifications of structures often obscure the findings, especially with urate calculi. Injections of collargol in some cases assisted in making a positive diagnosis possible, because this substance attaches itself to the surface of the concretions and makes possible an impression on the plate. (In French.)

Finska Läkaresällskapets Handlingar, Helsingfors

November-December, 1920, **62**, No. 11-12

*Osteomalacia. F. Saltzmann.—p. 571.
*Rat-Bite Disease. A. J. Palmén.—p. 586.
*The Defensive Ferments in the Blood. J. Grönberg.—p. 599.
*Fixation of Complement in Bothriocephalus Carriers. G. Becker.—p. 632.
*Epidemic Encephalitis. A. Nikula.—p. 648. Idem: Pipping.—p. 659.

Osteomalacia.—Saltzmann states that osteomalacia is extremely rare in Finland although rachitis is comparatively common, but never in a severe form. He describes an unusually deformed case of osteomalacia in a woman of 33 who had never been pregnant, but other members of the family presented some tendency to fleeting pains and cramps.

Rat-Bite Disease.—Palmén's patient was a woman of 56 who developed typical symptoms a week after she had been bitten by a rat. Bacteriologic examination of the blood was negative, but prompt recovery followed an injection of 0.5 gm. of neo-arsphenamin.

The Defensive Ferments in the Blood.—Grönberg applies the Abderhalden test, learned in the latter's service, and has found the results reliable in pregnancy, cancer and pulmonary tuberculosis. He warns that sweat from the hand, scraps of epidermis, saliva, or minute residuum of ether in the reagent tubes may falsify the findings. He gives the findings in 28 cases of pregnancy, 23 of cancer, and 34 of pulmonary tuberculosis. The reliability of his verdict was enhanced by the fact that he did not know the source of the serum beforehand.

Fixation of Complement in Carriers of the Bothriocephalus.—Becker's research indicates that the presence of this broad tapeworm seems to be accompanied by production of antibodies. There was complete hemolysis in seventy-one of the ninety-two normal persons examined and only two showed complete fixation of complement. On the other hand, in fifty-eight with unmistakable evidence of the broad tapeworm only, thirteen showed complete hemolysis.

Epidemic Encephalitis.—Nikula reviews the present status of epidemic encephalitis, and Pipping reports three severe cases and two mild ones in children at Helsingfors.

Hospitalstidende, Copenhagen

Dec. 15, 1920, **63**, No. 50

*Muscular Rigidity and Paralysis Agitans. K. Winther.—p. 801. Conc'n in No. 51, p. 825.

Muscular Rigidity and Paralysis Agitans.—Winther describes two cases of disease in the thalamus causing, in one, general muscular rigidity and, in the other, shaking palsy. Necropsy in both showed bilateral lesions in the thalamus.

Dec. 29, 1920, **63**, No. 52

*The General Arc-Light Bath in Ophthalmology. K. K. Lundsgaard.—p. 849.
Aneurysm of the Hepatic Artery. S. Jonsson.—p. 860.

The General Arc-Light Bath in Ophthalmology.—Lundsgaard writes from the Finsen Light Institute at Copenhagen to describe the results in 200 cases of eye disease, with or without lupus, given the Finsen general light treatment in the course of the last three years. He reviews each class of pathologic conditions in turn. His final conclusions are not very favorable in respect to tuberculous disease of the eye except possibly with tuberculous scleritis and iridocyclitis in the young. The treatment is very long and tedious, and can scarcely compete with the direct exposure of the eye associated with tuberculin treatment. With much photophobia, the general light bath, the eyes covered, gave great relief but not so much as sunbaths under the same conditions.

Hygiea, Stockholm

Dec. 31, 1920, **82**, No. 24

Medical and Surgical Education in Finland and Sweden. J. Berg.—p. 833.
*The Fight Against Typhus in Poland. C. Näslund.—p. 845.

The Fight Against Typhus in Poland.—Näslund describes the work of the Swedish ambulance sent to Poland in 1920 to aid in stamping out typhus. The expedition tried various measures, the final decision being in favor of hydrocyanic acid as the most effectual means for clearing a house of lice. They used from 10 to 12 tons of sodium cyanid and sulphuric acid, in the course of their delousing efforts in 700 dwellings. The success surpassed all anticipations, and confirmed the feasibility of stamping out typhus and relapsing fever much more effectually than had been hitherto deemed possible. The concentration of the gas has to be from 0.5 to 2 per cent. by volume, depending on the impermeability of the houses. Directions for a delousing campaign are outlined, the Polish government having the intention to continue the work inaugurated by the Swedish Red Cross. Näslund adds that the work was mainly exploratory and tentative, and that both the Polish health authorities and the American Red Cross watched it with interest.

Ugeskrift for Læger, Copenhagen

Feb. 3, 1921, **83**, No. 5

Influenza Epidemic in 1920. J. Buchholtz.—p. 147.
Masked Urethral Syphilitic Chancre. O. Haslund.—p. 155.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 76, No. 13 Chicago, Illinois March 26, 1921

DIPHTHERIA CARRIERS *

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While carriers of diphtheria bacilli have been objects of study for many years, so much interest attaches to them as potential spreaders of infection that it may be profitable to add the results of several years' experience with such cases in a hospital for contagious diseases. A study of the manner and speed with which the bacilli disappear from the nose and throat after diphtheria throws some light on the origin of carriers, and furnishes a standard by which to estimate the value of measures directed toward the elimination and destruction of the bacilli. A study of the persons in whom the bacilli persist may lead to the detection of underlying conditions which are responsible for the carrier state and so allow efforts toward their correction to be made along intelligent lines.

For these purposes I have tabulated 500 consecutive cases of diphtheria which were treated in Durand Hospital between February, 1918, and September, 1920. Patients with laryngeal diphtheria and those who died early are excluded. The series includes fifteen cases in which operative measures were employed in getting rid of the bacilli. The frequency with which two negative cultures are followed by positive ones early led us to adopt three consecutive negative cultures taken at intervals of from one to three days from both nose and throat as a standard for release. Hartley and Martin[1] have estimated that the average stay in hospital of patients with diphtheria released on one negative culture would be twenty-one days; on two negative cultures, thirty-four days; and on three negative cultures, forty-five days. In this discussion cases are considered as having been negative on the day when the first of three successive negative cultures was secured. If more than one day intervened between the last positive and the first of three negative cultures, the day of the first negative culture has been placed midway between the two.

It will be noted (Table 1) that after the first week, approximately half of the cases that began any week as positive became negative during the following seven days. Three weeks after the onset, 71.2 per cent. of the cases had become negative. At the end of four weeks, 83.2 per cent. were free of bacilli; and after seven weeks, less than 1 per cent. yielded positive cultures. In only a single instance were cultures positive after eleven weeks.

The outcome in the fifteen persons who were operated on if there had been no operation cannot be predicted. Of the 500 patients, eighty-four, or 16.8 per cent., became carriers, that is, gave positive cultures after twenty-eight days.

The number of cases that were positive at five day intervals is graphically shown in the accompanying chart. Hartley and Martin[1] have pointed out that diphtheria bacilli disappear from the throat with such regularity that the rate may be expressed by a mathematical formula. The rate of disappearance of the bacilli in our 500 cases and in the 457 cases of Hartley and Martin is shown in Table 2.

Differences in the percentages in the two series may depend in part on the intervals at which cultures were made, opportunities for reinfection and the character of the material. The patients of Hartley and Martin were all young adults in a military camp, and the cultures were made at weekly intervals, while ours were of all ages with little opportunity for reinfection, and the cultures were made at shorter intervals. The greater rapidity with which our cases became negative may perhaps be partly due to the constant efforts put forth to remove local conditions favoring the persistence of the bacilli. In both series the decrease of positive cases occurred with considerable regularity. After five days from the onset, of each 100 cases which are positive at any time, five or six may be expected to become negative within twenty-four hours.

During 1913 to 1920, fifty-two patients entered Durand Hospital as carriers and were observed until free from bacilli with no operative interference. Of these, 55.8 per cent. were free of bacilli after two weeks, and 80.8 per cent. after four weeks. The rate of disappearance of the bacilli did not show any such regularity as was observed in the series following diphtheria (Table 3). Of the fifty-two patients, nineteen had been in contact with diphtheria, and twelve gave histories of recent sore throat. The bacilli were located in the nose in nine, in two of which there was an associated foreign body in one nostril.

In ten of the fifty-two patients the bacilli persisted longer than four weeks. In four of these, cultures were obtained from the pharynx only, in one from the nose alone, and in four from both pharynx and nose. The persistent pharyngeal cultures were associated with abnormal tonsils, usually enlarged, with deep crypts and roughened surface. In the nasal cases there were discharges associated with enlarged adenoids and chronic rhinitis, usually secondary to accessory sinus disease. Cultures from six of these patients were tested for virulence, and a single one was nonvirulent. The most persistent carrier of this group was a baby of 4 months with a nasal discharge. He was very cachetic, had a negative Schick test constantly, and the cultures were virulent for guinea-pigs for eleven months, the last test preceding their final disappearance a few days.

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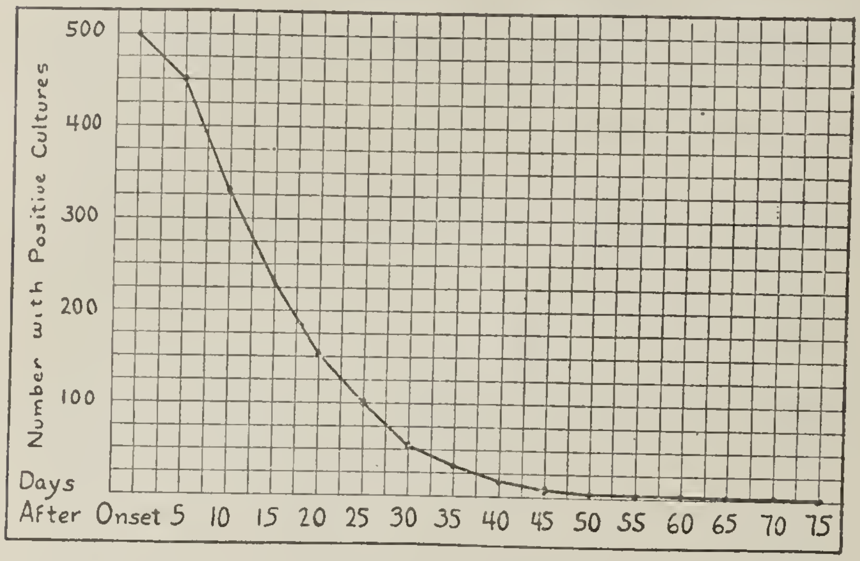
* From the John McCormick Institute for Infectious Diseases.

[1] Hartley and Martin: Proc. Roy. Soc. Med., Sec. Epid. and State Med. **13**: 277, 1920.



The part of 500 cases of diphtheria which gave positive cultures at the end of five day periods.

Another patient was a boy of 6 years, from one of whose nostrils virulent diphtheria bacilli had been cultivated for more than two months. When a solution of epinephrin was sprayed into the nostril, preliminary to further examination, a cherry pit dropped out. Two days later the cultures became negative. One adult who had been a constant carrier of virulent bacilli for five weeks and refused tonsillectomy developed an acute tonsillitis, during which the bacilli disappeared. In other instances we have observed a disappearance of diphtheria bacilli during an acute tonsillitis. It seems quite reasonable that acute swelling with passage into the tonsils of abundant blood and escape of active leukocytes and opsonin might be followed by destruction of the bacilli. In a similar manner we may explain some favorable results reported to follow hyperemia produced by local applications of agents of an irritating nature. Two additional patients entered the hospital as carriers with no history of recent illness. They became free of bacilli one and eight days, respectively, after tonsillectomy.

As is the case with many bacteria, the largest factor in the removal of diphtheria bacilli from the body appears to be destruction by leukocytes. An essential factor in this process of phagocytosis is suitable opsonin. Tunnicliff [2] has shown that, in the course of diphtheria, immune opsonins for diphtheria bacilli appear in the blood in considerable amount. They may be detected on the fourth or fifth day of the disease, and they remain at their height until about the tenth to the fifteenth day and then gradually decrease, reaching normal about the nineteenth or twentieth day. The period during which the amount of opsonin in the blood is greatest corresponds to the time when the largest number of persons with diphtheria become free of bacilli. Of the 500 cases tabulated herewith, more than 70 per cent. got rid of their bacilli within three weeks from the onset.

In diphtheria carriers also Tunnicliff [3] found the phagocytic power of the blood for diphtheria bacilli increased. In spite of this, bacilli may persist in the throat and nose. This seems usually dependent on local conditions which interfere with suitable contact of the specific destructive agents and the bacilli.

Gelien, Moss and Guthrie [4] attempted by direct introduction of large numbers of diphtheria bacilli into the nasal passages to produce carriers in cats, guinea-pigs and rabbits. The bacilli rapidly disappeared, and nothing corresponding to carriers as seen in man was observed.

These local conditions may result from secondary infections with abrasions and ulcerations of the mucous membranes and inflammations of accessory sinuses with imperfect drainage, and from mechanical injury by foreign bodies with associated infections. In tonsillar carriers, Brown [5] found diphtheria bacilli in certain areas where the surface epithelium of the tonsil was necrotic. Keefer, Friedberg and Aronson [6] demonstrated diphtheria bacilli in the submucosa of a tonsil from the surface of which a pure culture had been previously obtained. Hartley and Martin [1] saw diphtheria bacilli in sections of tonsils deep in the crypts but not invading the tissues. In one of our cases there was an ulceration of the mucous membrane of the turbinated body in the nostril from which diphtheria bacilli were constantly cultivated. Local treatment of the ulcer was promptly followed by disappearance of the bacilli. In two cases persistent positive cultures from one nostril were promptly terminated by the removal of foreign bodies from the nose; in one a shoe button, in the other a cherry pit. In a search for diphtheria carriers among 400 institutional children, Rabinoff [7] found five children, with shoe buttons in the nose, who were carriers. The cultures became negative after removal of the buttons. Bloomfield [8] attempted to produce human carriers of Friedländer's bacillus by artificial inoculation, but failed. He concludes from his study that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria. When we consider the circumstances under which diphtheria bacilli persist in the throat and nose, it is not surprising that of all the local washes, sprays, gargles, etc., none has proved of marked value in persistent carriers. They seem to be useful so far as they remove secretions and exudates, and facilitate the cor-

TABLE 1.—RATE OF DISAPPEARANCE OF DIPHTHERIA BACILLI BY WEEKS FROM THE NOSE AND THROAT OF FIVE HUNDRED PATIENTS WITH DIPHTHERIA*

Week After Onset	Cases at Beginning of Week (Excluding Patients Operated on During Week)	Cases Becoming Negative During Week (Excluding Patients Operated on)	Cases Becoming Negative During Week per Hundred at Beginning	Cases Becoming Negative During Week per Hundred of Total Cases
1	500	103	20.6	20.6
2	397	157	39.5	31.4
3	240	96	40.0	19.2
4	143 (144—1)	60	41.9	12.0
5	75 (83—8)	37	49.3	7.4
6	35 (38—3)	20	57.1	4.0
7	14 (15—1)	9	64.4	1.8
8	4 (5—1)	1	25.0	0.2
9	3	1	33.3	0.2
10	2	1	50.0	0.2
11	0 (1—1)	0	0.0	0.0

* Patients operated on are deducted from those at the beginning of the week during which they came to operation.

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[2] Tunnicliff, Ruth: J. Infect. Dis. **5**: 14, 1908.

[3] Tunnicliff, Ruth: J. Infect. Dis. **19**: 97 (July) 1916.

[4] Gelien, Moss and Guthrie: Bull. Johns Hopkins Hospital **31**: 381, 1920.

[5] Brown, M. W.: J. Infect. Dis. **19**: 565 (Oct.) 1916.

[6] Keefer, F. R.; Friedberg, S. A., and Aronson, J. D.: A Study of Diphtheria Carries in a Military Camp, J. A. M. A. **71**: 1206 (Oct. 12) 1918.

[7] Rabinoff, Sophie: The Problem of Diphtheria Carriers, J. A. M. A. **67**: 1722 (Dec. 9) 1916.

[8] Bloomfield: Bull. Johns Hopkins Hosp. **32**: 10 (Jan.) 1921.

rection of underlying local conditions. The administration of diphtheria antitoxin has been of no advantage, and practically all carriers have considerable antitoxin in the blood.

TABLE 2.—RATE OF DISAPPEARANCE OF DIPHTHERIA BACILLI IN FIVE DAY PERIODS

FROM NOSE AND THROAT IN FIVE HUNDRED CONSECUTIVE CASES OF DIPHTHERIA AT DURAND HOSPITAL

Day After Onset	Positive Cases at the Beginning of Period (less Patients Operated on During Period)	Cases Becoming Negative During Period of Five Days (Excluding Patients Operated on)	Cases Becoming Negative During Period of Five Days per Hundred at Beginning	Cases Becoming Negative per Day of Period per Hundred at Beginning
5	500	47	9.4	1.9
10	453	124	27.4	5.5
15	329	100	30.4	6.1
20	229	75	32.8	6.6
25	154	51	33.1	6.6
30	101 (103—2)	38	37.7	7.5
35	56 (63—7)	18	32.1	6.4
40	35 (38—3)	15	42.9	8.6
45	19 (20—1)	10	52.7	10.5
50	9	4	44.4	8.9
55	4 (5—1)	1	25.0	5.0
60	3	1	33.3	6.7
65	2	0	....	....
70	2	1	50.0	10.0
75	0 (1—1)	0	....	....

FROM THROAT IN FOUR HUNDRED AND FIFTY-SEVEN CASES OF DIPHTHERIA REPORTED BY HARTLEY AND MARTIN

Day After Onset	Positive Cases at the Beginning of Period	Cases Becoming Negative During Period of Five Days	Cases Becoming Negative During Period of Five Days per Hundred at Beginning	Cases Becoming Negative per Day of Period per Hundred at Beginning
5	457	65	14.2	2.8
10	392	90	23.0	5.0
15	302	70	23.2	4.6
20	232	38	16.4	3.3
25	194	38	19.6	3.9
30	156	38	24.4	4.9
35	118	26	22.0	4.4
40	92	22	23.9	4.8
45	70	18	25.7	5.1
50	52	11	21.5	4.3

The local use of antitoxic serum and of serum produced by immunizing with the bacterial bodies has not been followed by any satisfactory results. Vaccines have not been of any certain value, and this was to be expected, as carriers usually have an abundant supply of opsonins and their blood leukocytes are active.

Our efforts to clean up carriers are now confined to such measures as aid in removing local conditions that favor the retention of the bacilli. Washes are employed to remove secretions and discharges. Measures are used to facilitate drainage from the accessory sinuses and the nostrils. Irritating solutions are especially avoided. When the bacilli persist after such treatment, operative procedures are instituted if the localization of the bacilli is such that any benefit can be expected. The operations performed have been tonsillectomy and, when the adenoids are enlarged, adenoidectomy. Early disappearance of the bacilli has followed the operations in every case. The first case came to operation in June, 1915. To Dec. 31, 1920, forty patients had been operated on. In all cases the tonsils were enucleated, and in five adenoids were also removed. All of the patients had clinical diphtheria in the hospital, and the operation followed from twenty-one to seventy-three days after the onset. After operation the bacilli usually disappear very promptly. In many, no positive cultures could be secured after the operation. All except four were negative within a week, and only one was as long as eighteen days in becoming negative (Table 4). The only complication observed was a moderate secondary hemorrhage in one case on the sixth day.

The first six in our series of operative cases were reported by Friedberg.[9] Shortly afterward Ruh, Miller and Perkins[10] reported favorable results from tonsillectomy and adenoidectomy in carriers. Among their nineteen cases a single one was as long as seventeen days in becoming negative. In a large army camp, Keefer, Friedberg and Aronson[6] employed tonsillectomy to clear up carriers. Of 294 persons operated on, 91.3 per cent. were negative by the end of two weeks. From other army camps favorable results from tonsillectomy were reported. Pegler,[11] in 1905, reported the removal of tonsils and adenoids to get rid of lingering bacilli. Since this appeared only in a discussion on diphtheria and not as an original communication, it was apparently overlooked by American writers. Hartley and Martin[1] have found that the best treatment of carriers with large tonsils and deep crypts is radical enucleation of the tonsils. Friedberg pointed out the fact that the tonsil harboring the bacilli need not be enlarged. We advise removal of the tonsils and enlarged adenoids at the end of a month if the bacilli persist, or as soon afterward as the general condition of the patient warrants. In small children, in whom prolonged isolation is not very objectionable and in whom operative measures are less satisfactory, we are accustomed to wait for the natural disappearance of the bacilli, making use of such local measures as seem indicated. When the bacilli persist in the nose, local

TABLE 3.—RATE OF DISAPPEARANCE OF DIPHTHERIA BACILLI FROM THE THROAT AND NOSE IN FIFTY-TWO CARRIERS *

Days in Hospital	Positive Cases at Beginning of Period	Cases Becoming Negative During Period of Five Days	Cases Becoming Negative During Period of Five Days per Hundred at Beginning	Average Number of Cases Becoming Negative per Day of Period
5	52	17	32.7	6.5
10	35	9	25.7	5.1
15	26	4	15.4	3.1
20	22	3	13.6	2.7
25	19	7	36.8	7.4
30	12	2	16.7	3.3
35	10	1	10.0	2.0
40	9	2	22.2	4.4
45	7	1	14.3	2.9
50	6	1	16.7	3.3
55	5	0	0.0	0.0
60	5	2	40.0	8.0
65	3	0	0.0	0.0
70	3	1	33.3	6.7
75	2	1	50.0	10.0

* One case persisted for eleven months.

TABLE 4.—RATE OF DISAPPEARANCE OF DIPHTHERIA BACILLI AFTER OPERATION

Day After Operation When Cultures Were Negative	Number of Cases
1	7
2	7
3	2
4	8
5	9
6	3
8	1
9	2
18	1

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9. Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, J. A. M. A. **66**: 810 (March 11) 1916.

10. Ruh, H. O.; Miller, M. J., and Perkins, R. G.: Studies on Diphtheria, J. A. M. A. **66**: 941 (March 25) 1916.

11. Pegler: Brit. M. J. **2**: 651, 1905.

lesions in the nostrils, and in children foreign bodies, are looked for.

One of the earliest efforts to determine the frequency of diphtheria carriers among well persons was made by a committee of the Massachusetts Association of Boards of Health[12] in 1902. The report of the committee was based on the results of a cooperative study which it instituted and which was participated in by a number of well qualified investigators. They concluded that in urban communities at least 1 or 2 per cent. of well persons among the general public are infected, and that when well persons are exposed to diphtheria, as in families, schools or institutions in which cases of diphtheria exist, the number infected is much larger, and may range from 8 to 5 per cent. Graham-Smith[13] reviewed the findings of various investigators as to carriers. The available data indicated that in close contacts the proportion of carriers may be as high as 36.6 per cent., in hospital wards and institutions 14 per cent. and among scholars of infected schools 8.7 per cent. I[14] found that 15.2 per cent. of the nurses in a hospital for contagious diseases became carriers, as detected by biweekly cultures extending over a period of two years.

Hachtel and Bailey[15] cultivated diphtheria bacilli from the throat and nose of 9.86 per cent. of contacts.

Goldberger, Williams and Hachtel[16] in the city of Detroit examined 4,093 apparently healthy persons with no history of contact, of whom thirty-eight, or 0.928 per cent., harbored morphologically diphtheria bacilli.

Gelien, Moss and Guthrie[4] made a cultural study of the throat in 2,507 presumably healthy individuals most diverse as to age, sex, race and social position in the city of Baltimore. Diphtheria bacilli were cultivated from eighty-nine, or 3.55 per cent. Later they added the results of cultures from 800 schoolchildren, of whom eighty-five, or 10.62 per cent., were positive for diphtheria bacilli.

These and other studies have established the fact that diphtheria bacilli, as recognized by cultures, are present in the throat and nose of a considerable proportion of healthy persons, and in a much larger proportion of those who have been closely associated with cases of diphtheria.

Supplemental studies, however, have determined that only a small part of the bacilli from noncontacts are virulent and a source of danger to other persons. Of the strains from noncontacts or "healthy" carriers, the proportion of virulent ones as determined by the committee of the Massachusetts Association of Boards of Health[12] was about 17 per cent.; by Goldberger, Williams and Hachtel,[16] 10.5 per cent., and by Gelien, Moss and Guthrie[4] from 10.9 to 18.1 per cent. These results appear to show that the proportion of individuals who have not knowingly been in contact with diphtheria but who are carriers of virulent diphtheria bacilli varies from about 1 in 75 to 1 in 1,030. There appears to be considerable variation in different communities, and the higher proportion occurs among children of school age. Such a proportion of unsuspected carriers of virulent bacilli, scattered among the people of cities, offers a ready explanation of the endemic presence of diphtheria and emphasizes the difficulty of eradicating the disease.

In distinction to the bacilli from "healthy" or noncontact carriers, those cultivated from persons who have recently had diphtheria, "convalescent" carriers, or those who have been in contact with cases of diphtheria, "contact" carriers, are virulent in a large proportion.

The committee of the Massachusetts Association of Boards of Health[12] decided that bacilli from persons who had been in close contact with cases of diphtheria are usually virulent. I[14] concluded from my study that such cultures were practically always virulent. Utheim[17] found cultures from seventy-nine convalescents and eleven carriers uniformly virulent.

Hachtel and Bailey[15] found ninety-seven out of 100 cultures from immediate contacts to be virulent. Wadsworth[18] found cultures from convalescent carriers virulent in 92.5 per cent., and from contact carriers in 80 per cent.

The part that carriers play in the spread of diphtheria is doubtless considerable. The transfer of bacilli from a carrier to a susceptible person may originate a case of clinical diphtheria, and to immune persons may multiply the numbers of carriers which again become potential spreaders of the disease. There is little evidence that the bacilli lose their virulence to any considerable degree when they reside in the throat and nose of a carrier, even for a long time.

What to do with diphtheria carriers is a difficult problem for those dealing with public health matters. In this, as in many other instances, the first effort is to be directed toward prevention, especially by isolation of cases of diphtheria, and by the protection of attendants from infection. Immunization with diphtheria antitoxin of contacts who are susceptible to infection, as determined by the Schick test, limits the cases of diphtheria. It does not prevent the production of carriers. To prevent the transfer of bacilli from the sick to those about requires the application of a technic that often cannot be carried out because of lack of intelligent appreciation and training. The use of properly constructed gauze masks by those in contact with cases of diphtheria will doubtless limit the danger of infection.

Gelien, Moss and Guthrie found that 52.94 per cent. of schoolchildren with positive cultures had pathologic throat conditions, as compared with 36.32 per cent. among children with negative cultures. It is likely that diseased tonsils, enlarged adenoids and infected nasal sinuses will render the individual more suitable for a carrier. The correction of such local conditions should reduce the likelihood of contraction of diphtheria and especially of becoming a carrier.

When an individual has become a carrier, the measures to be instituted should vary according as the bacilli are or are not virulent. In all noncontact carriers the virulence of the bacilli should be tested. This allows most such individuals to be dismissed as not dangerous to others. "Convalescent" and "contact" carriers must always be considered sources of danger. If the carriage is persistent, a test of virulence will occasionally reveal a nonvirulent bacillus and allow the possessor to be released from restraint.

Persistent carriers of virulent bacilli generally present some local pathologic condition in the throat or nose, the correction of which is usually followed by disappearance of the bacilli. No satisfactory means has been devised for destroying the bacilli. When local measures are of value it is usually because they aid in correcting abnormal conditions which interfere with the destruction of the bacilli by the natural bactericidal processes of the body. If such local treatment has been unsuccessful, removal of tonsils and adenoids will usually be followed by the disappearance of the bacilli.

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[12] J. Massachusetts Assn. of Boards of Health, 1902, p. 1202.

[13] Nuttall and Graham-Smith: Bacteriology of Diphtheria, 1908, p. 187.

[14] Weaver, G. H.: J. Infect. Dis. **20**: 125 (Feb.) 1917.

[15] Hachtel, F. W., and Bailey, M. S.: Am. J. Pub. Health **10**: 42 (Jan.) 1920.

[16] Goldberger, Williams and Hachtel: Bull. 101, Hyg. Lab., U. S. P. H. S., 1915, p. 29.

[17] Utheim, K.: Norsk Magazin f. Lægevidensk. **79**: 678, 1918; abstr., J. A. M. A. **71**: 695 (Aug. 24) 1918.

[18] Wadsworth, A. B.: Virulence of Diphtheria Bacilli from Diphtheria Patients and from Carriers, J. A. M. A. **74**: 1633 (June 12) 1920.

INDUSTRIAL LEAD POISONING *

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Lead poisoning is almost as old as written history. Ancient Rome used lead pipe in its wonderful waterworks system, and many of the inhabitants became afflicted with the disease. It has received the attention of physicians ever since the dawn of medical science, and every age has witnessed contributions on the subject by medical men. The more recent additions to our knowledge of the problem have been made through the researches and writings of such authorities as Oliver, Legge, Goadby, Hamilton and Hayhurst. Notwithstanding all these contributions, there still remain a few points about which there is some disagreement, and the present paper, not intended as a thorough discussion of all the phases of plumbism, is offered for what it is worth as an aid in clearing up a few of these points. The material is drawn from experience gained during a study of lead poisoning in several industries, during which I made thorough physical examinations, including laboratory work, of more than 900 workers exposed to the lead hazard. Eighty of these were found to be suffering from lead poisoning in various degrees of severity, and ninety-five others had sufficient signs and symptoms of plumbism to warrant a tentative diagnosis.

ETIOLOGY

By far the greatest amount of lead poisoning occurs among industrial workers. There are now approximately 200 American industries in which lead in some form is used, and in which there is consequently a possibility of the workers' contracting plumbism. As industry is becoming more and more diversified, this number is constantly being increased.

With the possible exception of the silicates, it seems that lead in any form is capable of producing poisoning. This danger is more apparent with the soluble salts and with the fumes from the molten metal. It decreases as the salts become less soluble, and as the temperature of molten metal is decreased. Thus, with lead sulphid, a salt relatively insoluble in the gastric and intestinal juices, and with the cold metal itself, there is comparatively little danger.

Aside from the industrial sources, lead poisoning occasionally occurs in domestic life. Formerly this type was fairly frequent, owing to the lead absorbed from lead pipes by drinking water. Cases have also occurred from eating canned food, because of the dissolving action of certain fruit juices, etc., on the lead in the solder. Other cases have occurred through the use of cosmetics, hair dyes, etc., containing lead.

The "portals of entry" by means of which lead enters the body are threefold. The most important of these is through the digestive tract, as when lunches are kept or eaten in rooms in which there is dust containing lead; when food or tobacco is handled with hands dirty with lead compounds; when water or food containing lead is used; and when men working in atmospheres contaminated with lead dust swallow either the dust which accumulates in their nasopharynx or what is dissolved in their saliva.

The second channel of entrance is by way of the respiratory tract through breathing of lead fumes and dust containing lead. Lead poisoning may occur from the fumes of molten lead even when the temperature of the latter does not reach the boiling point. I have demonstrated by means of sodium sulphid papers that lead fumes are given off from pots of molten lead at a temperature of approximately 750 F., and have found cases of lead poisoning among the men working with lead at this temperature. It is quite likely that fumes are given off at temperatures even lower than this. Most of the lead dust breathed is caught in the nasopharynx and swallowed. Lehman and Saito have shown experimentally that when dust is breathed only 12 per cent. reaches the lungs, whereas 70 per cent. reaches the alimentary canal.

The third and least important channel of entrance is through the skin. Some investigators have denied that lead poisoning can be caused in this way, but enough cases have been encountered with apparently no other possible means of absorption to entitle it to consideration. As mentioned in a previous paragraph, cosmetics and hair dyes containing lead have been known to cause plumbism. A case was encountered in Cleveland which had apparently developed from the use of a cane with a lead head. This case is similar to that of the harness-maker reported in the literature who developed lead poisoning from the use of a small piece of metallic lead with which he was in the habit of pounding the leather. I myself encountered two mild cases among men who handled 100-pound lead pigs. In this case there is, of course, the possibility that they breathed and later ingested tiny bits of metallic lead dust or lead oxid worn off the pigs in handling.

The lead that reaches the stomach is converted into the chlorid by the action of the gastric juice. In this form it is capable of osmosis and so enters the blood stream, where it combines with proteins, forming an albuminate. The lead that reaches the lungs passes through the alveolar and capillary walls and forms the same compound. If lead is really absorbed through the skin, it is likely that this compound is formed there also.

Some of the lead albuminate is excreted by the kidneys; the remainder passes into the tissues, where it remains insoluble so long as the reaction is neutral. It may remain here for long periods, doing no harm until some change occurs in metabolism to alter the reaction of the tissues. This renders the albuminate soluble and capable of reabsorption. It is thus able to reenter the blood stream and once more exert its harmful effects. For this reason it is sometimes unwise to give iodids to patients who have worked in lead, as the iodids may release the albuminate and cause the lead to be reabsorbed, with resulting manifestations of acute plumbism. Any sudden unusual exposure, a drinking bout, or an infection such as influenza, may produce the same effects.

Lead that is not acted on by the gastric juice passes out in the feces as a sulphid. The gastric juice is capable of exerting more solvent action on lead when

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* This paper was awarded the $100 Hamilton Fisk Biggar, Sr., prize for 1920, granted by the Cleveland Medical Library Association.

the stomach is empty; therefore workers exposed to the lead hazard should always eat breakfast before going to work; and light lunches, e. g., a glass of milk, at intervals during the working day are desirable.

The susceptibility to plumbism varies enormously. Some workers will develop an acute attack after working only a few days, while others may work for months at the same employment without experiencing deleterious effects. I found workers who had been exposed for more than forty years without experiencing any ill effects, and I found others who had been at the same work only a few weeks and had taken just as many precautions, who developed plumbism.

PATHOLOGY AND SYMPTOMATOLOGY

Acute Form.—The usual case begins with some digestive disturbance—a sweetish metallic taste in the mouth, nausea, sometimes vomiting, anorexia, and frequently diarrhea. The latter is due to the gastro-enteritis that is so often present. Constipation and colic also occur in a large number of cases. The colic is very severe, wholly incapacitating the patient. There is usually marked pallor of the skin, due to constriction of the peripheral vessels rather than to any actual anemia. These symptoms are commonly accompanied by frequent severe headaches, insomnia, general asthenia, and a feeling of lassitude. Often an acute interstitial neuritis occurs, causing a distal ataxia and severe pains along the nerves affected. The optic nerve may be attacked, later causing optic atrophy and blindness. There is usually some albuminuria due to an acute nephritis affecting the cells of the renal tubules.

It is in the acute form that the encephalopathies most often occur. These cases are comparatively rare, however, and are caused by cerebral edema and minute cerebral hemorrhages. Symptoms are severe headaches, delirium, convulsions, vomiting, retinal changes with diplopia or transient blindness, and sometimes paralysis, coma and death.

In acute cases the red blood cells become more resistant to hemolysis than normally. Therefore in these cases Liebermann's blood corpuscle resistance test is of diagnostic value. In chronic cases this test is worthless. At this stage, basophilic degeneration of the red cells may also be detected.

Acute cases sometimes occur within a few days after exposure has begun. In these the lead line is absent. In those cases, however, which suddenly attack an individual who has been exposed for years, there is usually a lead line, indicating that the individual has been absorbing lead for some time. Such attacks are due to a sudden change in metabolism whereby the individual's excretion can no longer keep pace with his absorption. Such cases sometimes develop a sudden paralysis almost without any previous symptoms.

I will cite a few representative case histories which illustrate some of the forms of acute plumbism:

Case 1.—A man, aged 24, works manager in a pottery, during the absence of a sagger-washer painted saggers with a solution of red lead. There developed severe diarrhea accompanied with anorexia, nausea, headache, dull abdominal pain, albuminuria and a general feeling of lassitude. Symptoms soon cleared up on cessation of the work and began again several days after its resumption. A diagnosis of mild acute plumbism was made.

This case is listed merely as an instance of a case in which there was diarrhea. Some physicians assert that the intestinal spasm which so frequently occurs causes constipation, and deny that diarrhea can occur. This is a false assertion, for diarrhea often occurs in patients having a gastro-enterocolitis, and constipation and diarrhea sometimes alternate. This case is also an instance of a person's being peculiarly susceptible to the effects of lead intoxication.

Case 2.—A man, aged 57, who had been a dipper in a pottery twenty-six years, stopped pottery work four and one-half years ago and farmed for three years. At the end of this period he began dipping again. He dipped two weeks, when a peroneal paralysis of the right leg occurred with toe drop. There was considerable pain in the foot and ankle and along the course of the peroneal nerves. He had a metallic taste, nausea, and tremor of the tongue. There were no other symptoms. He discontinued work four months, during which time he gradually regained strength in the peroneal muscles and power of dorsiflexion of his toes. The neuritic pains gradually left.

This case illustrates the acute form with paralysis which sometimes occurs almost without symptoms in cases previously exposed to lead. Acute plumbism, however, is usually diagnosed by symptoms rather than by the physical signs:

Case 3.—A man, aged 22, was a glost-kiln placer in a pottery for three years. He was then in the army six months, after which he returned to the pottery and has now been working six months. He is losing weight, has general malaise, asthenia and a feeling of lassitude, frequent severe headaches, nausea, breakfast anorexia, a metallic taste, constipation, lumbago, muscular cramps in the legs and arms, dull muscular aches, and frequent attacks of dizziness. He has pallor and tremor of the fingers. Examination otherwise is negative. The diagnosis is mild acute lead poisoning.

Case 4.—A man, aged 42, who was a glost-kiln placer six years, rather suddenly developed marked pallor, asthenia, tremor of the fingers and hyperactive reflexes three years ago. He had had a lead line for some time. One day shortly thereafter he suddenly lost consciousness and was unconscious for about one hour. This was followed by severe headache, ptosis of the right upper eyelid and diplopia. He did not work for six months, and gradually recovered. He still has a lead line, and tremor of the tongue. The hemoglobin is 88 per cent. Dorsiflexion is impaired on the right. The Wassermann test and venereal history are negative. This man is an instance of acute encephalopathy superimposed on a case of lead absorption. He recovered from the acute attack, but still has lead absorption, as evidenced by the lead line. Should his present balance between absorption and excretion be again disturbed, he would probably have another acute attack.

Case 5.—A man, aged 47, a dipper for thirty years, three months ago after a drinking bout began to feel dizzy and light headed. These symptoms rapidly became more severe, and diplopia developed. Soon he began to notice numbness of his whole left side, and he became very weak. At this time he had breakfast anorexia, great drowsiness, tinnitus aurium, extreme nervousness, tremor of the tongue and fingers, marked pallor, cyanotic gums, lead line, weak grip, impaired dorsiflexion, and albuminuria. Suddenly he developed severe abdominal cramps, which lasted off and on for several days, during which his temperature was 97; pulse, 56; systolic blood pressure, 160; diastolic, 90. The hemoglobin was 90 per cent. After a two months' rest, his symptoms have gradually disappeared, though he is still very weak and has a marked lead line. The pulse is now 80, temperature normal, and blood pressure 140 and 85. This case is another instance of disturbed balance and resulting lead intoxication after a number of years' exposure. He, too, had had lead absorption for some time, as was shown by his lead line, but had experienced no ill effects therefrom.

Chronic Form.—Marked pallor is almost a constant symptom. According to many investigators, this is due to an actual anemia. I am inclined to believe that anemia occurs less frequently than is commonly supposed; for although most of the patients in my series exhibited the pallor, red blood counts in nearly all cases were but slightly below normal. As stated in a previous paragraph, I believe this pallor to be due to a vasomotor constriction, a spasm of the peripheral arterioles, perhaps of a nature similar to the spasm of the intestines which so often occurs, and perhaps also similar to the muscular spasms which cause the painful muscular cramps, a rather common symptom. The hemoglobin percentages vary considerably, but on the whole are not much lower than those found among any similar group of working people not affected with plumbism. None were found below 65 per cent; the majority were between 80 and 100. This tends to bear out the hypothesis that the pallor is caused by constriction of the peripheral vessels rather than by a secondary anemia.

In connection with this it may be well to discuss briefly the other blood changes. A number of investigators have reported the finding of basophilic degeneration of the red cells in chronic cases. In my series I found it in only one instance—an early case—and the stippling was not marked even in this case. It is my conviction that basophilic degeneration has been greatly overrated as a diagnostic sign. If present frequently enough to be of diagnostic value, it must be in the early stages.

In all cases of chronic plumbism, however, I did find one change in the blood picture which was practically constant. This was a marked increase in the large mononuclear cells, ranging from 10 to 35 per cent. This increase was frequently at the expense of the polymorphonuclear cells, and sometimes at the expense of the lymphocytes. Hayhurst is the only other investigator that I can discover who has made note of a similar finding. It was so constant in my cases that I believe it is a point possessed of some diagnostic value, provided, of course, that other causes of such a mononucleosis can be ruled out. Such conditions, however, are not likely to be confused with plumbism.

Although there is usually some anisocytosis and poikilocytosis, I did not find them present to the extent usually spoken of; nor did I find the presence of nucleated red cells much above the average. These facts coincide very nicely with the absence of marked anemia.

Nearly all chronic cases exhibit some one or all of these digestive disturbances: metallic taste, anorexia, nausea, abdominal pain and tenderness, constipation and colic. The constipation is often of an extremely obstinate type, and is much more common in the chronic cases than is diarrhea. The latter may be alternated with it, however. The true lead colic causes very severe pain, morphin sometimes proving inadequate in giving relief. The colic usually follows constipation. The anorexia is probably responsible for much of the loss of weight which often occurs.

General malaise and asthenia are early symptoms. These are often accompanied by insomnia, dizzy spells, lethargy, etc.

In an individual who works with his hands a great deal, paresthesias in the hands and fingers, weakness of the grip and weakened power of dorsiflexion of the wrist may be the first warnings of chronic plumbism. These are due to a beginning interstitial neuritis, which affects usually the nerves supplying the muscle groups which are most used. This is probably the most important pathologic change in chronic lead poisoning, and, if it continues, results first in neuritis along the course of the nerve affected and later in wrist drop, toe drop, shoulder drop or head drop, as the case may be. After a time the muscles affected may undergo atrophy and fatty degeneration, and the opposing set of muscles may contract. This sometimes occurs in cases of wrist drop, and a partial subluxation of the wrist results. In long-standing cases of such paralysis, tender tumors, somewhat resembling a ganglion, may occur. These various paralyses occasionally occur very suddenly—almost without warning—in individuals who have been exposed for some time. In rare cases there are generalized palsies, which may involve the diaphragm and cause death.

Headache is the most common symptom presented by the nervous system. This is sometimes constant and is frequently very severe. The other nervous symptoms mentioned above under acute forms sometimes occur, but not with such frequency. There may be periods of profound mental depression apparently without cause, which may alternate with periods of excitability.

Marked tremor of the fingers, tongue, lips and eyelids are nearly always present, and constitute a prominent sign. These may be accompanied by muscular incoordination and possibly fibrillation. There is usually distal ataxia due to the peripheral neuritis. In the early cases the reflexes are usually hyperactive; later they are diminished. The pupils may be springy and irregular. Chronic muscular rheumatism, lumbago, and pains in the ankles, feet and knees are frequent complaints.

Contrary to the reports of many investigators, I found the lead line to be one of the most constant signs. This may be due in some measure to the form of the lead to which the patients were exposed. At any rate, more than 90 per cent. of all my patients had well marked lead lines. These were very readily demonstrated by lifting the margin of the gum away from the tooth with a thin, white toothpick. The black deposit of lead sulphid in the end arteries of the gums then appeared very prominent against the white wood as a background. Most of the patients in my series also had very bad gums and teeth—whether as a cause or a result of the lead line, I do not know. I am inclined to believe the former, however, for it is certainly true that there is more pyorrhea and carious teeth among workers exposed to lead than among similar groups of workers not so exposed. I also found a number of patients with lead lines who still had very good teeth and gums. It may be that the deposit of lead sulphid in the end arteries of the gum margin impairs the circulation there, resulting in decreased nutrition and vitality. This in turn would cause lack of tone and decreased resistance, and would readily permit decaying food particles and mouth organisms to find their way in between the tooth and the gum, thus facilitating the rapid development of pyorrhea.

While a lead line is positive evidence of lead absorption, it does not mean necessarily that the individual has lead poisoning. I saw many patients with well marked lead lines who were apparently well. These are all potential cases of plumbism, however, and if something should happen to disturb the balance between absorption and excretion, which thus far they have been able to maintain, they would probably develop acute plumbism. The same thing is true of lead in the urine and feces.

"Oliver's sign," a black discoloration of the buccal mucosa opposite a carious tooth, is often present. I do not believe that much importance can be attached to this sign, however, for the discoloration is often present in the mouths of people not exposed to lead. For example, such discolorations occur normally in the buccal mucosa of negroes.

Among women, irregularities of menstruation are a common result of plumbism. These may appear as dysmenorrhea, menorrhagia or amenorrhea. It also seems to be an established fact that women exposed to the lead hazard are more subject than others to abortions.

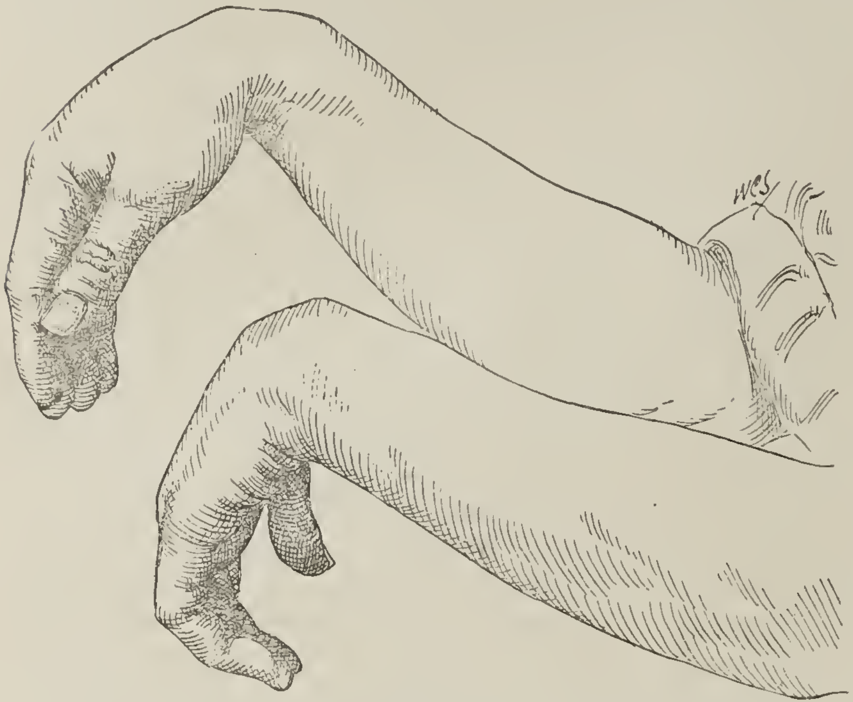

Fig. 1 (Case 6).—Bilateral wrist drop: from photograph taken while patient was trying to extend his hands.

In long standing cases of plumbism a fibrotic change occurs in the blood vessels and in many of the organs. Hypertension, except where there is lead colic, is not so common, however, as would be supposed. In this my results also differ from those of some other investigators, for I did not find it at all frequently, except in one group, in which the patients were working in a lead refinery. In many of these there was hypertension; but among pottery workers, who labor just as hard, there was practically none (eight patients with bilateral wrist drop had practically none). It may be that here too the form of the lead to which the worker is exposed is more or less of a determining factor. In many cases the liver becomes fibrotic, the kidneys contracted, heart valves sclerosed, and the vocal cords thickened. The latter often results in a tremulous voice, which is rather marked in old cases of plumbism.

At death, lead may be found in the liver, kidneys, spleen, brain and muscles.

The following case records are given as a means of illustrating some of the types of chronic lead poisoning:

Case 6.—A man, aged 37, a dipper in a pottery fifteen years, has been a heavy drinker for years. Although he had some pallor, he felt perfectly well until six months ago, when he began to notice weakness in his thumbs. This became progressively worse, until his whole hands and wrists were affected. Two months ago he was lifting a ware board when his wrists suddenly "gave way," and he has had complete bilateral wrist drop ever since (Figs. 1 and 2). He has had absolutely no symptoms of plumbism except paresthesias in his hands. Examination reveals, besides double wrist drop with antebrachial and some scapulohumeral muscular atrophy, marked pallor, edema of the hands and fingers, marked tremor of the fingers, lips, eyelids and tongue, muscular fibrillation, springy pupils, absence of all teeth, mitral insufficiency, edema of feet, and distal ataxia. The blood pressure is normal. The reflexes are decreased. The hemoglobin is 95 per cent. The red blood count is 5,200,000. There is no basophilic stippling. Large mononuclears, 24 per cent. of white cells. The blood pressure is: systolic, 135; diastolic, 85.

This case is noteworthy because of the sudden incidence of the paralysis without premonitory symptoms, except for weakness of the thumbs (which are used most in dipping), in a man who had been exposed to lead for years; and for the absence of any gastro-intestinal disturbances—even constipation. Here is direct proof to controvert the popular idea that lead poisoning cannot occur without constipation. This fact is also illustrated by Case 7.

Case 7.—A man, aged 55, a dipper in a pottery for twenty years and a heavy drinker for thirty years, three and a half years ago began to experience numbness and tingling in his right hand and forearm. This steadily increased, and soon his left hand and forearm were also affected. This paresthesia was accompanied with edema of the wrists and fingers, and was alternated with muscular cramps. Soon his wrists and fingers became weak, and he lost his dexterity, being almost unable to button his clothes and to accomplish the finer movements. His arms became stiff at times, and he suffered from neuritic pains. After about six months of this, he became so weak that he was scarcely able to work. Fearing wrist drop, he ceased pottery work and took up the insurance business, which he continued for six or eight months. During this period he became considerably stronger and so again took up pottery work. His weakness soon began to recur, and in about one year he had double wrist drop. While this was developing, he had begun to have general malaise, asthenia, anorexia, nausea, vomiting, metallic taste, fits of depression without apparent cause, insomnia, and pains in the arms, legs and neck. After the wrist drop occurred, he began medical treatment, which he continued for about a year, his wrists gradually becoming stronger. He then began dipping again. He dipped for nineteen days, when the double wrist drop recurred, and he began to have difficulties in locomotion and severe pain in his legs, together with a recurrence of his former symptoms. Examination revealed almost no pallor, poor teeth, good gums, with marked lead line, mitral insufficiency, antebrachial paralysis with some atrophy, and tremor of the tongue and fingers. He was not constipated at any time. The hemoglobin was 90 per cent.; red blood count, 5,180,000; no basophilic degeneration; large mononuclears, 18 per cent. of white cells; blood pressure: systolic, 140; diastolic, 90.

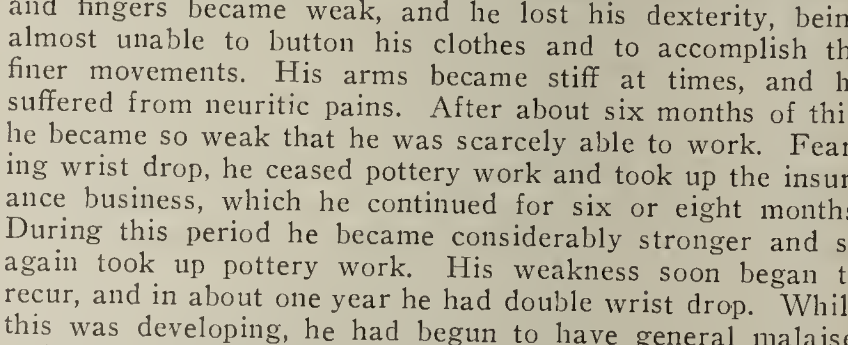

Fig. 2 (Case 6).—Manner in which it is necessary for the patient to support his arm and turn his wrist in order to grip any object.

The tendency for the paralysis to disappear when exposure to lead ceases is well marked in this case.

Case 8.—A man, aged 45, a dipper in a pottery for eighteen years, a "moderate" drinker, complains of general asthenia, frequent severe headaches, malaise, morning nausea, pronounced anorexia, metallic taste, abdominal pain and tenderness but no true colic, very bad constant constipation, neuritic pains in the arms, hands and shoulders, sore muscles, painful joints, lumbago, parethesias, alternating periods of depression and excitability, failing sight, insomnia, dizziness and lethargy. He has been losing weight for the last six months. He is poorly nourished, and has an unhealthy appearance; local emaciation of the hands, wrists and forearms; pallor of the face, lips and conjunctivae; arcus senilis; springy pupils; cyanotic gums; fair teeth but much worn; marked lead line; coated tongue; tremor of the tongue, fingers and labial muscles; tremulous voice; muscular weakness; impaired dorsiflexion of the wrists, especially on the right; grip, 60/70 (normally 120/110 for men, 65/55 for women); enlarged joints, and hyperactive reflexes. The systolic blood pressure is 140; diastolic, 80; hemoglobin, 65 per cent.; red blood count, 4,600,000; central pale area, increased; large mononuclears, 16 per cent. of white cells; no basophilic degeneration of reds.

This is a fairly typical case of chronic plumbism, with the exception of the fact that the hemoglobin percentage is lower than usual.

Case 9.—A man, aged 31, a glost-kiln placer, notices that his arms feel unduly weak and tired; there is increasing numbness in the hands. He has dizzy spells several times a week, constant metallic taste, and headaches; about once a week he has attacks of nausea with colicky pains around the umbilicus, which last several hours, not severe enough for typical lead colic; he has rheumatism in the shoulder. He has pallor of the skin and conjunctivae, pink, healthy gums with marked lead line, good teeth, and tremor of the tongue. His grip is 70/75. Dorsiflexion is impaired. The systolic blood pressure is 135; diastolic, 80; hemoglobin, 92 per cent.; red blood count, 5,100,000; large mononuclears, 13 per cent. Some basophilic degeneration of the red cells, not marked, is detected.

This case illustrates early chronic lead poisoning. Cases 8 and 9 are examples of loss of strength in the hands and weakened dorsiflexion of the wrist. This is more marked in the hand that is most used.

Case 10.—A man, aged 41, a dipper, has had repeated attacks of lead colic during the last five years. He has frequent headaches, malaise, asthenia, morning nausea, metallic taste, abdominal pain and tenderness, "muscular rheumatism," paresthesias, tinnitus, aurium, itching eyelids, and dizzy spells. His expression is drawn; the pupils are unequal, with sluggish reaction; he has pyorrhea, a lead line, and fair teeth; twelve teeth are out; there are coated tongue; hyperactive reflexes; atrophic nails, and tremor of the tongue, lips and fingers; the hands are edematous; sight and hearing are impaired. The blood pressure is: systolic, 135; diastolic, 78; hemoglobin, 84 per cent.; red count, 4,800,000; no basophilic degeneration; large mononuclears, 17 per cent.; small mononuclears, 35 per cent. of white count.

Case 11.—A woman, aged 46, a dipper's helper, has anorexia, metallic taste, constant headaches, abdominal pain and tenderness, frequent attacks of colic, constant constipation, paresthesias and neuritis in arms, muscular soreness, pains in the joints, dysmenorrhea, menorrhagia, and fits of depression without apparent cause. She has had one abortion; there are no living children. She has an unhealthy appearance, lead line, spongy gums and poor teeth. The grip is 58/39. The systolic blood pressure is 138; diastolic, 86; hemoglobin, 80 per cent.; red blood count, 4,200,000; large mononuclears, 18 per cent.

These various cases represent some of the common types of chronic plumbism. They demonstrate the general absence of basophilic degeneration of the red cells and the absence of marked anemia and hypertonus. These are signs to which I believe undue prominence has been given. The mononucleosis which so frequently occurs is well illustrated in these cases. Edema of the hands is rather frequent, and is usually associated with paralysis or a warning of its approach.

DIAGNOSIS

In order to accomplish the best results in treatment, the diagnosis of plumbism, like that of tuberculosis, should be made early. If we wish to prevent the more severe effects of lead poisoning—encephalopathies, lead colic, wrist drop, optic atrophy, perhaps generalized paralysis, and the various degenerative diseases so frequently associated with it, e. g., nephritis and arteriosclerosis, we must diagnose the disease and begin treatment in its incipience. The mistake is frequently made of refusing to diagnose a case as lead poisoning unless there is a lead line or colic or wrist drop. As a rule, however, these are fairly late symptoms. The fallacy of expecting constipation in all cases of plumbism has already been pointed out.

One of the greatest aids in diagnosis is a history of exposure. Without this knowledge, lead poisoning will frequently be overlooked. With this knowledge, plumbism should be at least considered in all obscure complaints arising among the workers. Pallor of the skin, muscular weakness, headaches, general asthenia and malaise, paresthesias, anorexia especially for breakfast, constipation or perhaps diarrhea, rheumatism, muscular soreness, abdominal pains and tenderness, colic and nervousness are all symptoms which should be carefully weighed in any worker exposed to lead before a diagnosis of lead poisoning is ruled out.

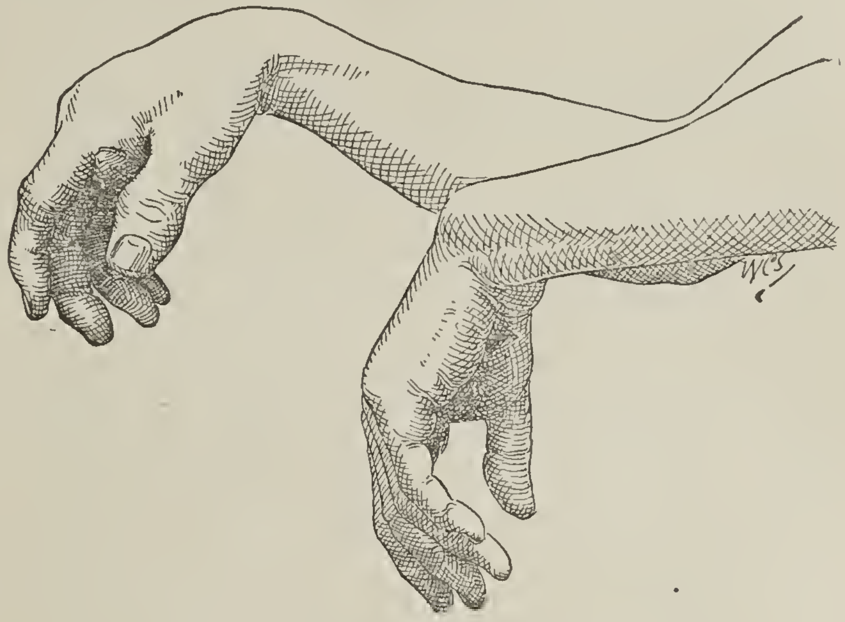

Fig. 3.—Wrist drop in another patient.

The lead line is of considerable value as a diagnostic point in all chronic cases, and often in acute cases which occur in people who have been exposed to lead for some time. Although a lead line does not necessarily mean lead intoxication, yet it is absolute evidence of lead absorption, and as such should at least be considered as indicating potential lead poison. The same significance can be attached to the finding of lead in the urine or feces.

Lead colic may sometimes be confused with appendicitis, intestinal obstruction, gallstones, etc. In the case of lead colic, however, the temperature is rarely increased, the pulse is slow and hard, and the blood pressure usually increased. Furthermore, there is little if any leukocytosis, and the protective rigidity of the abdominal muscles is usually absent.

In acute cases, basophilic stippling and increased resistance to hemolysis of the red cells may be of diagnostic value. In chronic cases these are usually absent, but in their stead there is commonly a mononucleosis of from 10 to 35 per cent., which may aid in the diagnosis.

PROPHYLACTIC TREATMENT

By means of proper prophylactic measures, lead poisoning in American industries could be greatly reduced, if not wholly prevented. Proper prophylaxis necessitates close cooperation between employers and employees. The employer must provide suitable working conditions. This means the removal of dust and fumes, and the provision of clean working rooms, adequate ventilation, lunch rooms, drinking and washing facilities, locker rooms and capable medical supervision. Frequent periodic examination of all workers exposed to lead is a necessity, and workers should report immediately any symptoms suggestive of plumbism. Rules prohibiting eating in rooms in which there is lead must be rigidly enforced. The education of the workers along the lines of personal hygiene and the prevention of disease should be the aim of all industries. Industry should consider the victims of lead poisoning in a more sympathetic light. In many plants, if the foreman thinks a man is developing plumbism, he either discharges him or permits him to continue at the same work until absolutely incapacitated. Since neither of these policies is constructive, both should be condemned. Instead, an effort should be made to give such men different work which will not expose them to the lead hazard and which will permit them to recover from many of the effects that they have already experienced.

These various factors, however, will fall far short of accomplishing all the good of which they are capable unless the workers do their share. They must cooperate with the management in keeping the workrooms clean and the various personal service facilities in good condition. They must use the conveniences provided for them, and observe the rules of personal hygiene, etc., which they have been taught. The importance of the latter can scarcely be overestimated. I have just seen its value demonstrated among a group of pottery workers. At the time of their first examination, the workers were advised as to the precautions they should observe to avoid plumbism and to decrease the effects they had already experienced. Four months later, when I returned to consult with those who had had positive diagnoses, I found that a large number of these had been following the advice given them four months before and, as a result of the simple measures of personal hygiene employed, had greatly improved. The symptoms of practically all had decreased in severity, and a number had gained from 10 to 20 pounds in weight even in this brief time. By the observance of the rules of hygiene and common sense, they had been able to stop or at least minimize the absorption of lead, and as a result their bodies were better able to cope with that which they had already absorbed.

A few of the men whom we had diagnosed had not seen fit to follow our advice, and practically all of these showed progression and were worse than when first seen.

Many of the men habitually take magnesium sulphate several times a week as a preventive. This is undoubtedly of some value, for it keeps the bowels open and tends to precipitate the lead in the intestinal tract and cause it to be excreted in the feces. A number of the men take a course of sulphur baths several times a year, and report a feeling of increased well-being and vigor afterward. Their actual value is problematic, as is also the prophylactic use of the Oliver-Clague electrolytic treatment.

In some factories in which lead is used, it is the custom to give the men 1 grain calcium sulphid tablets daily. This forms the more or less insoluble lead sulphid, which passes out in the feces. It is reported that the incidence of plumbism is less in these plants than in those in which this drug is not used.

CURATIVE TREATMENT

In curative treatment, the first thing is to remove the patient from the source of the poisoning. After this, potassium iodid in from 5 to 10 grain doses, three times a day, is usually given, the theory being that it liberates the lead which has been deposited as an albuminate in the tissues, and thereby permits it to be excreted through the kidneys. The liberated lead is in a soluble form, and in some cases is likely to be reabsorbed with an exacerbation of symptoms. It is therefore wise to begin the treatment with small doses, and in acute cases to withhold it altogether.

For the constipation, magnesium sulphate is probably best, since this aids in the prevention of absorption of lead by the intestines through the formation of a relatively insoluble compound, which passes out in the feces. In some cases the constipation is so obstinate that salts, castor oil, etc., all fail, and it becomes necessary to administer croton oil; 1 drop on a piece of sugar is usually sufficient. A mixture of potassium iodid, magnesium sulphate and a bitter is sometimes resorted to for the colic and constipation.

The researches of Macht[1] and his co-workers and of Litzenberg[2] on the action and uses of benzyl benzoate, an opium alkaloid of the benzyl-isoquinolin group, have shown that this drug counteracts remarkably well the spasm of smooth muscle. They have also shown that ureteral colic, excessive intestinal peristalsis and spastic constipation yield to the tonus-lowering antispasmodic effect of the drug. Its very low toxicity, combined with its peculiar pharmacologic action, suggests that it may readily become the sovereign remedy for the constipation and colic of lead poisoning. It may be prescribed in this mixture:

		Gm.
℞	Benzyl benzoate	10
	Mucilage of acacia	5
	Aromatic elixir of eriodictyon	35

Give from ½ to 2 drams about every two hours, according to necessity.

For the colic, hot applications are of value also, together with the administration of morphin or morphin and atropin, when necessary.

In cases of convulsions, the bowel should be washed out with warm water containing a little mustard. This is followed by an enema containing chloral or one of the bromids.

For the paralysis, massage and the galvanic current are of the greatest value. In case of wrist drop, the hand should be placed on a splint to prevent contraction of the opposing groups of muscles. Strychnin sulphate or nux vomica is often used empirically as an adjuvant to this treatment.

The Clague-Oliver electrolytic treatment has been much advocated in some quarters as having both prophylactic and curative value. Its sponsors claim that it abstracts lead from the body through electrolysis. The experiments of Goadby and others have proved this assumption to be wrong. I have had a good opportunity to observe the effects of this treatment, and while I think that its value has been greatly overrated, yet I believe that its use is nevertheless productive of some slight benefit. This value lies, not in the withdrawal of lead from the body, but in certain symptomatic effects. Most of the men who have tried the method say that after treatments they eat better, sleep better, and feel better, their wrists are stronger, and they make slight gains in weight. The gains in weight credited to the treatment are due, I believe, to the better eating and sleeping. The improvement in symptoms noted above may be due to the tonic effect of the current or to the psychologic effect of the treatment. In any case, even such a symptomatic improvement as noted is of some value, and would be of assistance as an adjuvant to the other methods of treatment already outlined.

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[1] Macht, D. I.: A Therapeutic Study, Pharmacologic and Clinical, of Benzyl Benzoate, J. A. M. A. **73**: 599 (Aug. 23) 1919.

[2] Litzenberg, J. C.: The Use of Benzyl Benzoate in Dysmenorrhea, J. A. M. A. **73**: 601 (Aug. 23) 1919.

As an aid to both the prophylactic and the curative treatment of industrial plumbism, laws providing for compensation for occupational diseases are becoming more and more necessary. The injustice of allowing compensation for accidents, which may disable a man for a few weeks, and at the same time refusing to allow it for lead poisoning, which may cause disability for life, is beginning to be recognized. Compensation for occupational diseases is now allowed in several states and territories, and the indications are that it will soon be granted in others. Under such a system the loss of wages due to cessation of work for a time in order to recuperate from the effects of lead would not cause such a large economic loss as at present, and a man with, say, approaching wrist drop could stop work before becoming wholly incapacitated, with the knowledge that he would be cared for during his illness. This would cause a great reduction in the number of permanent disabilities due to lead and in the number of cases of severe plumbism.

The incidence of lead poisoning in American industry is far greater than is commonly supposed. This is because the majority of the cases are not reported, even though many state laws require the reporting of all occupational diseases. Some of the cases are not reported because there is no attending physician. This is sometimes true in even severe cases with wrist drop. Others are not reported because of the fear of giving the factory a "black eye" in the estimation of the state department of health, or because of the patient's fear of discrimination by insurance companies, etc.

It is a function of most state departments of health to study the cause, prevention and cure of occupational diseases. Progress cannot be made in such work unless there is complete knowledge of the incidence of the various diseases due to occupation. Such knowledge can be gained only through the prompt and thorough reporting of all cases. This means that every physician should cooperate with the state department, at least to the extent of reporting all cases with which he comes in contact.

PROGNOSIS

In mild cases the prognosis is good. In the encephalopathies the outlook is worse, for in such cases permanent mental symptoms may follow. Some severe acute cases are fatal.

Patients with wrist drop usually recover. I have known patients to have wrist drop six or seven times and recover. Wrist drop or other paralyses associated with the muscular atrophy, however, usually persist to a greater or less degree. Among habitual users of alcohol the outlook is worse than for abstainers.

Lead poisoning, as a rule, is a disabling rather than a fatal disease. The records of its effects must be sought in the morbidity records rather than in the mortality records. Aside from its own immediate effects, it is a cause of such degenerative diseases as cirrhosis of the liver, valvular heart lesions, nephritis and arteriosclerosis, and in this way often cuts short the normal span of years. In lead poisoning centers, the true end-results of cases of plumbism are to be found in the mortality records under such headings as "died of a complication of diseases." A number of patients, however, live to a ripe old age. I know one man, now over 70, with double wrist drop and muscular atrophy, which he has had for twenty years. During this time he has been practically disabled and dependent on his friends for support.

In connection with prognosis, some observations are pertinent which I recently made on the continued exposure to lead after a diagnosis of plumbism had been made. In 1913 and 1914, the Ohio State Board of Health undertook an extensive survey, under the direction of Dr. E. R. Hayhurst, of the effects of the various occupations on the health of the workers engaged therein. During this survey a number of cases of lead poisoning were encountered. Five years later, through the courtesy of Dr. Albaugh, director of the division of industrial hygiene, I had an opportunity to compare the present condition of a number of my patients with their condition in 1914, as shown by the 1914 case histories and records. I also looked up a number of the 1914 patients who are no longer exposed to lead, in order to note the effect of removal from the source of the poisoning on the health of the individual. The following conclusions, drawn from this follow-up work, were made after a study of more than 100 such cases:

1. Cases of lead poisoning in which the patients continue to be exposed to the lead hazard under the same conditions steadily progress.

2. Patients with lead poisoning who continue to be exposed to the lead hazard under the same conditions but who lessen or abolish the absorption of lead through the observance of proper hygiene, etc., usually tend to improve. Many such patients recover.

3. Patients with lead poisoning who continue to be potentially exposed to the lead hazard, but whose absorption of lead has been decreased or abolished through improvement in working conditions and personal service facilities, usually tend to improve. Many such patients recover.

4. Patients with lead poisoning who remove themselves entirely from the source of the poisoning usually recover. Except in the more severe cases noted in the first part of this article, the recovery is usually complete.

These conclusions may be considered, in a general way, as principles of prognosis. They also serve to emphasize still more the principles of removal of the source of the poisoning as the prime desideratum in both prophylactic and curative treatment.

SUMMARY

Certain signs and symptoms of plumbism have been given somewhat more importance as diagnostic points than they deserve. These are anemia, basophilic degeneration of the red cells, hypertonus and constipation.

Pronounced anemia is present in only relatively few cases; in many severe cases there is no anemia whatever. The pallor that is usually present is therefore due to some other cause—possibly a constriction of the peripheral blood vessels. Basophilic degeneration of the red cells is rare in chronic cases, and its value as a diagnostic point, even in acute cases, has probably been overrated.

The presence of hypertonus is extremely variable. Among a group of pottery workers exposed to lead dust, there was practically none; but among a group of lead refiners exposed to lead fumes, it was present in nearly every case. The cause of this variance is unknown; however, the difference in the form of the lead to which the different groups are exposed may have something to do with it. Hypertonus is nearly always present during attacks of colic.

Although constipation is usual, it is not invariably present. The assumption, therefore, that a patient who is not constipated does not have lead poisoning is fallacious. Many cases of plumbism—especially acute cases—occur without constipation.

A point of diagnostic value which appears to have escaped recognition, except by Hayhurst, is the presence of mononucleosis in chronic cases. This is almost invariably present.

The presence of a lead line is also extremely variable. In my series it was present in about 90 per cent. of the cases. Other investigators have sometimes found it present in not more than 20 per cent. of their cases. This difference, like that in the case of hypertonus, may possibly be due to the difference in the form of the lead in which the patients were exposed.

In the treatment of plumbism, prophylaxis is of much more importance than the curative treatment. By means of proper working conditions and medical supervision on the one hand, and the observance of the rules of personal hygiene and common sense, on the other, together with cooperation between employers and employees, the incidence of plumbism in American industries could be greatly decreased. Proper compensation for occupational diseases is a necessity, and would help to decrease both the incidence and the severity of lead poisoning.

If the cause of the poisoning is removed, the prognosis, except in a few cases, is good even without medical treatment. If, however, the lead continues to exert its deleterious effects through small, steady doses, the case steadily progresses, finally terminating in some form of paralysis or in some of the common degenerative diseases. As a rule, lead poisoning is a disabling rather than a fatal disease, although in chronic cases it undoubtedly hastens death.

Vital statistics of all occupational diseases, including lead poisoning, are very incomplete. Rapid progress by state or federal agencies in the devising of methods for the prevention or cure of all such diseases cannot be made unless there is prompt and complete reporting of all cases.

1657 Larchmont Avenue.

Increase in Alcoholism in Germany.—The *Deutsche medizinische Wochenschrift* relates that alcoholism is on the increase again in Germany, saying that eight thousand million marks are spent for alcoholic drinks at present (Es werden z. Z. etwa 8 Milliarden Mark für alkoholische Getränke bei uns verausgabt). At Bremen the number of cases of delirium tremens, which was 176 before the war and nine in 1918, reached sixty in 1920. Cases have been observed at Bremen where young people have spent 300 marks in one night for liquor and been taken to the hospital with serious toxic effects. The editorial adds: "During 1914, 6,000,000 bottles of champagne (sekt) were consumed, but in 1919 the figure was 10,000,000." Bavaria has removed the restrictions on the manufacture of strong beer, and one of the Munich dailies refused to publish an appeal by Kraepelin protesting against removing the restrictions. The *Nederlandsch Tijdschrift* quotes the above figures with the laconic comment, "The world needs mending."

THE DIAGNOSTIC SIGNIFICANCE OF JACKSONIAN EPILEPSY *

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Of all the forms of epilepsy, perhaps none is so interesting and of such diagnostic import as the jacksonian variety. This term is used here to cover hemispasm or monospasm; the spasm, if properly observed, will be seen to have a signal symptom and a regular sequence of events. In the minds of most physicians, jacksonian epilepsy means a definite, focal disease of the motor cortex. Such is not the case in a large percentage of instances; in fact, Collier goes so far as to state that the commonest cause of jacksonian epilepsy is idiopathic epilepsy. Dr. C. K. Mills, in a personal communication, has expressed his concurrence with Collier's belief.

When a patient exhibits jacksonian epilepsy, we must recall, in addition to neoplasm involving the motor cortex, that (1) lesions other than tumor of the motor cortex may produce unilateral spasm; (2) tumors in parts of the brain remote from the motor cortex sometimes are associated with monospasm; (3) toxic conditions may produce jacksonian epilepsy; (4) the myoclonic type of epidemic encephalitis form may produce a picture somewhat similar to the spasm under discussion; (5) the so-called reflex epilepsy may do likewise; (6) hysteria may simulate the condition, and (7) idiopathic epilepsy frequently has an "inside" jacksonian spasm.

JACKSONIAN SPASM DUE TO NEOPLASM OF MOTOR CORTEX

Tumors of the motor cortex are preeminently associated with this dramatic form of epilepsy. The spasm may be limited to the face or the upper or lower extremity. At times in such cases the spasm partakes of the nature of the epilepsia partialis continua first described by a Russian, Koshewnikow, and later by Spiller and by Burr. By epilepsia partialis continua is meant a form in which clonic movements at different sites occur between attacks of major epilepsy; sometimes this type of epilepsy is seen in organic disease of the motor cortex.

Case 1.—U. F., a negro, aged 26, who came to the nervous dispensary of the Hospital of the University of Pennsylvania, Sept. 20, 1920, and was referred to the nervous ward, complained chiefly of convulsions. He was well until January, 1920. At this time while sitting talking he suddenly felt sick and began to make a grunting noise, while his head jerked rapidly back and forth. His eyes were glassy, he frothed at the mouth, he bit his tongue, and he had an involuntary evacuation of urine. This attack lasted several minutes. He did not fall from his chair and his legs and arms did not move, although he was unconscious during the attack and slept for about an hour afterward. He has had a number of attacks since the first one, but of late they have been less in number and in severity. Three months ago he began to have trouble in speaking. For the last two months he has been drowsy and frequently yawns, and has suffered from severe headache. For the last few weeks he has complained of weakness of the right foot. His previous medical history and family history were negative.

During the examination the patient fell asleep several times and had to be aroused. His station and gait were normal. The pupils were equal and regular, and reacted sluggishly to light but well in accommodation. The ocular movements were well performed; there was no nystagmus or hemianopsia, The examination of the eyegrounds by Dr. Baer revealed a choked disk of 6 diopters on both sides, and a number of retinal hemorrhages. The right side of the patient's face presented frequent rhythmic twitchings. This was usually more pronounced when the patient tried to show his teeth. There was weakness of the lower part of the right side of the face. The grip of the right hand was weaker than that of the left. The patellar reflexes were absent, and plantar stimulation produced a normal response on both sides. The patient understood everything that was said to him. The blood Wassermann test was negative. Oct. 13, 1920, Dr. Charles H. Frazier removed a large tumor from the motor area on the right side involving chiefly the arm center. The tumor on histologic study proved to be a tuberculoma. The patient made a good surgical recovery, but now has renal tuberculosis.

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* Read before the Section on Medicine, College of Physicians, Philadelphia, Jan. 24, 1921.

* From the Neurological Department of the University of Pennsylvania School of Medicine and the Philadelphia General Hospital.

Many instances of jacksonian spasm due to neoplasm of the motor cortex could be recited, but the one reported above will suffice for this etiologic factor.

JACKSONIAN SPASM FROM OTHER CAUSES

Lesions of the motor cortex other than tumor may be assciated with hemispasm. These are: (1) subdural hemorrhage; (2) meningo-encephalitis; (3) localized meningitis; (4) depressed fracture; (5) brain abscess; (6) cerebral softening secondary to vascular disease; (7) foreign bodies; (8) multiple sclerosis (Patrick), and (9) angioma. The mode of onset, a history of injury, serologic studies and examination of the cerebrospinal fluid will help to differentiate such conditions from brain tumor.

Neoplasm in parts of the brain remote from the cortex may produce typical jacksonian spasms which differ in no way from those of the motor cortical type; thus, tumors in the cerebellopontile angle occasionally are associated with such a complex. Such cases have been reported by Mills, Weisenburg, Spiller and others. While rare, such a condition is of extreme importance from the standpoint of localization and operation. Case 2 is one of this kind:

CASE 2.—W. S., a man, aged 33, who came to the Hospital of the University of Pennsylvania, Oct. 19, 1915, complained chiefly of blindness and headache. Three years before he had been hit on the right side of the head by a brick which fell three stories. He was unconscious for ten minutes, but then resumed his work and had no after-effects. Two years later he began to have attacks of "drawing" on the left side of the face. The attacks lasted only a few minutes, and occurred once or twice a day. The right eyelids were involved in the attacks, and at times he fell to the ground during a spell. Shortly after the onset of the attacks his eyesight began to fail, and three weeks before admission to the hospital he became totally blind. The man said that his hearing had been poor in the left ear for four years.

There was light perception in both eyes, with a subsiding choked disk and secondary atrophy. There was distinct weakness of the left side of the face, accompanied by nerve deafness on the same side. The corneal reflex was absent on the left side. There was dysmetria in the finger to nose test on the left. Cerebellar catalepsy and adiadokokinesis were absent on both sides. The Bárány tests, like the physical examination, pointed to a lesion in the left cerebellopontile angle. At necropsy a tumor was found in this place.

In this case the jacksonian spasm limited to the left side of the face was due to the irritation of the seventh nerve. A misleading fact in the history was the head injury, one year before the onset of the spasm, although diminution of hearing on the left preceded the accident by one year.

Tumors in parts of the cerebrum other than the motor region, and even of the cerebellum, may cause unilateral spasm. Collier has observed hemiepilepsy in one case of tumor of the pons and in two cases of tumor of the cerebellum, and he attributes the spasm to the hydrocephalus produced by the tumor. Cases of this nature, i. e., hemispasm from the new growth elsewhere than in the motor cortex, should be carefully studied for evidence that will definitely localize the tumor. Neoplasms originating in parts of the brain contiguous to the motor cortex may produce jacksonian attacks by invasion of the motor area. Jacksonian spasm occurring late in the history of cases of brain tumor should be regarded with suspicion, so far as their localizing value is concerned.

Unilateral spasms are sometimes observed in toxic states, namely, diabetes, uremia, acute infectious diseases and alcoholism, without any demonstrable pathologic change in the motor cortex. Oppenheim says that alcohol is especially likely to produce this. A condition of status hemiepilepticus may develop from an accumulation of attacks of the jacksonian type, as a result of toxic causes:

CASE 3.—A number of years ago I was asked to see a patient in one of the medical wards of the Philadelphia General Hospital. The man, who was 48 years of age, had been picked up by the police on the street and was taken to the hospital because of unconsciousness and convulsions. On admission to the ward he was in coma and had jacksonian attacks limited to the right side of the body. The spasms were frequent in number and were separated by short intervals. This condition continued for several hours, and when I examined him there was an exhaustion paralysis of the right side with only occasional twitchings. There was no history obtainable; because of the distinct unilaterality of the convulsions associated with unconsciousness, it was thought that we had to deal with a subdural hemorrhage. It was therefore decided that an operation was indicated; but before the surgeon arrived, death had taken place. At the necropsy the cortex was found normal, and there was no evidence anywhere of injury or disease. Dr. E. A. Leonard, assistant chief resident physician at the hospital, attended the necropsy and recognized the man as one who frequently was a patient in the ward for alcoholics. Dr. Leonard informed me that the man frequently had general convulsions when drunk.

I have recently seen a patient with the myoclonic type of epidemic encephalitis in whose case the question of a focal lesion of the motor cortex arose. The movements were chiefly confined to the right upper extremity; they were rhythmic and occurred about forty-five times to the minute. Because of the mode of onset and of the picture in general, the diagnosis of a localized lesion in the motor cortex was untenable. While the complete microscopic studies of the central nervous system have not as yet been made, it is entirely proper to say that no gross pathologic condition of the motor region was found at necropsy.

Reflex epilepsy may give rise to monospasm. By reflex epilepsy is meant a form of local or general convulsion which is dependent on an old injury of an extremity or of the face. Some writers regard this as a manifestation of hysteria, but Oppenheim is convinced that such is not the case. In this form of spasm there is an aura which arises in the injured part of the body and is felt as paresthesia or twitching. The twitching may remain localized for a long time to the extremity which was injured, but may ultimately become general and be associated with unconsciousness.

Hysteria may be the cause of jacksonian epilepsy. This type of hysteria is not nearly so common as a localized paralysis or as a tremor confined to one upper extremity. I cannot recall having seen a jacksonian spasm among the numerous psychoneurotics with whom I came in contact in the army. The general make-up of the individual, and a careful evaluation of the signs and symptoms present and absent, should render a diagnostic mistake remote and unlikely.

HEMISPASM IN IDIOPATHIC EPILEPSY

I now come to the part in the discussion of jacksonian epilepsy on which I desire to place particular emphasis. I refer to the attacks of hemispasm which occur in idiopathic epilepsy. Many textbooks make no reference at all to this important condition, and others dismiss it with little consideration. Some neurologists, Collier and Mills in particular, believe that idiopathic epilepsy is the commonest cause of jacksonian epilepsy. Because of the frequency with which unilateral or monospasm is used as a means of localizing real or suspected brain lesions, it will be readily appreciated that many skulls have been and will be opened without an explanation for the attacks being found. Another point of great interest in the discussion of this variety of jacksonian attacks is that a status hemiepilepticus may occur, and it has been found by Leenhardt and Norrero in one family to be an hereditary form of epilepsy.

Cases 4, 5, 6 and 7 illustrate the type of idiopathic epilepsy with an inside jacksonian spasm:

Case 4.—E. C., a boy, aged 13, had double pneumonia when he was 2 years old, and a month or two later began to have convulsions. He continued to have these attacks rather frequently until he was 5 years old. He was then free of attacks for five years. Since then he has had frequent spells, at least twice a month, and on a few occasions has had status epilepticus. The history as obtained from the father showed that the spasms were distinctly unilateral and on the left side. There was no history of a signal symptom and serial order of phenomena.

The examination of this boy was entirely negative: station, reflexes, sensation, muscular power, eyegrounds, roentgen-ray and blood.

An operation was performed, exposing the right motor cortex, but nothing of a pathologic nature was found.

Case 5.—A. G., a man, aged 60, has had attacks for the last five years. In these attacks he makes a grunting sound and becomes unconscious. For the last few months he has had spells in which his right hand moves in a clonic manner; some of these attacks are associated with unconsciousness and some are not. There is no weakness of the hand; in fact, his entire examination was negative. An organic lesion of five months' duration should have produced physical signs of some nature.

Case 6.—K. F., a man, aged 33, has had convulsions since the age of 15. Shortly after the onset of the attacks it was noticed that the convulsions were preceded for some minutes by a tonic spasm of the right foot in eversion shortly followed by twitching of the foot and then by a general convulsion with loss of consciousness, incontinence of urine and the usual signs of a real epileptic attack. Some attacks consisted entirely of a monospasm of the foot. He was trephined over the left motor area, but nothing of a pathologic nature was found. When I saw him about one year ago he was a confirmed epileptic; there were no signs of organic cerebral disease and no evidence of a tumor. The attacks have not changed in their character except that the number of general spasms has been reduced, although the spasms of the foot are more numerous than before.

Case 7.—H. S., a girl, aged 3 years, had had convulsions for one year, the attacks usually occurring during sleep. The child made a gulping noise, her gaze became fixed, and she fell to the ground if not in bed. The convulsion which followed was always confined to the left side and was followed by sleep. Paralytic phenomena on the left side usually succeeded the convulsions and lasted from twenty minutes to an hour.

The physical examination of this child was entirely negative; there was no evidence of tumor, encephalitis, or injury to the brain. She was sent to the Hospital of the University of Pennsylvania for an operation, however, because of the hemiepilepsy, but this was advised against because the condition was considered to be idiopathic epilepsy.

Many more cases illustrative of the fact that jacksonian spasm is frequently seen in idiopathic epilepsy could be cited, but I think that a sufficient number have been reported to make the point clear.

Why this form of spasm is seen in epilepsy is difficult or impossible to say; it may be that there is a cellular change in the motor cortex, although Muller in a number of cases found no cellular change whatever. In some of Muller's cases, status hemiepilepticus occurred with death in a few instances.

CONCLUSION

Jacksonian spasm is by no means diagnostic of a lesion of the motor cortex. Probably the commonest cause of this form of spasm is idiopathic epilepsy itself, and a careful examination with close scrutiny of the facts and history may prevent many errors in diagnosis. A person with jacksonian epilepsy should not be operated on unless other signs and symptoms of intracranial disease are present.

For the use of cases I am indebted to Drs. Mills, Spiller, Anders and Potts.

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ACTION OF MERCUROCHROME-220 ON THE GONOCOCCUS *

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In a recent paper, Young, White and Swartz [1] presented the results of laboratory and clinical trials of mercurochrome-220, the first drug of the mercurochrome series to be extensively investigated. The laboratory work included in their paper comprises tests of the germicidal power of this drug against *B. coli* and *Staphylococcus aureus*. These tests were performed with a slight modification of the usual method for testing germicides, based on that recommended by Rideal and Walker.[2] The results showed a strikingly high germicidal power for this drug, with the further fact that its maximum action occurs in a short time. This characteristic distinguishes it from certain other drugs, such as the flavines, to secure the maximum effect of which contact must be maintained over a much longer period.

The new drug received clinical trials in this institute in cystitis, pyelitis, urethritis and venereal ulcerations. Its use in urethritis had to be based on the assumption that its germicidal power for the gonococcus would be analogous to that for the other organisms. It was felt, however, that such use should have a definite laboratory foundation, and in addition, direct results with the gonococcus were needed in order to make the clinical observations apply to our problem of determining to what extent germicidal power runs parallel to therapeutic efficiency.

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* From the James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore, with the Aid of Funds granted by the United States Interdepartmental Hygiene Board for the Study of the Prevention and Cure of Venereal Diseases.

[1] Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in the Genito-Urinary Tract: Mercurochrome-220, J. A. M. A. **73**: 1483 (Nov. 15) 1919.

[2] Rideal and Walker: The Standardization of Disinfectants, J. Royal. San. Inst. **24**: 424, 1903.

METHOD

Tests with the gonococcus could not at once be performed, owing to the absence of a suitable method. We therefore set about developing such a method.

TABLE 1.—RESULTS OF FIVE MINUTE TESTS ON MERCUROCHROME 220 *

	Strength of Solutions								Control
	1:200	1:400	1:800	1:1,200	1:1,000	1:2,000	1:4,000	1:6,000	
24-hour reading	0	0	0	0	0	0	0	+	+
48-hour reading	0	0	0	0	0	0	0	+	+
7 day reading	0	0	0	0	0	0	0	+	+
Tubes inoculated	+	+	+	+	+	+	+	+	+
24-hour reading	+	+	+	+	+	+	+	+	+
48-hour reading	+	+	+	+	+	+	+	+	+

* In this table, + indicates growth of gonococcus; 0, no growth of gonococcus.

The technic finally adapted has been fully described in a paper by Davis and Swartz.[3] The method of cultivating the gonococcus is that of Swartz[4]:

> One c.c. of the emulsion is pipetted into a centrifuge tube of diluted drug. The tube is placed in the water bath at 37.5 C. for eighteen minutes. At the end of this time, it is centrifuged at high speed for two minutes.. The supernatant fluid is poured off, and a quantity of salt solution pipetted in. This makes the complete time of action of the drug twenty minutes. The tube is then spun a second time, and the wash fluid poured off. The gonococci settle readily in the centrifuge, and form a compact mass at the tip of the tube, which can be transferred almost *en masse* to a tube of fresh medium. This is corked and incubated, as described by Swartz.[4] It is our custom to inoculate, after seven days, all tubes on which no growth has occurred, with fresh cultures of gonococci. If they develop, we assume that enough of the drug has not been carried over to the test medium to prevent growth. The final growths are examined microscopically with the Gram stain. None of the stains with which we worked grew on ordinary mediums.

TABLE 2.—RESULTS OF TWENTY MINUTE TESTS ON GONOCOCCI WITH MERCUROCHROME 220 IN FRESH SOLUTION *

	Strength of Solutions							Controls	
	1: 1,000	1: 2,000	1: 4,000	1: 8,000	1: 16,000	1: 32,000	1: 64,000	Water	Sodium Chlorid
24-hour reading	0	0	0	0	0	+	+	+	+
48-hour reading	0	0	0	0	0	+	+	+	+
7 day reading	0	0	0	0	0	+	+	+	+
Tubes inoculated	+	+	+	+	+				
24-hour reading	+	+	+	+	+				
48-hour reading	+	+	+	+	+				

* In this table, + indicates growth of gonococcus; 0, no growth of gonococcus.

RESULTS

Tests were made during periods of five and twenty minutes, the results of which are shown in Tables 1 and 2. These results may be compared with those obtained with drugs commonly employed in the treatment of gonorrhea, and shown by us in a recent paper.[5] If the dilution at which mercurochrome-220 kills gonococci in twenty minutes, 1:16,000, is divided by the dilution at which it may be used in the urethra, 1:50 (2 per cent.), it will be seen that this therapeutic strength is 320 times as strong as that necessary to kill.

In checking our results for the twenty-minute period, we used a stock solution of mercurochrome-220 which had been standing in the laboratory for some time, and were surprised to find that our tests no longer showed a killing at 1:16,000, but that growths occurred after treatment with strengths as high as 1:4,000. It seemed at first that the age of the solution could not be the cause of this discrepancy, since mercurochrome-220, as stated in the paper of Young, White and Swartz,[1] gives a permanent solution which shows no marked precipitation or other visible change on standing. Chemical tests revealed no decrease in the mercury content. Recently, Cullen and Levy[6] and Macht and Shohl[7] have shown that the change in reaction of certain drug solutions on standing in ordinary glass is sufficient to diminish or destroy their effects. The solution in question had been kept in a flask made of resistance glass, and tests of its reaction detected no change. In order, however, to settle the point, new tests were made with a fresh solution, which killed at 1:16,000, as expected. The same solution was allowed to stand in a flask of

TABLE 3.—RESULTS OF TWENTY MINUTE TESTS ON GONOCOCCI WITH MERCUROCHROME 220 SOLUTION ONE MONTH OLD *

	Strength of Solutions					Controls	
	1:4,000	1:8,000	1:16,000	1:32,000	1:64,000	Water	Sodium Chlorid
24-hour reading	0	+	+	+	+	+	+
48-hour reading	0	+	+	+	+	+	+
7-day reading	0	+	+	+	+	+	+
Tubes inoculated	+						
24-hour reading	+						
48-hour reading	+						

* In this table, + indicates growth of gonococcus; 0, no growth of gonococcus.

TABLE 4.—RESULTS OF TWENTY MINUTE TESTS ON B. COLI WITH MERCUROCHROME 220 *

	Strength of Solutions								Controls	
	1: 25	1: 50	1: 100	1: 200	1: 400	1: 800	1: 1,600	1: 3,200	Water	Sodium Chlorid
24-hour reading	0	0	0	0	0	0	+†	+	+	+
48-hour reading	0	0	0	0	0	+	+	+	+	+
7-day reading	0	0	0	0	0	+	+	+	+	+
Tubes inoculated										
24-hour reading	+	+	+	+	+					
48-hour reading	+	+	+	+	+					

* Plus sign, growth of B. coli; 0, no growth of B. coli.
† Very few colonies.

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[3] Davis, D. M., and Swartz, E. O.: The Testing of Germicidal Substances Against the Gonococcus, J. Infect. Dis. **27**: 591 (Dec.) 1920.

[4] Swartz, E. O.: A New Culture Method for the Gonococcus, J. Urol. **4**: 325 (Aug.) 1920.

[5] Swartz, E. O., and Davis, D. M.: The Action on Gonococcus of Various Drugs Commonly Used in the Prophylaxis and Treatment of Gonorrhea, J. Urol., to be published.

[6] Levy, R. L., and Cullen, G. E.: Deterioration of Crystalline Strophanthin in Aqueous Solutions; Its Relation to Hydrogen Ion Concentration, and a Method for Its Prevention, J. Exper. Med. **31**: 267 (March) 1920.

[7] Macht, D. I., and Shohl, A. T.: The Stability of Benzyl Alcohol Solutions, J. Pharmacol. & Exper. Therap., to be published.

pyrex glass for one month, and at the end of that time gave the results shown in Table 3. It is therefore apparent that some change, the nature of which we have not determined, occurs in solutions of mercurochrome-220 on standing which diminishes greatly its germicidal value.

Further tests were made with the same technic, but with *B. coli* and *Staphylococcus aureus* as the test organisms. The results are shown in Tables 4 and 5. These results differ somewhat from those of Young, White and Swartz,[1] but this difference is due to the different method employed. A full discussion of the factors involved will be found in the paper by Davis and Swartz.[3] A solution of mercurochrome-220 which will kill *B. coli* in twenty minutes is about forty times as concentrated as that required to kill the gonococcus in the same period. The staphylococcus required about four times the strength necessary for *B. coli.* These figures correspond well with those obtained with potassium mercuric iodid.[5]

In another series, emulsions containing different numbers of bacilli were used, all being treated with 1 : 4,000 mercurochrome-220. This series was undertaken simply to demonstrate the effect on the results of the number of organisms in the emulsion. The original emulsion, and a 1 : 10 dilution of it, grew after treatment with 1 : 4,000 mercurochrome-220. A 1 : 100,000 dilution, however, showed no growth after treatment with the drug, while a plate made directly from 1 c.c. of the same dilution had a great many colonies (about 10,000, calculating from the plates of weaker dilutions). It may be inferred from these figures that the technic used in this paper gives the test drug a difficult task, since it must act in such a heavy emulsion, and is brought in contact with at least as many organisms as will be the case in the urethra, and probably many more.

TABLE 5.—RESULTS OF TWENTY MINUTE TESTS ON STAPHYLOCOCCUS AUREUS WITH MERCUROCHROME 220 *

	Strength of Solutions							Controls	
	1: 50	1: 100	1: 200	1: 400	1: 800	1: 1,600	1: 3,200	Water	Sodium Chlorid
24-hour reading	0	0	0	0	0	0	0	+	+
48-hour reading	+2†	+1†	0	+10†	+50†	+	+	+	+
7 day reading	....	....	0						
Tubes reinoculated	....	....	+						
24-hour reading	....	....	+						
48-hour reading	....	....	+						

* In this table, + indicates growth of staphylococcus, and 0, no growth of staphylococcus.
† Figures indicate number of colonies.

COMMENT

These experiments demonstrate that mercurochrome-220 has a powerful germicidal action against the gonococcus. In clinical trials, while it has proved to be a useful agent in the treatment of gonorrhea, it is not a panacea for all gonococcal infections. We have reason to believe, however, that it by no means represents the maximum germicidal potency which it will be possible to attain in the mercurochrome series.

Our results showing a rather rapid decline in the germicidal power of mercurochrome-220 when its solutions are allowed to stand are of importance to those who have used this drug therapeutically. Owing to the apparent stability of the solutions, many have made them up in large quantities, to be used as occasion offered. This may explain many of the conflicting clinical results, and failures to obtain the expected effects. Solutions of mercurochrome-220 should undoubtedly be made freshly for clinical use.

CONCLUSIONS

1. Mercurochrome-220 shows a powerful germicidal effect against the gonococcus.
2. The gonococcus is about forty times as susceptible to the action of mercurochrome-220 as *B. coli.*
3. Solutions of mercurochrome-220 lose their germicidal potency on standing, and should therefore be used only when freshly made.

POSTURAL REST FOR PULMONARY TUBERCULOSIS

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Of the countless methods suggested and tried in the treatment of the various forms of tuberculosis, that which has more and more gained approval, from its successful application, has been the principle of rest. Applied first by surgeons to the treatment of tuberculosis of the spine and of the joints, rest has more recently been approved in tuberculosis of the larynx by the enjoining of silence over an unlimited period, and in pulmonary tuberculosis by the application of artificial pneumothorax.

Curiously, physicians have never thoroughly carried out the simple procedure of postural rest in the treatment of patients with pulmonary tuberculosis. In a former paper,[1] we first called attention to this neglect. Since that time so many more excellent results in more than 200 patients have been obtained, and at the same time so little attention has been given to the subject by those who specialize in pulmonary tuberculosis, that we may be excused for again presenting this principle. The failures encountered have been in patients either too far advanced with bilateral disease, or in those considered favorable for the application of this procedure, but who failed to carry it out faithfully.

The majority of patients afflicted with pulmonary tuberculosis are instructed at some time by their physicians to rest in bed. This, however, is as far as the average physician carries out his idea of rest for the lungs. The fact is overlooked that the patients may have a special preference for the side on which they recline. If they are not guided, it will be found that the majority will rest on the side of the least diseased or normal lung, because in this position their expectoration drains more easily. It is a simple matter to note, with the stethoscope, the feebleness of the respiratory murmur of the recumbent lung, and the possible exaggerated breath sounds of the uppermost lung when a normal person is lying on one side. Although pulmonary tuberculosis is eventually a bilateral disease, yet in general one lung is likely to be more involved at the onset, and later more actively diseased than the other. These conditions are, of course, recognized in the application of artificial pneumothorax.

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[1] Webb, G. B.; Forster, A. M., and Houck, F. M.: Rest of the Individual Lung by Posture, J. A. M. A. **67**: 1422 (Nov. 11) 1916.

Normal respiration takes place more than 1,000 times an hour, and more than 24,000 times in twenty-four hours. Should a patient with a tuberculous lesion of the upper lobe of the right lung be permitted to spend much time resting in bed on his left side, it must be considered that movement of the diseased lung will take place 1,000 times each hour! What would be the healing result in a tuberculous joint should even slight motion 1,000 times an hour be allowed?

As we before pointed out, the majority of individuals prefer sleeping on the right side. Of 529 healthy soldiers investigated, the sleeping position resulted about as follows: right side, 48 per cent.; left side, 23 per cent.; either side, 20 per cent.; back, 8 per cent., and stomach, 1 per cent. Several factors appear to determine the position taken in sleep, such as basal obstruction, the desire to avoid the light, and the consciousness of the heart beat.

The movements of the chest and of the diaphragm have been studied with the fluoroscope in persons lying on one side. Briefly, the ribs of the recumbent lung are close together, and there is less motion of this side than of the uppermost lung. The diaphragm on the side of the recumbent lung is seen to make greater excursions than that of the uppermost lung. From some observations that we have made, this increase soon subsides.

Pulmonary tuberculosis is usually in the early phase a disease of the upper lobes, and the movement of these lobes is easily controlled by postural rest. As a matter of practical experience we have not noted that postural rest, with the preliminary increased excursion of the diaphragm, brings any disaster to patients when the disease has involved the lower lobe. Usually when such a phase of the disease is reached, pleural adhesions are likely to prevail, and these possibly modify the motion of the diaphragm.

In the normal person there is little hyperemia of the dependent lung during sleep. In a tuberculous patient a moderate degree of hyperemia is produced by prolonged rest on the affected side. Certainly such prolonged rest does naturally assist in the moving over of the heart and of the mediastinum to the side of the more diseased and dependent lung. We have seen the heart drawn over and fixed much more rapidly than would be usual without postural rest.

It may be objected that the complete application of postural rest is an unnecessary and a severe form of treatment. It has been surprising, however, to observe how kindly and thoroughly patients will accept the procedure if led to it gradually. In patients with much expectoration, a short time several times a day is allowed to be spent lying on the less affected lung. This accelerates drainage. The patient then turns on the side of the more diseased organ, beginning with only a few minutes and gradually increasing the time until twenty hours or more a day are spent lying in this position. A small pillow is often placed under the ribs to increase the splinting effect. Results are obtained in a few weeks by the application of this thorough rest which are comparable to those obtained more quickly by artificial pneumothorax. Fever will subside, cough will cease, and sputum of many ounces may decrease to a mere trace. It has been of special interest to note the decrease and at times almost complete disappearance of râles. Many patients, considered as certainly requiring the application of artificial pneumothorax, have been restored to health by this simple procedure. A few cases may serve to illustrate the method and the results:

REPORT OF CASES

CASE 1.—Mrs. M., aged 35, sent to Colorado by her physician with the request that artificial pneumothorax be applied, had active disease with softening in the upper lobe of the right lung. There was expectoration of 3 ounces, and continued fever with somewhat severe exacerbations every few weeks. The patient was kept in bed on a sleeping porch three months, with no improvement. During a visit one afternoon, the patient was found asleep. It was noted that she was sleeping soundly on her left side. The increased motion of the right side was noted. On waking, the patient reported that she always had favored the left sleeping posture, and that most of her day was so spent. The method of postural rest was then explained. This was by degrees carried out very thoroughly. All symptoms gradually improved, and in six months all sputum had disappeared and the râles in the upper right lobe had greatly diminished. Within a year the patient was allowed to go to her eastern home, the râles having completely vanished. The patient has been seen at times since, and the arrest of the disease has persisted.

CASE 2.—Mr. G., aged 36, had extensive tuberculosis of the right lung, with a cavity in the upper lobe, and slight involvement of the left lung. The daily temperature rose to 100 and 101. Sputum was 6 ounces daily. The patient resided in a private cottage He was instructed to rest on the right side. After three months his condition was unimproved. Artificial pneumothorax was unsuccessfully attempted. The patient had had a diagnosis of tabes dorsalis made by a well known eastern neurologist, because of repeated attacks of supposed gastric crises, coupled with a definite history of syphilis. Two intravenous injections of arsphenamin were given: no effect on the tuberculous disease was noted. A consultant advocated the intrathecal injection of arsphenamin. While undergoing this treatment the patient was instructed that he must absolutely keep flat in bed and not raise the head, and that the right side posture must be maintained. Six doses were given at weekly intervals. Within two days after the first intrathecal injection of arsphenamized serum the temperature dropped to normal and the sputum gradually diminished to a mere trace in twenty-four hours. We were at a loss to explain this sudden and marked improvement. We learned, however, that the patient had not carried out the postural rest at first as we had prescribed it. He thought there was little harm in going to the toilet several times a day, in sitting up to meals, and in resting in a reclining chair. He was soon convinced of the efficacy of the proper carrying out of postural rest. The cavity and the area of involvement had markedly shrunk, and the heart and mediastinum have definitely moved across the chest.

This case taught us how much more thoroughly we should insist that the procedure of postural rest must be carried out.

CASE 3.—A man, aged 20, had an early lesion of the right upper lobe. The temperature on admission went to 99.4. There was very slight cough and expectoration. He was in bed on the right side for two months. At the end of three weeks the temperature was normal. At the end of two months he had gained 20 pounds. The râles in the right upper lobe were definitely less.

CASE 4.—A man, aged 22, had extensive involvement of the entire left lung, with slight signs in the right apex. He was in bed eight months on the left side. On admission the temperature rose to 100, and there was considerable cough and expectoration. At the end of eight months the patient was up and on exercise, with temperature normal, a gain in weight of 16 pounds, and with no cough or expectoration. The increased signs of fibrosis in this case were marked.

CASE 5.—A man, aged 22, had a far advanced lesion of the entire right lung with signs indicating beginning breaking down in the upper lobe, and slight signs in the left upper lobe. The temperature on admission was 100.5. Cough was excessive. The sputum was 6 ounces. After four months on the right side the temperature did not go above 99, there was a gain of 22 pounds, and the patient did not cough or expectorate for several days at a time. The sputum never exceeded 2 or three drams. For the first few weeks he noticed a definite increase in sputum, but the cough was diminished from the first. There was definite evidence of increase in fibrosis, with no increase in signs of softening.

Case 6.—A woman, aged 31, had a far advanced lesion of the left upper lobe with signs suggesting a cavity at the left apex, some involvement of the left lower lobe and fibrosis of the right upper lobe, but no signs of activity. This patient had been in Colorado for four years and had had periods of improvement but frequent exacerbations, cough was troublesome and she had about 2 ounces of sputum. After six months on the left side there is marked improvement in the physical signs, the cough and sputum have practically disappeared, the temperature is normal, and there has been no interruption in the improvement of the patient.

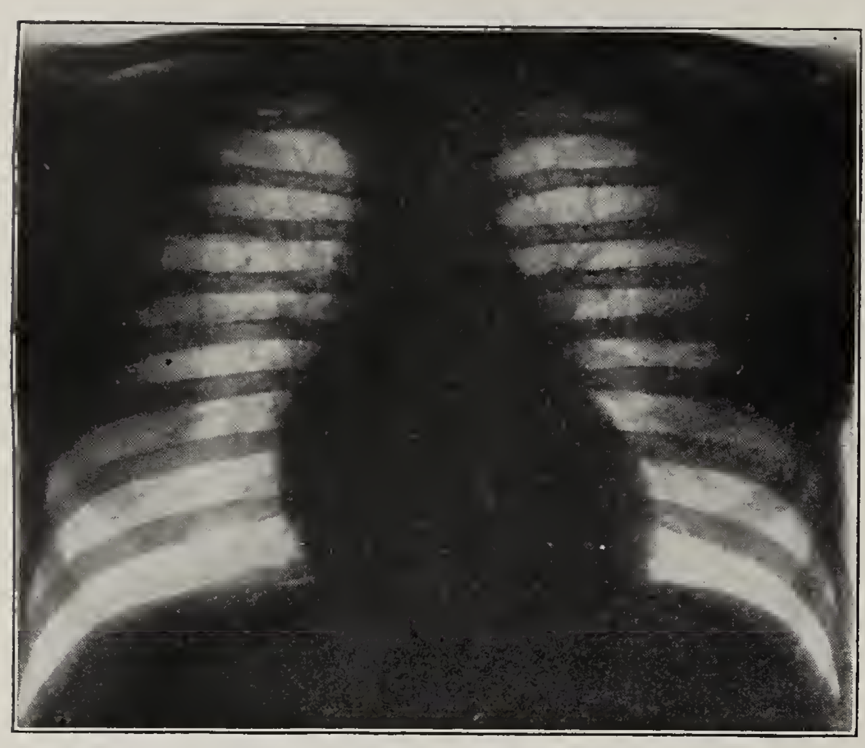

Fig. 1.—Normal chest, subject lying on back. This and the accompanying roentgenograms were taken of a normal young man, and are anteroposterior views.

Case 7.—A woman, aged 22, had an advanced lesion involving the entire left lung, with slight signs in the right upper lobe. The temperature on admission was 99.5. There were marked signs of fibrosis in this case on admission, but it is reported because in six weeks of postural rest all elevation of temperature, cough and expectoration had disappeared. The gain in weight was 12 pounds.

Case 8.—A man, aged 23, had a far advanced lesion of the entire left lung, with slight signs in the right upper lobe. The temperature was normal, the sputum 1 ounce. On account of the fact that this patient had been under treatment for two years and desired to finish his medical course, pneumothorax was attempted several times without result. There were periodic marked increases in the cough and sputum, but without elevation of temperature. After four months on the left side the cough and sputum had entirely disappeared except for the periodic attacks, and these have very markedly decreased in frequency and severity. There has been definite improvement in the physical signs.

Case 9.—A man, aged 22, had excessive involvement of the left upper lobe, with some signs in the left lower and the right upper lobe. He had been in Texas and Colorado for about a year, and the physical signs had apparently increased. From the condition of the left apex one would fear an early breaking down process. Cough was troublesome and sputum was about 1 ounce. The temperature was normal. After three months on the left side, cough and sputum practically disappeared. The lesion is apparently quiescent.

Case 10.—A man, aged 26, had far advanced involvement of the entire right lung, with numerous râles, particularly over the base. There was slight involvement of the left upper lobe. The patient had been in bed at home for eight months before coming to us (*on the left side*) with no improvement. Cough was excessive and sputum over 4 ounces. There was elevation of temperature to 101. After seven months on the right side there has been a gain of 24 pounds. The temperature is normal, cough and expectoration have practically disappeared, and evidence of moisture in the right side is markedly diminished.

Case 11.—A man, aged 34, had an extensive old fibrous lesion of the right upper and middle lobes, and an active lesion (more recent) of the left upper lobe. The patient was first put on the left side, and after eight months there was definite evidence of fibrosis, with marked diminution in the number of râles. Following a "cold" last winter there was evidence of lighting up of activity in the lower border of the lesion on the right, and râles appeared. The patient was then advised to lie on the right side, and after four months the signs on the right have practically disappeared.

COMMENT

We have had few patients in whom we could detect no change in signs or symptoms referable to the advice to lie on the active side. We have had several patients in whom improvement was noted, but resort to pneumothorax was necessary on account of the far advanced condition of the bad lung. In general, however, far fewer patients than formerly have needed treatment by pneumothorax.

We have noted several patients who apparently had instinctively rested the affected lung. One patient, in particular, had been lying on the right side since the disease developed seven years before. He had served in the army, and broke down only as a result of strenuous work.

In many patients, signs of cavitation in the upper lobe have entirely disappeared.

The procedure is also of value in patients with pulmonary hemorrhages. Eighteen years ago in one of our earliest cases, previously reported, with extensive disease of the left lung and with a series of hemorrhages, postural rest on the left side appeared to arrest the bleeding, and today, after eighteen years, the patient is in active work as a stenographer.

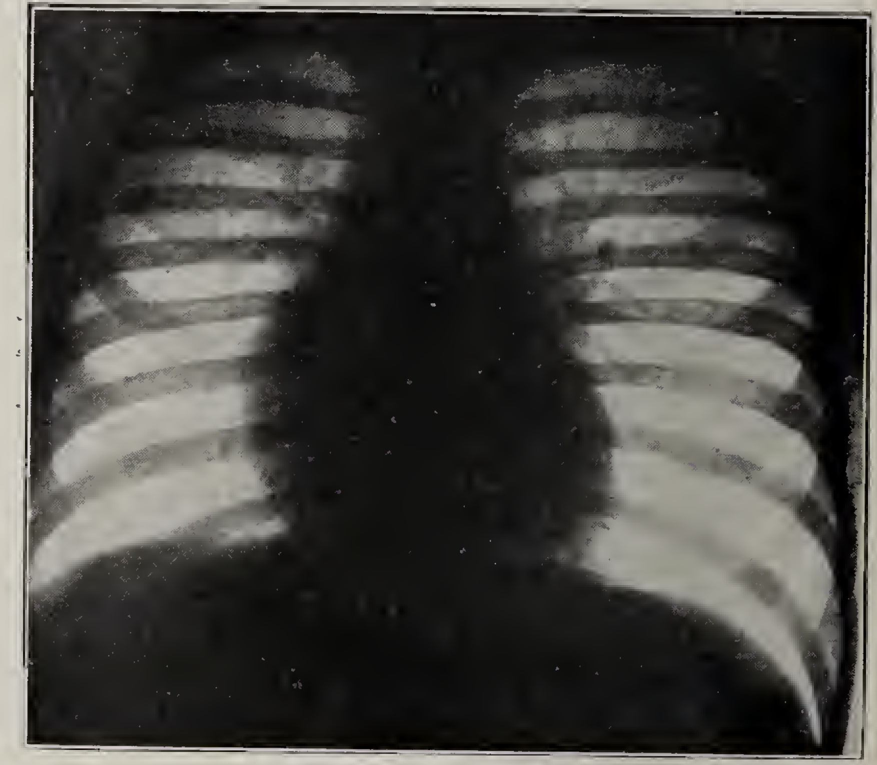

Fig. 2.—Appearance after subject has lain on right side one minute. Notice slight displacement of heart compared with Figure 1.

It cannot be too strongly insisted that postural rest must be most thoroughly carried out, careful nursing and care being given that sores on the recumbent ear, shoulder or hip shall not occur. The bed must be so arranged that the patient is not annoyed by light. A small, firm pillow under the recumbent side is helpful.

The almost complete disappearance of râles in many cases has led us to allow graduated exercise—sitting up, walking—too soon, so that râles have returned, although rarely have subjective signs returned.

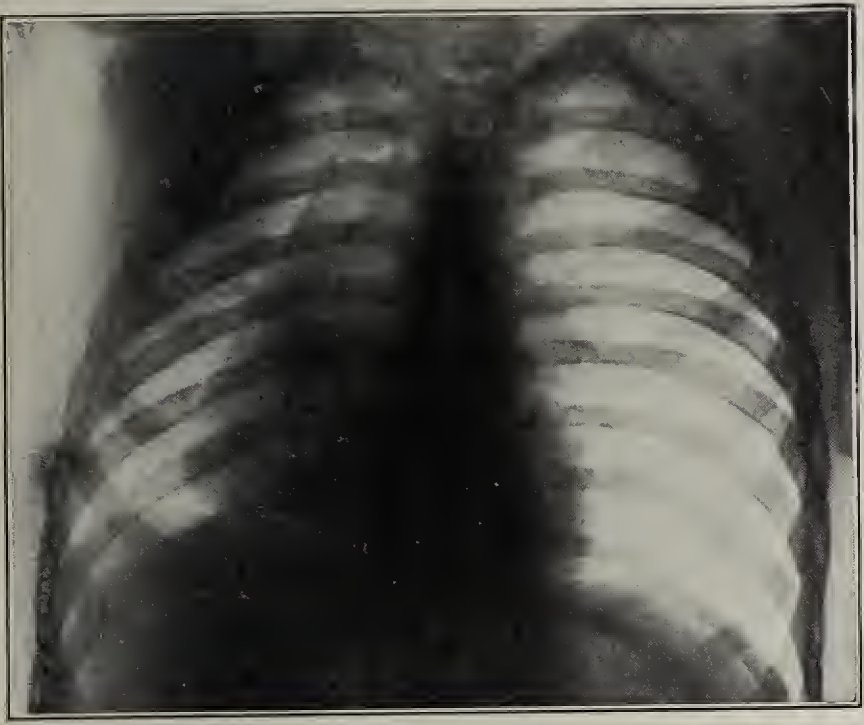

Fig. 3.—Appearance after subject has lain one hour on right side. Notice diminution of lung volume, closer proximity of right side ribs, high position of diaphragm, marked displacement of heart to right, and lack of aeration of right lung.

Just as in the postural treatment of tuberculous joints by surgeons, our confrères are not guided by disappearance of fever, increase of weight, or closing of sinuses, in respect to their taking away splints, so postural rest in pulmonary tuberculosis should be continued for many months after expectoration has diminished or ceased, or the temperature has remained normal. Such, indeed, is the usual procedure in artificial pneumothorax.

Pulmonary tuberculosis is likely to be unilateral when first discovered, and naturally these are the cases in which the greatest benefit will be derived. Should both lungs be diseased, one is usually the more active, and this should be rested. Should the disease be found equally active and advanced on the two sides, rest on the back is advocated. Bags of shot, the weight being gradually increased, can be placed over each upper lobe.

We are convinced that postural rest in pulmonary tuberculosis carried out with surgical splint thoroughness is the most valuable means we have at hand for the arrest and cure of this disease.

SOME ROENTGEN-RAY STUDIES

In 1917 at U. S. General Hospital No. 1, one of us (G. B. W.) made some fluoroscopic observations on the chest of a normal man recumbent on one side. The studies were interrupted, but they indicated that the increase in the excursion (about 2 inches) of the diaphragm of the lower side, and the lessened excursion (about ¾ inch) of the diaphragm on the upper side, became gradually equalized after an hour.

It has been objected that postural rest in pulmonary tuberculosis might be injurious because of the increase in excursion of the diaphragm on the side of the recumbent lung.

As we have pointed out in a former paper, on the recumbent side it will be noted that the breath sounds are more feeble, the ribs more closely approximated and that the heart is rapidly pulled to that side, owing in part to gravity.

The roentgen-ray studies have been more recently continued, the results being easily seen in the accompanying reproductions.

It will be noted that after rest for one hour on one side in a normal subject, the diaphragm is relatively high on that side, the heart is markedly moved over to that side, in some cases observed nearly 4 inches, the ribs are closer together, the lung volume is remarkably diminished, and the lung picture is obscured on account of the lack of aeration.

A subject at this time, on taking a deep inspiration, increases the aeration and so the transparence at the base, but the apex still does not illuminate, as will be seen.

Fluoroscopic study confirms all these findings, and in addition the increase of the excursion of the lower diaphragm gradually lessens and at the end of an hour in some cases, there is practically no difference on the two sides.

The possible explanation for the initial increase in excursion would seem twofold: The compression of the upper lobe might lead to compensatory increase in movement of the lower lobe. Since rest should diminish the demands of respiration, it would seem that this may not be necessary. It has occurred to us that the abdominal viscera dropping to the recumbent side force up the diaphragm, and this muscle would at first respond by increase in excursion. After some time, continued pressure of the abdominal viscera almost "splints" the diaphragm in its higher relative position. These roentgen-ray studies appear to us fully to justify the thorough application of the principle of postural rest in pulmonary tuberculosis, and certainly confirm us in advising that the procedure be given wide, thorough and complete trial.

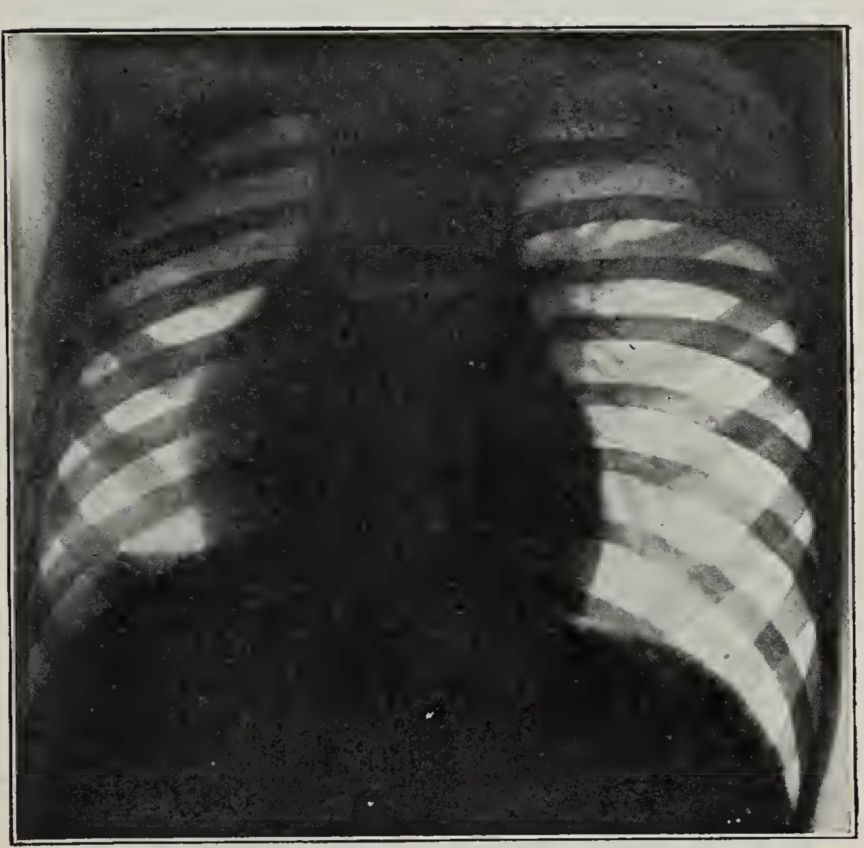

Fig. 4.—Subject has taken deep inspiration. Notice increase in illumination of right lung base; no increase in aeration of right apex.

THE EFFECT OF PHOSPHORUS IN RICKETS *

D. B. PHEMISTER, M.D.

E. M. MILLER, M.D.

AND

B. E. BONAR, M.D.

CHICAGO

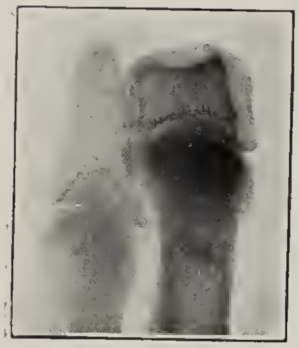

Fig. 1. — Dense zone produced by phosphorus in end of radius in young dog.

In a previous report, Phemister [1] showed in roentgen-ray studies the influence of phosphorus on the growth of normal bones and the bones in the growth disturbances of osteogenesis imperfecta and dyschondroplasia. A dense shadow formed at the growing ends of the shafts, which gradually increased in thickness as long as the phosphorus was given, but gradually faded after the discontinuance of the drug, and with further longitudinal growth of the shaft came to lie at a greater distance from the epiphysis. When phosphorus was again given, a similar line formed, which in turn faded after the phosphorus was stopped, and was carried deeper into the end of the shaft by subsequent growth. For some time after the discontinuance of the drug a slight excess in density was to be seen along the line of bone growth at the end of the shaft. Similar shadows formed about the periphery of the ossifying epiphyses, but were much narrower, owing to the slower rate of bone growth in this location. No influence on the transverse growth of the shaft could be seen in the roentgenograms that were made of normal bones, but in osteogenesis imperfecta the influence was as striking as on the longitudinal growth.

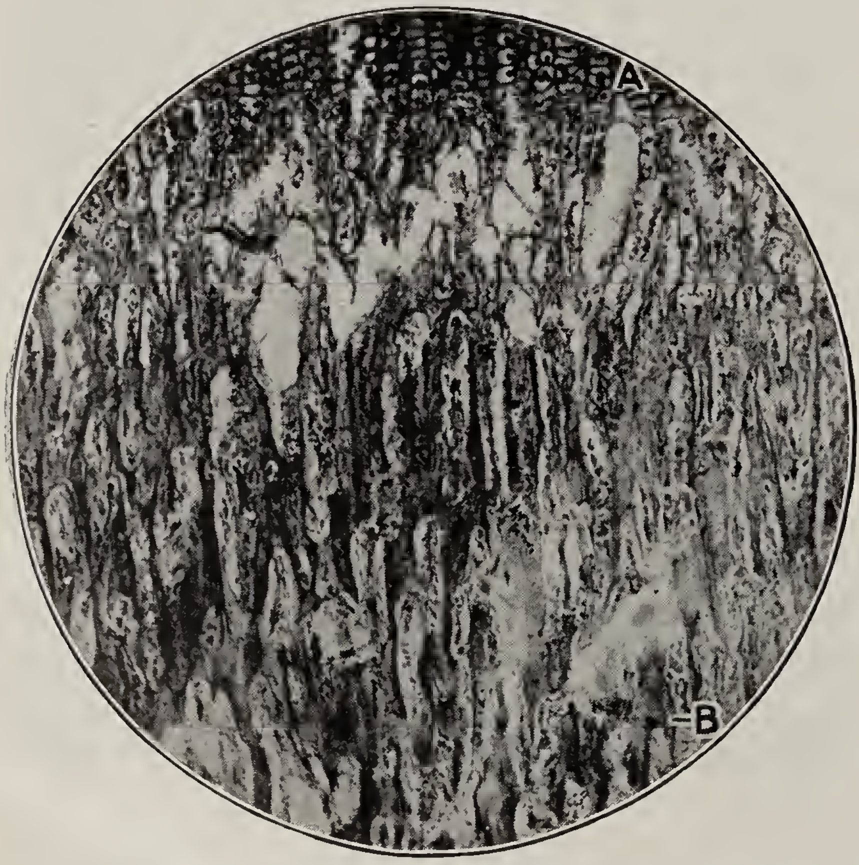

Fig. 2.—Microscopic appearance of dense zone of ossification in Figure 1 at its junction with (*a*) cartilaginous epiphyseal line; (*b*) crowded bony trabeculae.

Wegner's experiments on dogs have been repeated by Miller and Phemister, and his findings partially confirmed. The shadows are found to be due to a layer of densely packed, longitudinally arranged bony trabeculae that form from excessive activity in the zone of ossification at the end of the shaft. The adjacent zone of calcification, which is the only other portion which might possibly produce such a roentgenologic appearance, is not appreciably affected. Figure 1 shows the effect of $1/200$ grain of phosphorus twice daily for sixty-three days on the lower end of the radius of a young dog, and Figure 2 the microscopic appearance of its zone of ossification. No appreciable increase could be seen in the transverse growth of the shafts.

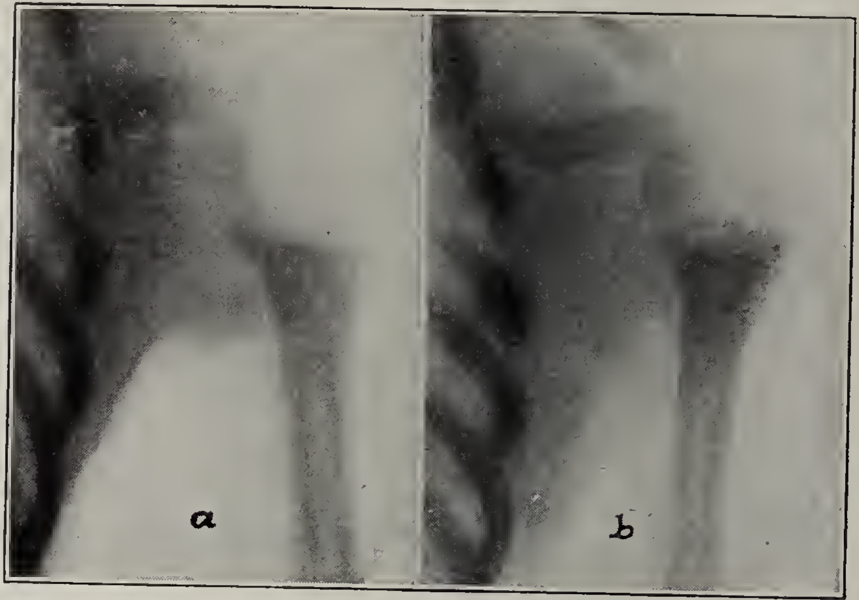

Fig. 3 (Case 1).—Rickets in upper end of humerus: *a*, before treatment; note faint shadow of epiphysis and end of shaft; *b*, forty-seven days after beginning of treatment.

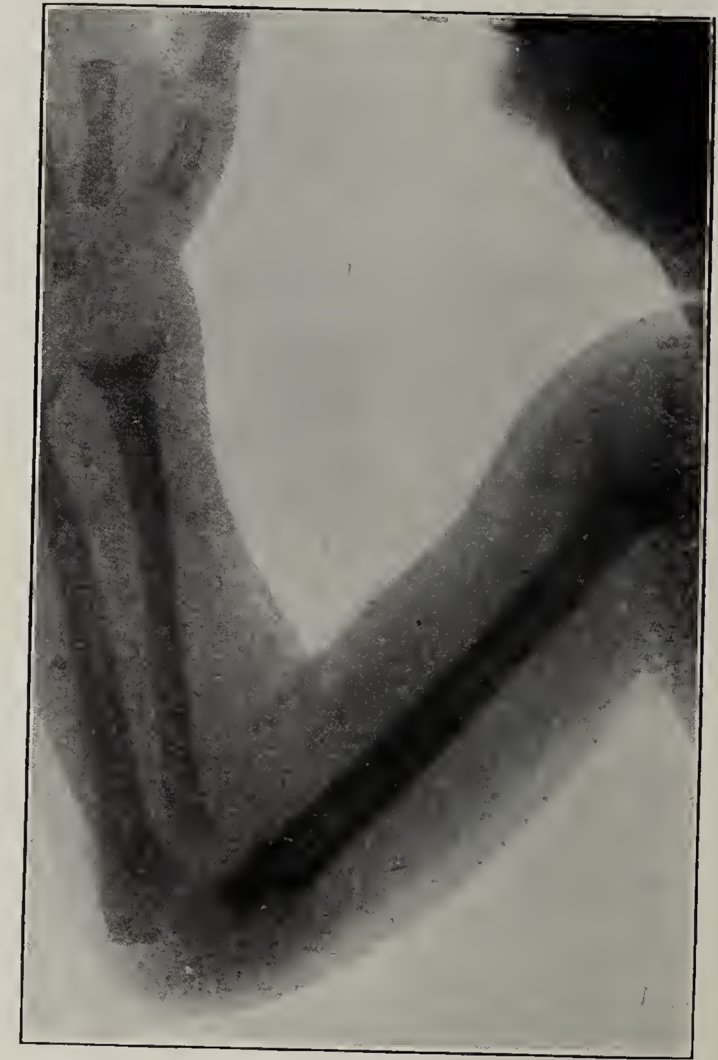

Fig. 4 (Case 1).—Forearm after sixteen days of phosphorus and cod liver oil treatment. Rickets still definite, but faint lines forming.

In the previous article this was suggested as a convenient way of demonstrating the effect of various therapeutic agents, such as phosphorus, cod liver oil and lime salts, on the bones in rickets, as compared with the indirect methods of Schabod and Schloss, based on calcium metabolism studies. An incomplete study of the influence of phosphorus and cod liver oil and of phosphorus alone has been made, and the cases reported below show some of the changes observed. The first two show the influence of phosphorus and cod liver oil, and the last two that of phosphorus alone. The findings are of interest in connection with the observations of Howland and Park as to the effects of cod liver oil alone on the bones in rickets. The patients presented the usual picture of rickets; consequently, their histories are not given in detail.

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* From the Presbyterian Hospital.

[1] Phemister, D. B.: The Effect of Phosphorus on Growing, Normal and Diseased Bones, J. A. M. A. **70**: 1737 (June 8) 1918.

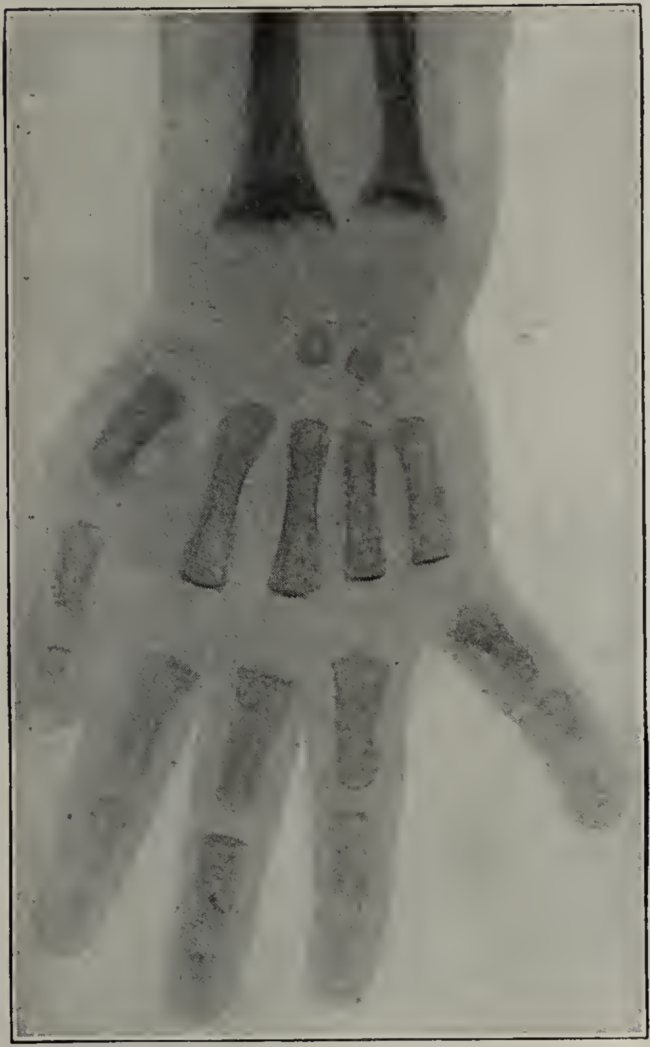

Fig. 5 (Case 1).—Same as Figure 4, forty-seven days after beginning of treatment. Note single dense lines at distal ends of second to fifth metacarpals.

REPORT OF CASES

Case 1.—D. P., aged 8 months, who had been fed on artificial food, entered the Presbyterian Hospital, Nov. 18, 1919, in the service of Dr. Grulee, with symptoms and findings of moderate rickets. Roentgen-ray examination gave typical rachitic findings. The ends of the bones of the forearm, arm and leg showed basket-shaped expansion of the juxta-epiphyseal portions and a frayed out condition of the end of the shaft. This change was most marked in the upper end of the humerus (Fig. 3 *a*) and the lower end of the radius, ulna and tibia, where growth was most marked. The child was fed on a 6 ounce mixture every four hours, consisting of whole milk, 15 ounces, water, 9 ounces, and sucrose, ½ ounce, and was put on 1 dram of cod liver oil and 1/150 grain of phosphorus three times daily. Roentgenograms taken December 4 (Fig. 4) disclosed signs of beginning ossification. There was a faint, irregular, double line at the ends of the shafts, forming the limits of the frayed out juxta-epiphyseal segment. The treatment was continued and new pictures were taken, Jan. 10, 1920 (Figs. 3 *b*, 5 and 6). The two lines at the end had increased in density, and the distal one bordering on the epiphyseal cartilage was thicker than the proximal, and irregular especially along its epiphyseal side, where in some regions, as the upper end of the tibia, there were small, tooth-like projections into the epiphyseal cartilage. A narrow, porous zone separated the two lines. There was slight increase in density of the shafts of the bones. The distal ends of the shafts of the second to the fifth metacarpal bones (Fig. 5), which presented no evidence of rickets in the first plates, showed a single dense line similar to that produced by phosphorus administration in normal bones. The treatment was continued until March 1, and the child returned, March 24, when roentgenograms were again taken (Figs. 7 and 8). These showed complete disappearance of the rachitic process, with the ends of the shafts normal aside from faint transverse striations, with the heaviest shadow along the zone of ossification. The centers of ossification in the epiphyses showed a narrow, dense shadow about the periphery, and the ends of the metacarpals still showed the dense lines as in the previous plates. Subsequent roentgenograms, taken May 12, disclosed the rachitic process healed and slight traces of the transverse striation of the metaphyses. The shadows in the metacarpals were markedly faded, and a double line could now be made out in some of them.

Case 2.—S. F., a boy, aged 2 years 9 months, entered the Presbyterian Hospital, March 13, 1920, with the usual symptoms and signs of severe rickets. Roentgenograms of the extremities, March 17 (Fig. 9), revealed marked rachitic changes. The shafts of some of the bones were slightly curved, and the cortices everywhere were thin and osteoporotic. There was periosteal new bone formation, especially along the convex-surface of the curved bones. The ends of the shafts were expanded, and cast very feeble, basket-shaped

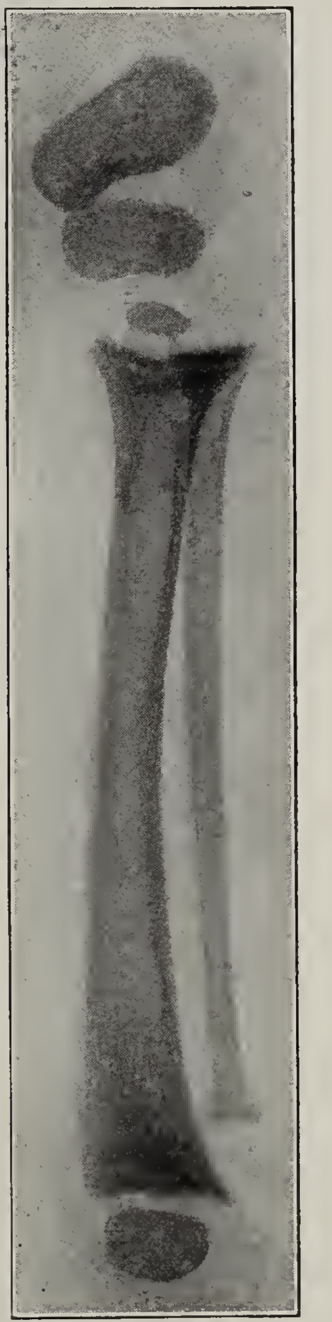

Fig. 6 (Case 1). — Leg bones, forty-seven days after beginning of treatment. Note heavy double lines at ends of shafts.

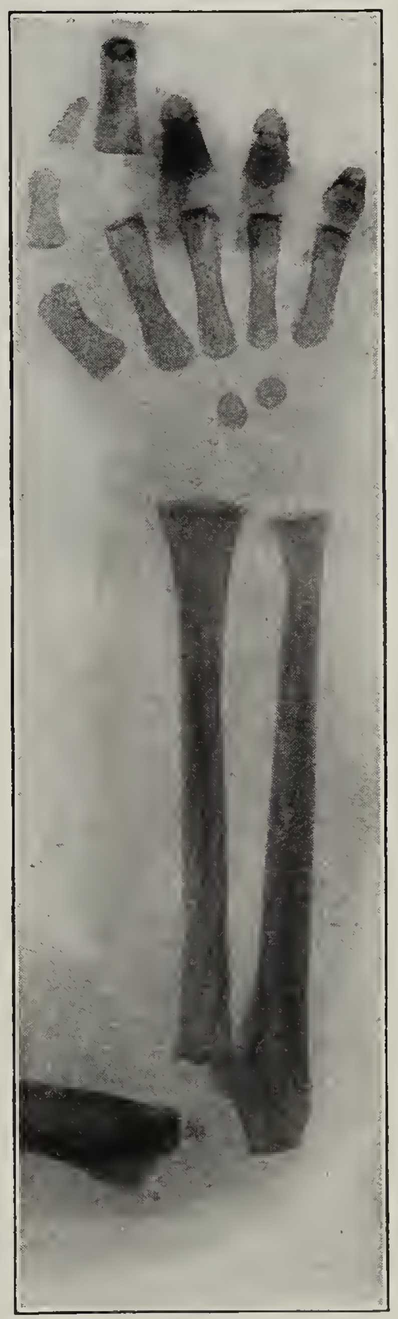

Fig. 7 (Case 1). — Seventy-three days after beginning of treatment and twenty-four days after treatment was stopped. Rickets healed.

shadows. The centers of ossification of the epiphyses, that normally should be present, were scarcely visible. The child was put on regular hospital diet, including orange juice three times daily, and cod liver oil, 1 dram, and phosphorus, 1/150 grain, three times a day for seven weeks. He was soon markedly improved and began walking. He then left the hospital, but continued to take the medicine, and returned, June 8, when roentgenograms were again taken (Fig. 10). These showed marked improvement in the condition of the bones. The cortex of the shafts had increased in thickness and density, and the ends of the shafts now cast shadows of normal density. There was a dense, heavy line at the limits of the shafts, corresponding to a thickened heavy zone of ossification. The centers of ossification of the epiphyses and short bones were definitely denser. The child was then put on 1/100 grain of phosphorus, three times a day, and returned, September 16, when roentgenograms were again taken (Fig. 11). These revealed further growth of the bones, but no definite increase in density of the lines at the ends of the shafts, although a denser shadow was seen about the periphery of the centers of ossification of some of the epiphyses and short bones of the carpus and tarsus. The last effect corresponds somewhat to that obtained by administering phosphorus when the bones are healthy.

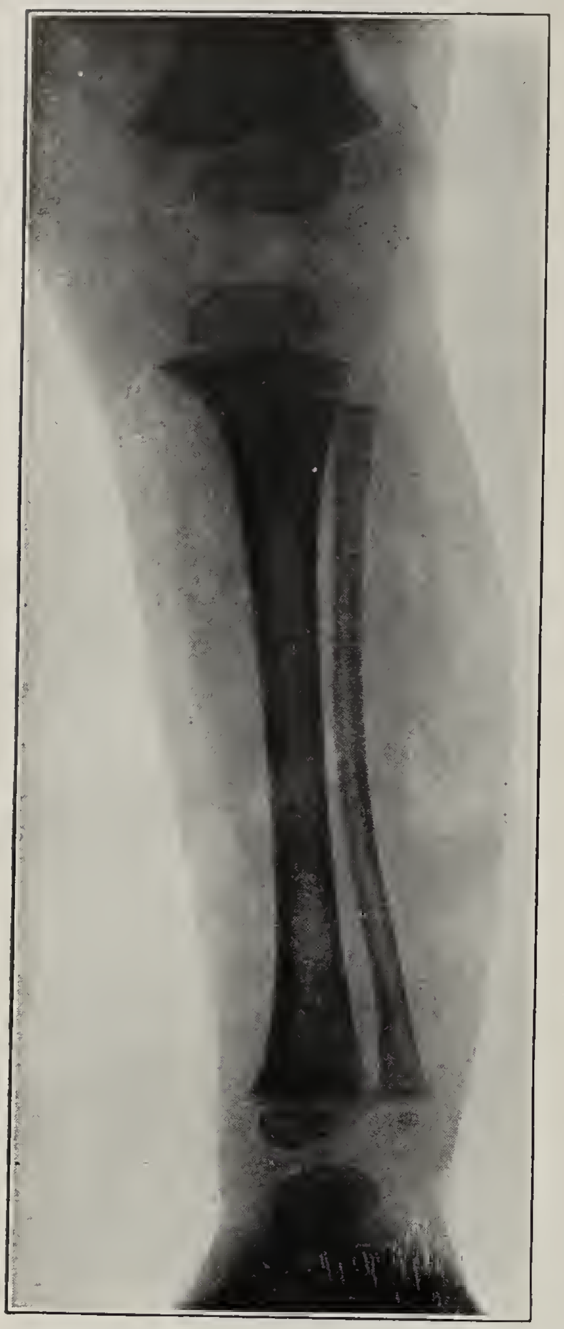

Fig. 8 (Case 1).— Seventy-three days after beginning of treatment and twenty-four days after treatment was stopped. Rickets healed.

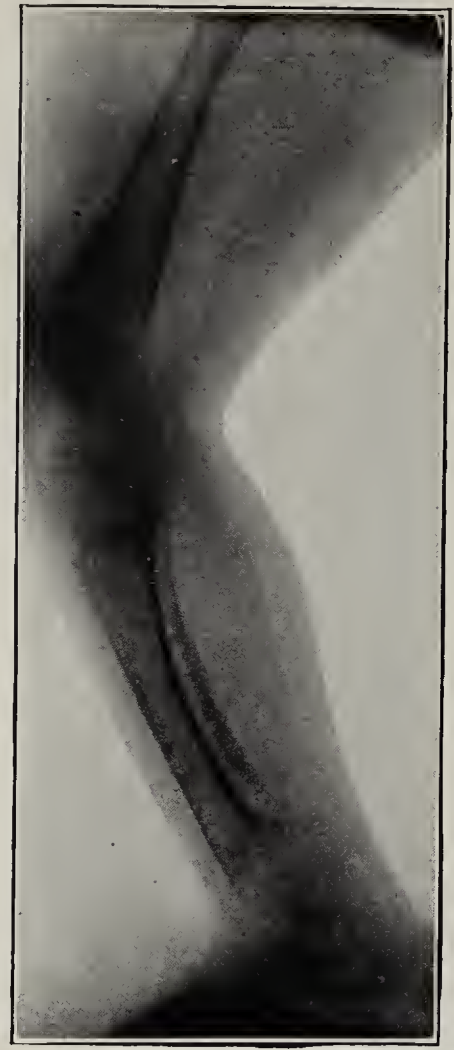

Fig. 9 (Case 2).— Severe rickets, before treatment.

Cases 3 and 4 illustrate the effect of phosphorus alone.

Case 3.—Bessie C., aged 2 years 10 months, came to the hospital, July 10, 1920, with the picture of long-standing, moderately severe rickets. The child had been walking for some weeks. Roentgenograms of the extremities revealed osteoporotic shafts with marked curvature of the tibiae and fibulae, with periosteal apposition along their concave surfaces. The shadows of the ends of the shafts were markedly expanded and faint, and the centers of ossification of the epiphyses cast faint shadows with irregular outlines. The child was treated ambulatorily, no change being made in its former hygienic or dietetic conditions. Phosphorus pills, 1/100 grain, were prescribed three times a day, but on return, August 23, it was found that only ten pills had been taken during this time. Roentgenograms (Fig. 12 *a*) disclosed practically no change in the condition of the bones. Arrangements were made whereby the medicine was given regularly, and roentgenograms were taken, November 3 (Fig. 12 *b*), which revealed a very striking change in the bones. There was great increase in density of the former osteoporotic portions of the shafts, metaphyses and epiphyses, and the rachitic changes, aside from the remaining curvatures, had disappeared. The ends of the shafts showed a dense, narrow line along the zone of ossification, and the metaphyses of some of the bones, as the upper end of the tibia, showed transverse striations. The improvement was as striking in this case, in which phosphorus alone was given, as in the previous cases, in which phosphorus and cod liver oil were administered.

Case 4.—G. H., a boy, aged 8¾ months, artificially fed, when seen, June 10, 1920, had symptoms and gave findings of active rickets. Roentgenograms disclosed mild rachitic changes. The upper end of the fibula showed extensive, and the lower end of the femur slight, fraying expansion. The child was given 1/150 grain of phosphorus in the form of an elixir three times daily and a diet of modified milk and vegetable soup. Fifty-five days after the treatment was started, his condition was improved, and roentgenograms revealed the disappearance of the rachitic changes.

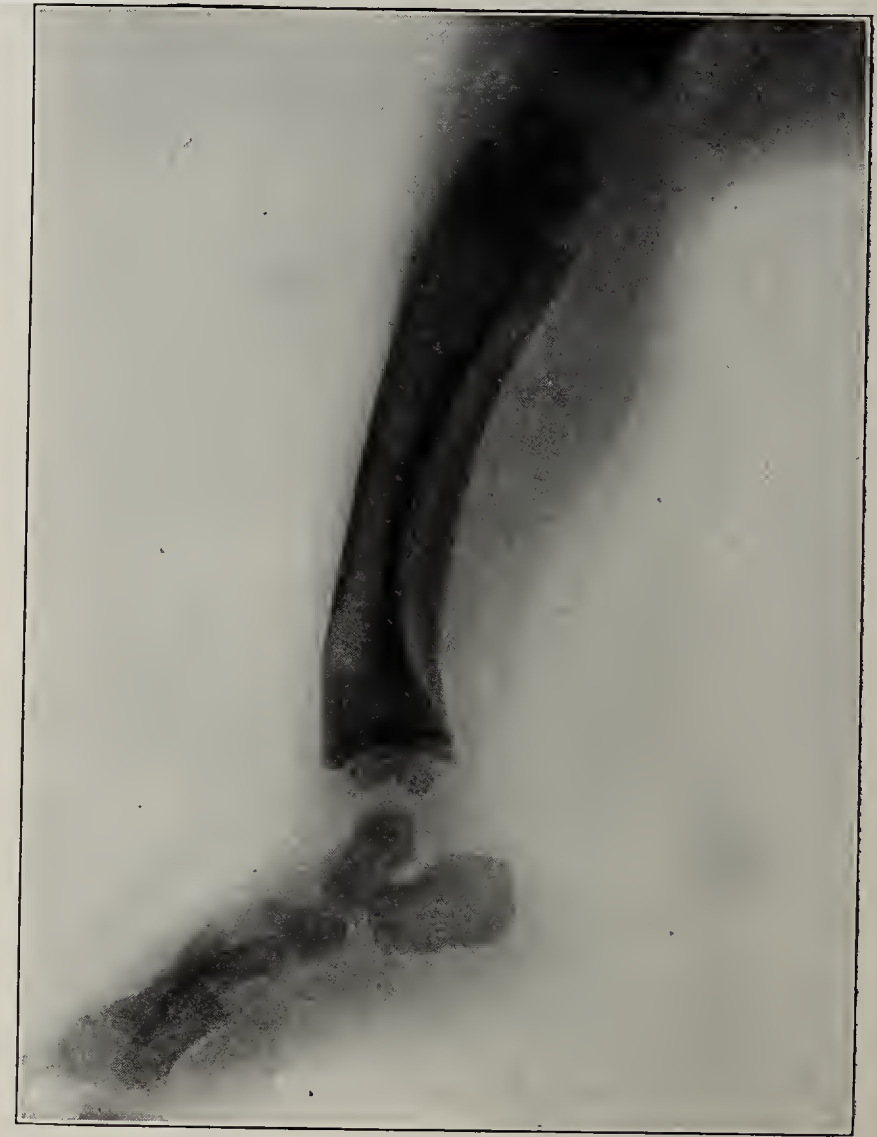

Fig. 10 (Case 2).—After eighty-three days of phosphorus and cod liver oil treatment. Active rickets healed.

COMMENT

The end-results produced by phosphorus, and the combination of phosphorus and cod liver oil were quite similar. The rarefied areas of the rachitic bones acquired an approximately normal density in both instances. In Case 1, in which the patient received phosphorus and cod liver oil, the intermediary stages of healing were studied, and ossification of the rarefied zone at the ends of the shafts was seen to occur by the formation of two transverse irregular lines at its limits, which gradually increased in thickness, the distal one apparently more rapidly than the proximal, until fusion occurred. After this there was some reduction in density of the newly ossified zone and a rearangement of trabeculae, corresponding roughly to the normal. However, a transverse line was seen in the end of the metaphysis, and faint striation of the deeper portions was sometimes to be made out. The metacarpal bones, which were without demonstrable evidence of rickets, showed one dense line at the end of the shaft, resembling closely the changes produced by phosphorus in normal growing bones. This persisted after the rachitic bones were healed.

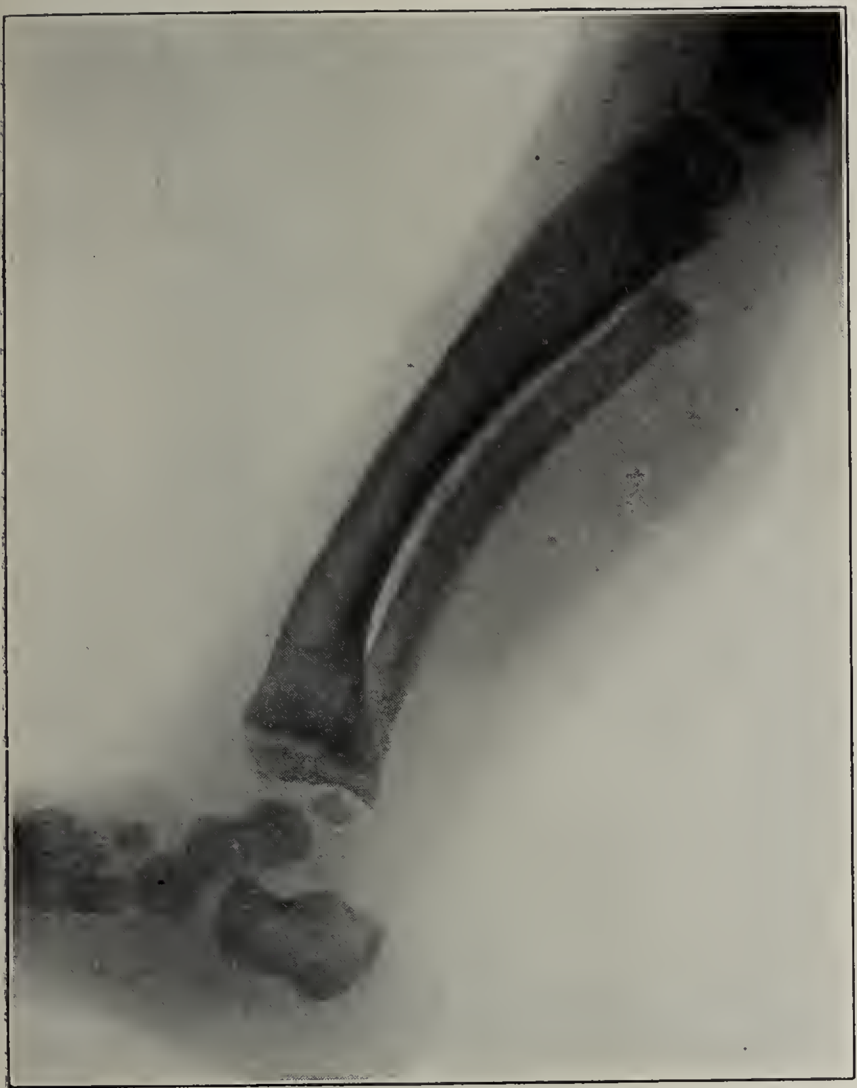

Fig. 11 (Case 2).—After 100 days of phosphorus treatment.

Case 2 showed striking ossification and growth of the rarefied bones during the period of administration of phosphorus and cod liver oil. A denser line was present at the end of the shaft than in Case 1. Roentgenograms at the end of the second period, during which phosphorus alone was given, showed much the same condition, with slightly heavier lines about the periphery of the short bones. The rachitic process was practically healed before the phosphorus alone was started, and the drug seems to have had little influence on subsequent bone growth. This may have been due to an inappropriate dose of phosphorus, as in animals a dose one-half or one-third that found necessary to produce the lines will have no effect whatever.

The third case, in which phosphorus alone was given, showed fully as marked ossification of the rarefied bones as did the others, and with complete disappearance of the active signs of rickets. The ends of the shafts returned to normal density except for irregularity in the trabeculae and the presence of a dense line at the ends, which is somewhat narrower than that produced by phosphorus administration when the bones are normal.

Howland and Park [2] have made extensive studies of the effect of cod liver oil alone on rickets. Their findings are very similar to those in Case 1. Prompt healing was obtained with the formation of a double line in the juxta-epiphyseal region of the shaft and ossification of other rarefied areas of the bones.

Similar results to those here reported were observed in three other cases in which the patients were treated with phosphorus and cod liver oil, but these two are the only cases in which the effect of phosphorus alone has been studied. While they suggest that phosphorus alone may cause equally prompt healing of rickets, further observations will be necessary to clear up the point. Careful comparisons should be made between the effects produced by phosphorus alone, cod liver oil alone, and a combination of the two.

The method of action is little understood. In the case of cod liver oil the result might be attributed to the presence of fat soluble A, but this could not be the explanation for the action of phosphorus. There is a trace of phosphorus in cod liver oil in organic combination, but it is improbable that it is present in suffi-

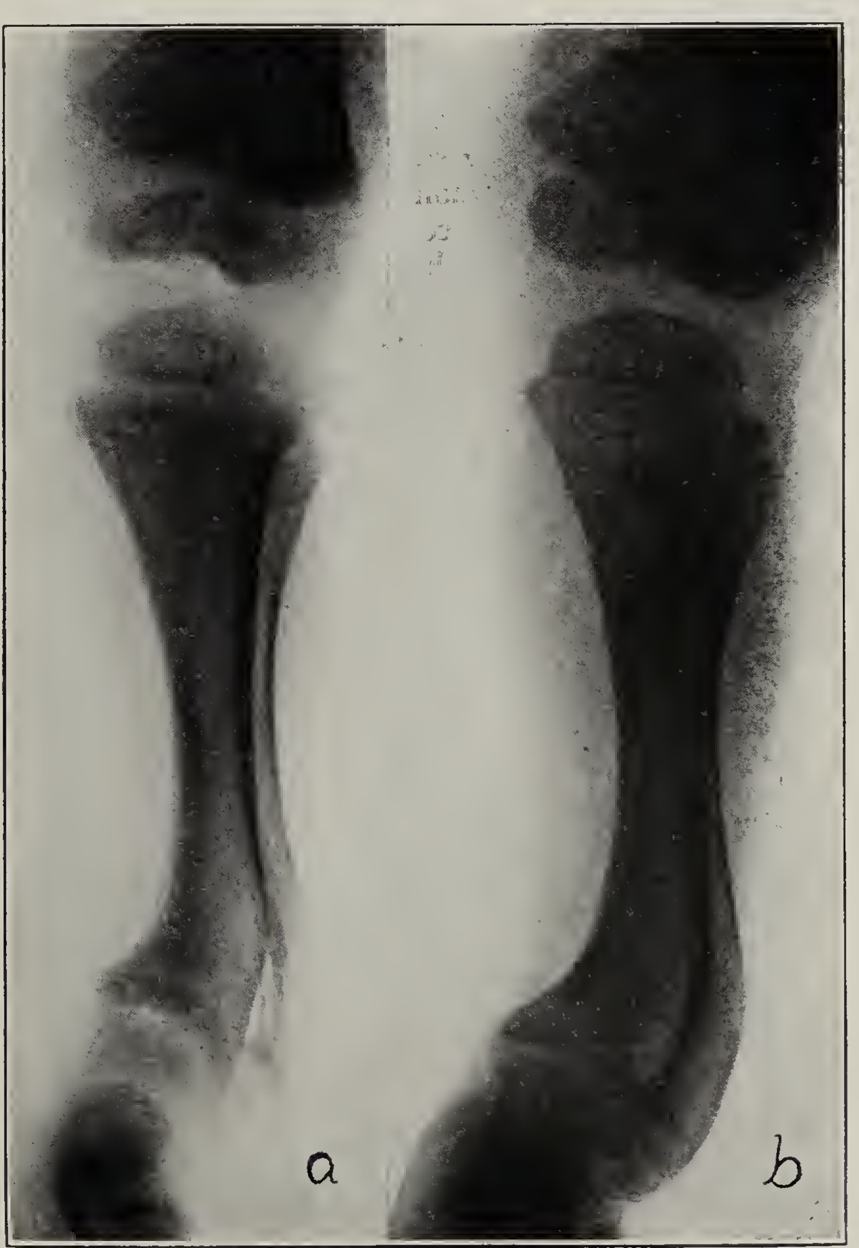

Fig. 12 (Case 3).—*a*, severe rickets, before treatment; *b*, after 106 days of phosphorus treatment.

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[2] Howland, John, and Park, E. A.: Some Observations on Rickets, Tr. Am. Pediat. Soc., 1920.

cient quantity to exert any influence. Clearly phosphorus, and also cod liver oil, in some way restore the power of normal ossification, which in rickets is temporarily lost. This refutes the contention of Wegner, who thought phosphorus incapable of assisting in ossification in rickets until some other factor restored the altered calcium metabolism to normal.

SOME FACTORS RELATING TO THE TOXIC ACTION OF ARSPHENAMIN *

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BOSTON

There is little unanimity of opinion as to the cause of the untoward effects that not infrequently follow the administration of arsphenamin. Some apparently believe that, with the present quality of arsphenamin on the American market, untoward reactions must be ascribed to carelessness on the part of the physician; but just how this carelessness operates—what physical or chemical changes are brought about in the drug, for example, or what physiologic effects are supposed to be caused by the use of too concentrated solutions or by too rapid injection—is not stated. On the other hand, some clinicians think that the quality of the drug is almost always at fault when untoward results are obtained.[1]

Without entering on a discussion of this question, the fact remains that there have been wide variations in the toxicity of preparations of arsphenamin not only as they are prepared by standard methods in different laboratories, but also among those on the market, and that the average of the commercial products is below that of preparations which may readily be made in the experimental laboratory. It is the purpose of the work (of which this is a preliminary report) in progress in this laboratory to investigate the causes of this difference and also the changes, chemical or physical, by which a "good" preparation may lead to untoward results.

TYPES OF TOXIC ACTION

It may be stated at once that in experimental studies both with commercial preparations and with preparations prepared by Mr. Christiansen in this laboratory, three distinct types of toxic action have been observed: (*a*) preparations the toxicity of which was due to the presence of m-amino-p-hydroxyphenylarsenous oxid ("arsenoxid"); (*b*) preparations the toxicity of which seemed to be due to the presence in the manufactured product of toxic substances other than the above mentioned oxid, and (*c*) preparations toxic on account of the physical properties of the solution or of the presence in them of a very easily destroyed toxic substance.

The third of the foregoing classes of preparations will be chiefly considered in this paper, but a few words may be said in regard to the other two.

TOXICITY DUE TO THE PRESENCE OF "ARSENOXID"

Ehrlich attributed the toxic action of arsphenamin largely to the formation of m-amino-p-hydroxyphenylarsenous oxid ("arsenoxid"), and this has been the most frequently discussed possibility. The possibility of this oxid's being involved in some of the clinical reactions of arsphenamin has recently again been raised by Smith[2] on the basis of a pharmacologic study of its action. A number of workers, however, have shown that there is a lack of parallelism between the amount of this oxid present in samples of arsphenamin and the toxic action of the latter, so that it cannot be the sole cause of untoward reactions.

I have not encountered a toxic commercial preparation of arsphenamin or an experimental preparation (except when special care was taken during the manufacture to secure such) the toxicity of which could be attributed to the oxid. But the evidence at present available suggests that the chief, if not the only, change leading to increased toxicity occurring in solutions of arsphenamin as the result of standing, shaking, or warming in the presence of air is due to the formation of this oxid or an analogous substance. Ehrlich[3] reported that the toxicity of a solution of arsphenamin became one and a half times greater when the solution was allowed to stand exposed to the air for four hours.

Roth[4] is apparently the only one who has published figures as to the increased toxicity of arsphenamin when alkaline solutions are shaken in the presence of air; he found that the toxicity of the preparation with which he worked increased 60 per cent. after one minute's vigorous shaking. Unfortunately, Roth reports results with only a single preparation. I have aerated alkaline solutions by drawing a slow current of air (first passed through sodium hydroxid to remove the carbon dioxid) through them at room temperature and found great variations in the effects on different preparations. With some preparations there was a marked increase in the toxicity within an hour; with others there was little change until after four hours' aeration, although the rate at which the air was drawn through was approximately the same. Voegtlin and Smith[5] have followed the oxidation of alkaline solutions of arsphenamin quantitatively without, however, recording the changes in toxicity.

In toxicologic experiments it has been assumed rather than actually demonstrated that the increased toxicity was due to oxidation. My experiments offer a certain amount of proof that the oxid, or at least a partially oxidized but at the same time easily reducible substance, is the chief factor.

In the first place, the symptoms produced by a specimen of arsphenamin which has been aerated or shaken are those characteristic of the oxid and are quite unlike those caused by other, unknown, toxic factors which will be discussed in the next section. These symptoms consist (in rats) in struggling, convulsive movements, lashing of the tail, rigidity of the legs, irregular respiration with long pauses, protrusion of the eyes, lacrimation and salivation; they begin promptly, often before the injection is completed. Roth has aptly described these symptoms as a "resistance to the injection." I have endeavored to determine how small an amount of oxid either alone or mixed with arsphenamin could, with a high degree of probability, be detected by the symptoms; the symptoms were distinct with

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[*] The experiments described in this report were begun under the auspices of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association, and are being continued under a grant from the United States Interdepartmental Social Hygiene Board.

[1] Compare, for example, Pusey, W. A.: Administration of Arsphenamin, J. A. M. A. **72**: 1786 (June 14) 1919.

[2] Smith, M. I.: J. Pharmacol. & Exper. Therap. **15**: 279 (June) 1920.

[3] Ehrlich, P.: Abhandlungen über Salvarsan **3**, 1913.

[4] Roth, G. B.: Pub. Health Rep. **35**: 2205 (Sept. 17) 1920; Toxicity of Arsphenamin and Neo-Arsphenamin, Arch. Dermat. & Syph. **2**: 292 (Sept.) 1920.

[5] Voegtlin, C., and Smith, H. W.: J. Pharmacol. & Exper. Therap. **16**: 199, 1920.

5 mg. per kilogram of rat (about one-fifth the fatal dose) and very pronounced with 10 mg. per kilogram. When 10 per cent. of arsphenamin in a sample was replaced by an equal weight of the oxid and injected into rats in doses of from 100 to 120 mg. per kilogram, the symptoms were characteristic of the oxid, and entirely unlike those caused by any other compounds I have tested, with the exception of the analogous sulphid.

Another indication that the oxid is the toxic agent in samples of arsphenamin which have been agitated with air is the fact that such solutions may be rendered relatively nontoxic by the means that reduce the toxicity of the oxid. Thus, if sodium hydrosulphite is added to a solution of the "oxid," the toxicity is immediately reduced; I have not determined the limit of this detoxication, but have found that more than double the fatal dose of the oxid could be rendered nontoxic by this means. If a solution of arsphenamin is rendered toxic by aeration, the typical "oxid" symptoms and the increased toxicity can be at once overcome by sodium hydrosulphite. Thus, a preparation of arsphenamin which did not kill in doses of 100 mg. per kilogram was aerated by drawing air through it at room temperature until it produced typical oxid symptoms and killed in a dose of 60 mg. per kilogram; sodium hydrosulphite was added; now doses of 100 mg. caused neither symptoms nor death.

A solution of arsphenamin made toxic by aeration at room temperature can also be rendered less toxic by continued aeration with warming. Thus, part of the toxic solution used in the foregoing experiment was aerated for two hours at a temperature varying from 45 to 60 C.; the injection of what corresponded to 100 mg. per kilogram caused no immediate symptoms; and although later tremors and a tendency to circus movements developed, the rats ultimately completely recovered; as noted above, this solution before the second aeration produced immediate "oxid" symptoms and caused death in doses corresponding to 60 mg. per kilogram. The toxicity of a solution of m-amino-p-hydroxyphenylarsenous oxid could be lowered in a similar manner by aeration. Thus, an alkaline solution of the oxid was aerated at about 50 C. for an hour and a half; doses corresponding to 80 mg. per kilogram of the oxid caused no symptoms whatever and did not cause death, although 25 mg. before the aeration caused immediate typical symptoms followed by death.

The loss of toxicity of aerated arsphenamin and of the "arsenoxid" is doubtless due to the further oxidation, with the formation of m-amino-p-hydroxyphenylarsonic acid, which is much less toxic than arsphenamin.

A solution of arsphenamin aerated at 56 C. for an hour became slightly less toxic and did not cause oxid symptoms; a portion of the same solution aerated at room temperature for the same period became much more toxic and caused oxid symptoms. In the former case the oxid was apparently further oxidized as it was formed.

It did not seem possible to increase the toxicity of arsphenamin to a point corresponding to its complete conversion into the oxid. The most toxic preparations that I obtained required an amount of the solution corresponding to nearly 60 mg. of arsphenamin per kilogram; this is about the degree of toxicity obtained by Roth in his shaking experiment.

A solution of arsphenamin made toxic by aeration differs from the solutions of at least some toxic preparations of arsphenamin in that when the arsphenamin base is precipitated by neutralization (to litmus) and the solution filtered, the filtrate is toxic and causes the typical "oxid" symptoms. The filtrate may be rendered nontoxic in the same way as the original solution or a solution of the pure oxid itself, that is, by treatment with hydrosulphite or by aeration.

The foregoing methods afford a ready means of determining whether the toxicity of a solution of arsphenamin is due to the "arsenoxid" (or some very similar substance).

When the (acid) solution of arsphenamin was aerated for from two to four hours, there was no increase in the toxicity; Voegtlin and Smith showed that there was little oxidation of arsphenamin under such conditions.

Only two, incidental, experiments were made on the effect of heating the acid solution; in these the dihydrochlorid was dissolved in very hot water and kept in an almost boiling water bath for an hour. In both cases there was a distinct but not marked increase in toxicity; the toxicity was lowered by treatment with sodium hydrosulphite.

TOXIC SUBSTANCES OTHER THAN "ARSENOXID" WHICH MAY BE PRESENT IN ARSPHENAMIN

There were formerly on the market preparations of arsphenamin much more toxic than those found at present; such products are not infrequently obtained in the process of manufacture and prevented from coming into use by the present higher standards of the U. S. Public Health Service [6] and, as has already been stated, the average toxicity of the commercial products in use is greater than that of products that may readily be obtained in the experimental laboratory.[7] This greater toxicity cannot be attributed to the presence of "arsenoxid," and most writers have taken for granted the presence in such samples of small amounts of substances much more toxic than arspenamin itself. This view has not, however, been universally accepted. Thus, the British Salvarsan Committee [8] states: "There is no evidence, indeed, to justify the conclusion that ordinary variations of toxicity, apart from those due to exposure of the substance to air, are due to the presence of impurities more toxic than 606 itself," and then the committee suggests a physical theory of the toxic action of the drug (which will be discussed later). The products considered by this committee to be "good" had, however, a higher toxicity than the preparations now permitted to be sold in this country.

Some of the American investigators have from the first maintained that there is present, in very small amounts, in some samples of arsphenamin a substance or substances much more toxic than arsphenamin itself.[9] All attempts to identify such substances by various refinements of analysis [10] (determination of As: N ratio, etc.) have failed. We have not succeeded in identifying a toxic substance or substances, but have been able to exclude some of the possibilities that have been suggested, and have learned something as to the conditions under which toxic products result. Inorganic arsenic compounds have been suggested as the toxic agent; although traces of these have occasionally been found in toxic preparations of arsphenamin which we have tested, the amounts have been far too small to account for the abnormal toxicity. It has also been suggested that the toxicity may be due to sulphur compounds. Arsphenamin made, as is usually the case, by the use of sodium hydrosulphite as the reducing agent, always contains small but variable amounts of sulphur. Ehrlich and Bertheim[11] stated that in the process of reduction, compounds in which sulphur is attached to the arsenic atom are liable to be formed and that these are highly toxic; no details are given as to the nature of these compounds or the degree of their toxicity. The British committee found no correspondence between sulphur content and toxic action. Mr. Christiansen prepared the 3-amino-4-hydroxyphenylarsenous sulphid; the fatal dose of this (intravenous injection into rats) was between 40 and 50 mg. per kilogram. When 6.6 per cent. of a preparation of arsphenamin, which had a tolerated dose of 110, was replaced by this sulphid, the tolerated dose of the mixture was 100 or a little less. Thus, while this sulphid is more toxic than arsphenamin, the presence of even a relatively high percentage would not account for the abnormal toxicity of the class of preparations under discussion.

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[6] The U. S. Public Health Service has gradually raised the requirements as to the tolerated dose for rats from 50 to 100 mg. per kilogram.

[7] Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W. (Am. J. M. Sc. **160**: 188 [Aug.] 1920) found the average tolerated doses of the products of six laboratories to be between 100 and 110 mg. per kilogram of rat, whereas the average tolerated doses of the preparations made in this laboratory by Mr. Christiansen by the method recently described by him (J. Am. Chem. Soc. **42**: 2402, 1920) was between 140 and 150 mg. per kilogram.

[8] Reports of the Special Committee upon the Manufacture, Biological Testing and Clinical Administration of Salvarsan and of Its Substitutes, No. 1, Medical Research Committee, Special Report Series, No. 44, 1919.

[9] Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: J. Cutan. Dis. **35**: 286 (May-June) 1917.

[10] Raiziss, G. W., and Proskouriakoff, A.: The Chemistry of Arsphenamin and Its Relation to Toxicity, Arch. Dermat. & Syph. **2**: 280 (Sept.) 1920.

Furthermore, the symptoms caused by this sulphid are very severe and are very similar to those caused by the corresponding oxid; thus, the mixture containing 6.6 per cent. of the sulphid caused violent symptoms unlike those following any other preparations I have tested with the exception of those containing the "oxid." Thus, the presence of an amount of this sulphid too small to increase greatly the toxicity of a preparation of arsphenamin is easily detected by the symptoms.

The question of whether there are other toxic sulphur compounds which can account for the toxicity of some preparations of arsphenamin is being investigated.

Among other possible contaminations is a polyarsenid of the formula $(C_6H_3NH_2OH)_2\ As_4$,[12] which has been stated to be more toxic than arsphenamin itself; I have seen no figures to support the last statement, and my own experiments show that rats tolerate doses of 140 mg. per kilogram (intravenous injection); that is, this substance is distinctly less toxic for rats than average samples of arsphenamin.

These toxic arsphenamin preparations differ from those the abnormal toxicity of which is due to the arsenoxid in that the symptoms are different; when the greater part of the arsphenamin is precipitated from the solutions by neutralization the filtrate is not toxic, and the toxicity of the solutions is not lessened by treatment with sodium hydrosulphite. When the solutions were aerated, marked "oxid" symptoms developed, although there was but little increase in toxicity. Warming the solutions for a short time did not diminish the toxicity, as was the case with the class of toxic preparations discussion in the next section.

Until a toxic compound can be isolated and identified it cannot be stated that the toxicity of the class or classes of preparations under consideration is really due to the presence of substances more toxic than arsphenamin itself; but the probability that such is the case is very great.

IS THE TOXICITY OF A SOLUTION OF ARSPHENAMIN INFLUENCED BY ITS PHYSICAL STATE?

Danysz,[13] as a result of experiments which for the most part have not been accepted,[14] attributed many of the reactions of arsphenamin to the precipitation of the latter by certain constituents of the blood. A somewhat similar view was expressed by the Salvarsan Committee of the British Medical Research Committee[15] in these words:

> There is a good deal of evidence in support of the view that the varying toxicity of different samples of "606" is related to small differences in the physical properties of the product, which determine the state of physical dispersion in which the free base comes out of solution when the alkaline solution is injected intravenously.

TABLE 1.—RESULTS OF INJECTIONS IN EXPERIMENT 1*

Time. P. M.	Solution at Room Temperature	Solution at 43 C.	Solution at 60 C.
2:39	80 mg. per kilogram; † 35 min.		
2:45	....	....	80 mg. per kilogram; 0
2:56	....	80 mg. per kilogram; 0	
3:01	....	....	80 mg. per kilogram; 0
3:09	80 mg. per kilogram; † 1 hour		
3:23	....	100 mg. per kilogram; 0	
3. 34	80 mg. per kilogram; † 12 min.		
3:42	....	....	100 mg. per kilogram; 0

* In the tables, 0 indicates that the rat recovered, and † that the rat died.

What the evidence for this view is, is not very fully stated. An instance is cited, however, in which samples of arsphenamin dissolved in tap-water caused symptoms of vasomotor disturbances whereas, when dissolved in distilled water, no symptoms resulted, while other samples could be dissolved in tap-water with impunity. The authors conclude:

> It would be very difficult to reconcile such an experience with the view that abnormal toxicity depends on the presence of an undue proportion of more toxic by-products.

Recently in working with certain lots of arsphenamin I have observed phenomena which strongly support the idea that the physical condition (colloidal?) of the solution or the presence of a very labile toxic compound may at times account for untoward reactions.

Physicians are usually warned, when making solutions of arsphenamin, not to warm them, since, it is stated, the toxicity is thereby greatly increased. In endeavoring to determine to what extent the toxicity of a solution is increased by different degrees of warming, it was found that in many cases there was not only no increase but a marked decrease in toxicity. Experiments 1, 2 and 3 are typical:

Experiment 1 ($R^3 37$).—A 2 per cent. solution of arsphenamin was made alkaline at 2:05 p. m. and divided into three parts; one was kept at room temperature, another at 43 C. and the third at 60 C. Intravenous injections into rats were made as recorded in Table 1.

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[11] Ehrlich, P., and Bertheim, A.: Ber. d. deutsch. chem. Gesellsch. **44**: 1260, 1911.

[12] Christiansen, W. G.: J. Am. Chem. Soc. **42**: 2402, 1920; **43**: 370, 1921.

[13] Danysz, J.: Ann. de l'Inst. Pasteur **17**: 114, 1917.

[14] Shamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and Weiss, C.: Laboratory and Clinical Studies Bearing on Causes of Reactions Following Intravenous Injections of Arsphenamin and Neo-Arsphenamin, Arch. Dermat. & Syph. **1**: 235 (March) 1920.

[15] Reports of the Special Committee upon the Manufacture, Biological Testing, and Clinical Administration of Salvarsan and of its Substitutes. No. 1. London, 1919.

Experiment 2 (R^{3}33).—A solution of arsphenamin was made alkaline, and one half was warmed to slightly above 40 C. for a few minutes, and then allowed to come to room temperature; the other half remained at room temperature (Table 2).

TABLE 2.—RESULTS OF INJECTIONS IN EXPERIMENT 2

Time, A. M.	Solution at Room Temperature	Warmed Solution
11: 34	80 mg. per kilogram; † 8 min.	
11: 38	80 mg. per kilogram; † 2½ hours	
11: 50	....	100 mg. per kilogram; 0 (sick)
12: 05	....	80 mg. per kilogram; 0
12: 08	80 mg. per kilogram; † 6-15 hours	
2: 32	....	80 mg. per kilogram; 0
2: 36	80 mg. per kilogram; † 25 min.	
3: 18	80 mg. per kilogram; † 3-15 hours	
3: 22	....	80 mg. per kilogram; 0
	Ice box 42 hours	
9: 46	80 mg. per kilogram; 0 (very sick)	
9: 51	....	80 mg. per kilogram; 0
10: 30	....	100 mg. per kilogram; † 55-65 hours
10: 35	80 mg. per kilogram; † 8 days (very sick)	
P. M.		
12: 23	100 mg. per kilogram; † 10-25 min.	
12: 23	....	100 mg. per kilogram; 0
4: 54	....	120 mg. per kilogram; † ¼-25 hours
4: 59	....	120 mg. per kilogram; 0

Thus, warming at 40 C. for a few minutes rendered the solution permanently less toxic. The part of the solution which was not warmed retained its undue toxicity for at least forty-eight hours.

Experiment 3 (R^{3}41).—A solution of arsphenamin was found to be toxic; a part of it was removed and warmed to 55 C. for fifteen minutes, while the remainder was kept at room temperature (Table 3).

TABLE 3.—RESULTS OF INJECTIONS IN EXPERIMENT 3

Time, P. M.	Solution at Room Temperature	Warmed Solution
12: 10	80 mg. per kilogram; 0	
12: 19	80 mg. per kilogram; † 15-20 minutes	
1: 00	80 mg. per kilogram; † 2-9 minutes	
1: 50	....	100 mg. per kilogram; 0
2: 26	80 mg. per kilogram; † 10-15 minutes	
2: 40	....	120 mg. per kilogram; 0
2: 50	....	100 mg. per kilogram; 0
3: 17	....	120 mg. per kilogram; † 1½ hours
5: 11	....	110 mg. per kilogram; 0

Two and a half months later another ampule of this preparation, which had been kept, sealed, at the laboratory temperature, was tested. It caused death at 80 mg. per kilogram; the solution was warmed to 60 C. for fifteen minutes: it caused death at 100 mg. per kilogram (smaller doses were not given). When warmed to 60 C. for one and a half hours it did not cause death in doses up to and including 120 mg. per kilogram (it was not tested at higher doses). This experiment shows that this kind of toxicity is preserved for long periods and also suggests that warming has less effect in diminishing the toxicity after the storage. The original test was made within a day after the preparation was made.

Since warming was found to diminish the toxicity of these preparations, experiments were next made to determine if cold would increase or preserve the toxicity. Accordingly, solutions were kept in ice and injected cold; control experiments were made in which solutions of nontoxic preparations were injected at the same temperature, and it was found that the temperature was not responsible for the differences.

Experiments 4, 5, 6 and 7 are typical of this class:

Experiment 4 (IV 5).—The acid aqueous solution of a preparation was divided into two portions; one was cooled in ice and then the alkali added; the other portion remained at room temperature and the alkali was added (Table 4).

TABLE 4.—RESULTS OF INJECTIONS IN EXPERIMENT 4

Time, P. M.	Solution at Room Temperature	Cold Solution
2: 08	80 mg. per kilogram; 0	
2: 17	110 mg. per kilogram; 0	
3: 33	....	80 mg. per kilogram; † at once
3: 50	....	80 mg. per kilogram; † 4-5 minutes
4: 44	....	60 mg. per kilogram; † 6 minutes

Immediately after the first injection of the cold solution a portion was removed and warmed to 38 C. for a few minutes and injected: 100 mg. per kilogram did not cause death. This solution was then placed in ice and when thoroughly cold was injected, still cold, in doses up to and including 110 mg. per kilogram without causing a single death.

Experiment 5 (IV 11).—The contents of an ampule were divided into two portions; one portion was dissolved in ice-cold distilled water, the other in distilled water at 41 C. Sodium hydroxid was added to each, and the solutions were kept at these temperatures and injected (Table 5).

TABLE 5.—RESULTS OF INJECTIONS IN EXPERIMENT 5

Time	Warmed Solution	Cold Solution
1: 40 p. m.	120 mg. per kilogram; 0	
1: 51 p. m.	....	100 mg. per kilogram; † 1-2 minutes
1: 56 p. m.	....	60 mg. per kilogram; very sick; recovered
2: 09 p. m.	....	100 mg. per kilogram; † 10 minutes
2: 14 p. m.	130 mg. per kilogram; 0	
	Cylinder in ice	
2: 28 p. m.	120 mg. per kilogram; 0	
2: 49 p. m.	....	100 mg. per kilogram; 0
2: 55 p. m.	140 mg. per kilogram; 0	
3: 46 p. m.	....	120 mg. per kilogram; 0
3: 51 p. m.	150 mg. per kilogram; 0	
4: 36 p. m.	....	130 mg. per kilogram; 0
	Solution warmed to 40 C.	
4: 40 p. m.	140 mg. per kilogram; 0	
	Cylinder in ice over night; injected cold	
9: 33 a. m.	130 mg. per kilogram; 0	
9: 44 a. m.	150 mg. per kilogram; 0	
12: 29 p. m.	150 mg. per kilogram; 0	

Thus, the solution of this preparation which had been warmed to 41 C. did not kill a single rat in doses up to and including 150 mg. per kilogram: this was true whether the solution was injected at near the body temperature or near zero.

This experiment also shows that there was a diminution in the toxicity of a solution although it was kept cold.

That this diminution is hastened by warming is shown by Experiment 6.

Experiment 6.—At 1:58 p. m. (at a time when it was fatal in a dose of 100 mg. per kilogram), part of the cold solution was removed and warmed to 38 C. and injected (Table 6).

TABLE 6.—RESULTS OF INJECTIONS IN EXPERIMENT 6

2:03	100 mg. per kilogram; 0
2:20	120 mg. per kilogram; 0

In this experiment the toxicity of the solution diminished on standing, although it was kept cold. This was observed in other experiments also. Thus:

Experiment 7.—A preparation (IV 1) was dissolved in water, and the cylinder containing the solution was placed in ice; when the solution was cold the alkali was added and injections made (Table 7).

TABLE 7.—RESULTS OF INJECTIONS IN EXPERIMENT 7

Time	
11:45 a. m.	100 mg. per kilogram; † 2 minutes
11:52 a. m.	80 mg. per kilogram; † 4-5 minutes
11:57 a. m.	60 mg. per kilogram; † 13 minutes
12:02 p. m.	80 mg. per kilogram; † 30-60 minutes
12:06 p. m.	100 mg. per kilogram; † 2 minutes
1:09 p. m.	80 mg. per kilogram; 0
1:50 p. m.	100 mg per kilogram; 0

The solution was then warmed to 40 C. for a few minutes, cooled to room temperature and injected; rats now survived doses of 130 and 140 mg. per kilogram.

Attention may be called to the fact that in the case of the injections of the cold solution in this experiment the solution was kept in ice between the injections and that when 100 mg. per kilogram was injected, 67 per cent. more of the cold solution was injected than when 60 mg. per kilogram was injected; yet the latter caused death, whereas the former, after the solution had stood for two hours, did not. This is another illustration of the fact that the temperature is not the factor causing the greater toxicity of the cold solutions. In fact, rats seem very resistant to the injection of cold solutions—at least when the injection is made at the standard rate used in these experiments, namely, 0.5 c.c. per minute. Mice seemed much more sensitive to the intravenous injections of cold solutions.

Observations were next made of the effect on toxicity of allowing the solutions to stand (in glass-stoppered cylinders) at room temperature; it was found that in some cases there was a diminution of toxicity.[16] There were great differences in this respect with different preparations. In Experiment 2 a preparation, the toxicity of a portion of which was at once diminished by warming to 40 C. for a few minutes, remained toxic for nearly four hours when left at room temperature; and even after standing in the icebox for forty-two hours it was more toxic than a portion of the same solution which had received the same treatment except for the few minutes' warming at 40 C. With other preparations the toxicity diminishes rapidly and the results are like those noticed by the observers quoted. For example, with one preparation (77 b-1) a dose of 110 mg. per kilogram, injected immediately after being made alkaline, caused death, as did also a dose of 130 mg. per kilogram injected twenty-three minutes later; thereafter, in the course of four hours, a number of injections of doses up to and including 150 mg. per kilogram were made without there being a death. The solution was kept at room temperature between the injections. The effect on toxicity of standing (and of warming a solution) was also shown by such experiments as these: one half of a sample (V_1) was dissolved in water at room temperature and made alkaline; the first injection (100 mg. per kilogram) caused death; later injections made at ten-minute intervals did not kill in doses of 120, 130 and 140 mg. The other half of the sample was dissolved in water at 40 C., alkali added and the solution injected at once; the first injection (100 mg. per kilogram) was not followed by death as was the case when the sample dissolved and neutralized at room temperature was injected. Many other illustrations of this phenomenon could be cited.

Whether or not warming the acid solution will diminish the toxicity of this class of preparations has not been definitely determined.

The toxicity which is diminished by warming the alkaline solution is evidently of a different type from those discussed in the first two sections of this paper.

The warming of solutions, the toxicity of which is due to the presence of "arsenoxid," does not diminish the toxicity unless the warming is continued for some time and the solution is aerated (oxidation of the oxid), nor does the warming have any effect on the toxicity of preparations discussed in the second division of this paper.

The cause of this type of toxicity has not been determined, but is being made the subject of further study. The symptoms are very suggestive of those of anaphylactic shock, and it seems probable that an analogous condition is brought about probably by some unusual physical condition of the solution. Treatment, however, in the cold, of rat serum with these toxic solutions did not render the serum toxic, nor did the serum have any effect on the toxicity of the solution. A few experiments were made with a small number of inorganic salts to determine whether they would either diminish the toxicity or prolong it; the results were negative.

There is another, but perhaps less probable, possibility which may be considered: that some compound is present which is easily hydrolyzed by alkali, especially when warmed; this would be analogous to the case of acetyl-cholin or aconitin, the solutions of which when warmed undergo hydrolysis with rapid loss of physiologic activity.

As yet no connection has been found between the process of manufacture and the formation of this type of toxic products; they have resulted from the usual hydrosulphite reduction of m-nitro-p-hydroxyphenylarsonic acid, with the conversion of the base into the hydrochlorid by the methyl alcohol-ether method, and also from the reduction of the m-amino-p-hydroxyphenylarsonic acid[17] and m-amino-p-hydroxyphenylarsenous oxid[18] by hypophosphorous acid (with conversion into the hydrochlorid by precipitation with hydrochloric acid).

That products of this type are found in ordinary commercial preparations is indicated by the observations of Lake, McCoy and Roth noted above.

It is evident that this subject may have considerable importance, both from the standpoint of clinical medicine and from that of laboratory control. Thus, if the testing pharmacologist had such a preparation and added the alkali to a warmed solution or did not inject a solution, made at room temperature, at once after the addition of the alkali or did not make the required number of injections in rapid succession, he would probably overlook the toxic character of the product. If the clinician, on the one hand, had the same preparation and (as he is advised to do) injected the solution immediately after adding the alkali or avoided warming the alkaline solution, there would probably be a severe reaction on the part of the patient. If, however, the injection was delayed a little or if the solution was warm when the alkali was added, there probably would be no reaction. That something of this kind may actually occur is suggested by an incident in which there had been a few complaints by physicians of reactions following the use of certain lots of arsphenamin (some ampules of which showed this type of toxicity in varying degree) ; but another physician who had used the same lots reported that he had never had a reaction from them. On careful inquiry it was learned that this physician had dissolved the drug in hot water and added the alkali to the solution while it was still warm, ("probably at least 50 C."), the method by which the toxicity of this class of preparations is diminished, but also the method by which the toxicity of the drug is generally supposed to be increased.

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[16] This observation is not new, although so far as I am aware nothing has been published on it. Dr. G. C. Lake, some time ago, remarked that he had noticed that the first one or two rats injected with a given dose of arsphenamin frequently died, whereas those injected later survived; Drs. G. W. McCoy and G. B. Roth stated that the records of the Hygienic Laboratory showed the same thing. My own records of the toxicity tests made on the arsphenamin of the Massachusetts Department of Health did not show such a phenomenon except rarely.

[17] Christiansen, W. G. (Footnote 12, first reference).

[18] Christiansen, W. G. (Footnote 12, second reference).

This phenomenon may account for some of the cases in which there is apparently a lack of correspondence between the reports of clinicians as to untoward reactions from certain lots of arsphenamin and the laboratory findings as to toxicity ; I recall one case in particular in which several clinicians independently and almost simultaneously reported severe reactions from a commercial lot of arsphenamin which, when tested on rats in the laboratory, tested far above the Public Health Service requirements and 50 per cent. higher than another lot which gave rise to no complaints. In this case the manufacturers attributed the reactions to the use by the physicians of too little or too much alkali or to other errors in technic—a rather improbable explanation under the circumstances.

The phenomenon is of interest in another connection: "Idiosyncrasy" has long been supposed to play a rôle in the reaction of some patients to arsphenamin. Thus, it has recently been stated[10] that "undoubtedly, when a number of patients receive arsphenamin of the same lot by the same method of administration and only one or two show reactions, it is safe to assume that they are due to an idiosyncrasy." Obviously, if the one or two showing the reactions were the first to receive the drug, the reactions may have been due to the physical condition of the solution, which spontaneously changed before the injections that were borne without reactions were made.

SUMMARY

The symptoms (in rats) caused by m-amino-p-hydroxyphenylarsenous oxid ("arsenoxid") are very characteristic; the presence in arsphenamin of a percentage of the "oxid" too small to increase greatly the toxicity can readily be detected by the symptoms; confirmatory evidence of the presence of the "oxid" (or of some oxidation product of arsphenamin) in a toxic preparation of arsphenamin is obtained by treating the solution with sodium hydrosulphite: this leads to an immediate diminution of the toxicity if the latter is due to the presence of the "oxid."

No toxic commercial preparations of arsphenamin have been encountered, the toxicity of which could be attributed to the presence of the "oxid."

Some preparations of arsphenamin are very toxic when the solutions are prepared at ordinary room temperature; the toxicity is greatly reduced by gently warming and in some cases by allowing the solutions to stand for a time at room temperature. Cold may preserve the toxicity for long periods. (Preparations which, after warming, may be tolerated in doses of 150 mg. per kilogram may kill in doses of 60 mg. before warming.) It is considered probable that the undue toxicity of such preparations is due to the physical state of the solution, and that this undergoes a rapid change when the solution is warmed.

Toxic preparations of arsphenamin are sometimes encountered, the toxicity of which is due to factors other than the foregoing: the toxicity is not diminished by the action of sodium hydrosulphite or by warming; it is not due to inorganic arsenic and certain other compounds which have been suggested.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

SOLUTION ARSPHENAMINE-LOWY 1 PER CENT.—An aqueous 1 per cent. solution of arsphenamine, possessing the proper degree of alkalinity.

Actions and Uses.—The same as those of arsphenamine (see New and Nonofficial Remedies, 1921, page 41).

Dosage.—Solution arsphenamine-Lowy 1 per cent. is supplied in ampules of 40 Cc. and 60 Cc. These ampules should not be used after the date stamped on the label of each package or if the degree of coloration of the solution is greater than that of a control tube which accompanies the package.

Prepared by the Lowy Laboratory, Inc., Newark, N. J. U. S. patent and trademark applied for. Licensed for interstate sale by the U. S. Treasury Department under the "act to regulate the sale of viruses, serums, toxins and analogous products" as conforming to the regulations for the control, sale and manufacture of arsphenamine, issued June 30, 1919.

Ampoules Solution Arsphenamine-Lowy, 1 Per Cent., 40 Cc.—Each ampule contains solution arsphenamine-Lowy, 1 per cent., 40 Cc. (representing arsphenamine 0.4 Gm.): a sterile needle for intravenous injection and sterile rubber tubing are supplied with each ampule.

Ampoules Solution Arsphenamine-Lowy, 1 Per Cent., 60 Cc.—Each ampule contains solution arsphenamine-Lowy, 1 per cent., 60 Cc. (representing arsphenamine 0.6 Gm.): a sterile needle for intravenous injection and sterile rubber tubing are supplied with each ampule.

Solution arsphenamine-Lowy, 1 per cent., is prepared by dissolving arsphenamine (using the particular brand desired by the purchaser) in fresh, distilled water, carefully neutralizing with sodium hydroxide solution and sealing in ampules under a partial vacuum, the concentration being adjusted so that 50 Cc. of solution represents 0.5 Gm. of arsphenamine.

Solution arsphenamine-Lowy, 1 per cent., is a clear yellow liquid, which, depending on the brand of arsphenamine used, varies from a canary yellow to a greenish yellow.

PITUITARY LIQUID-ARMOUR (See New and Nonofficial Remedies, 1921, p. 222).

The following dosage form has been accepted:

Ampoules Pituitary Liquid-Armour, 0.5 Cc.—Each ampule contains pituitary liquid-Armour 0.5 Cc.

ACRIFLAVINE-ABBOTT (See New and Nonofficial Remedies, 1921, p. 21).

The following dosage form has been accepted:

Tablets Acriflavine-Abbott, 0.03 Gm.—Each tablet contains acriflavine-Abbott 0.03 Gm. (0.46 grain).

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1920

NINTH ANNUAL REPORT

The Journal presents its ninth annual survey[1] of typhoid fever mortality in the cities of the United States having more than 100,000 population. The statistics of the fourteenth census are now available, and the grouping of cities according to population has been revised to correspond with the latest enumeration.[2]

TABLE 1.—CLASSIFICATION OF CITIES

	Population	Number of Cities
Group 1	More than 500,000	12
Group 2	From 300,000 to 500,000	9
Group 3	From 200,000 to 300,000	12
Group 4	From 150,000 to 200,000	10
Group 5	From 125,000 to 150,000	9
Group 6	From 100,000 to 125,000	16

There are now sixty-eight cities with a population of more than 100,000. These may be conveniently considered for our purpose in six groups (Table 1). More than one fourth of the population of the United States lives in these cities, and nearly one-sixth lives in the cities with more than 500,000 population.

Every one of the twelve largest cities in the country (Group 1) had a typhoid death rate under 10 in 1920, indicating that the remarkable record of 1919 is being maintained. What is still more noteworthy is that while last year ten of the twelve cities had a rate under 5, in 1919 but seven of these cities recorded a rate under 5. In only two instances is the 1920 typhoid rate higher than that for 1919. The most marked declines are reported in Baltimore, Pittsburgh and St. Louis.

TABLE 2.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 1 (MORE THAN 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1906-1910
Chicago	1.1	1.2	2.4	8.2	15.8
Boston	1.5	2.2	2.5	8.0	16.0
New York	2.4	2.0	3.2	8.0	13.5
Los Angeles	2.6	4.7	3.6	10.7	19.0
St. Louis	2.7	5.8	6.5	12.1	14.7
Pittsburgh	2.7	6.2	7.7	15.9	65.0
San Francisco	3.1	3.3	4.6	13.6	27.3
Cleveland	3.2	2.4	4.0	10.0	15.7
Philadelphia	3.3	4.4	4.9	11.2	41.7
Baltimore	4.7	8.9	11.8	23.7	35.1
Detroit	5.1	5.3	10.6	18.1	21.1
Buffalo	5.1	7.0	8.1	15.4	22.8

The Health Department of New York City continues to publish in its weekly bulletin an admirable summary of its typhoid fever statistics which might well serve as a model for some of the other large cities. It is encouraging to find that in 1920 the percentage of cases in which the probable mode of infection was traced was considerably higher than in 1919. In the third quarter of the year ending September 30, about 27 per cent. of the total typhoid in New York City was attributed to out-of-town infection. A larger proportion of typhoid cases was treated in hospitals than in the preceding year.

Detroit, which for the early part of the decade 1910-1920 lagged behind other Northern cities in typhoid improvement, seems now to have definitely entered the ranks of cities determined to limit typhoid to the utmost. The citizens have approved a twelve million dollar bond issue for a water filtration plant and also have authorized an outlay of twenty-five million dollars to complete sewer extensions which will put an end to the pollution of boundary waters. It takes time to neutralize fully the results of past negligence, but under Detroit's present energetic health administration the city is evidently fairly on its way to obtain a place on the honor roll of American cities.

TABLE 3.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 2 (FROM 300,000 TO 500,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1906-1910
Newark, N. J.	1.9	2.1	3.3	6.8	14.6
Seattle	1.9	2.3	2.9	5.7	25.2
Milwaukee	2.2	3.5	6.5	13.6	27.0
Minneapolis	2.6	3.1	5.0	10.6	32.1
Cincinnati	3.0	2.6	3.4	7.8	30.1
Indianapolis	3.8	4.7	10.3	20.5	30.4
Washington	6.5	3.7	9.5	17.2	33.7
New Orleans	7.4	13.7	17.5	20.9	35.6
Kansas City, Mo.	7.6	11.2	10.6	16.2	35.6

Buffalo gives an interesting analysis in its sanitary bulletin of the typhoid cases in July, 1920, from which it appears that in all of the twenty cases reported in that month, the infection was contracted outside the city.

For the first time since these annual summaries were begun, the averages for three full five-year periods are available for comparison. In every city in Group 1, a sweeping reduction in typhoid mortality has occurred. In the first quinquennium (1906-1910) all twelve cities had an average typhoid rate over 10; in the second, nine or all but three had a rate over 10, but in the third only two of the twelve had an average rate over 10. In 1919 and 1920 not a single city in the group had a rate as high as 9. The saving of life through the general reduction of typhoid mortality can hardly be dwelt on too often. Pittsburgh, for example, if the average typhoid rate for 1906-1910 had been maintained in 1920, would have lost last year 382 of its citizens from this disease instead of sixteen!

Seven of the nine cities in Group 2 (from 300,000 to 500,000 population) show improvement over the 1919 rate. The increase in the Cincinnati rate is very slight, and the increase in the rate of Washington, D. C., is without much significance, since the 1920 figures are compared with a very low rate for 1919, and are below the average for the quinquennium 1916-1920.

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[1] The preceding articles were published, May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777; April 5, 1919, p. 997, and March 6, 1920, p. 672.

[2] The number of typhoid deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of midyear 1920 population estimates made according to the method of the U. S. Census Bureau on the basis of the thirteenth and fourteenth census enumerations. It may perhaps be noted that the figures kindly furnished us by the municipal officials include all typhoid deaths that have occurred within the city limits, nonresidents as well as residents. In some instances this undoubtedly gives an exaggerated impression of the amount of typhoid fever in a community, but at present statisticians are agreed that "the attempt to eliminate the deaths of nonresidents would often result in an understatement of the true mortality" (Bureau of the Census, Mortality Statistics, 1912, p. 13). No attempt has been made to revise the averages of preceding years, since in most cases the figures would be changed but slightly.

New Orleans shows perhaps the most substantial decline of any city in Group 2, and the prospect for a still further reduction is very encouraging. Minneapolis makes an excellent record, in spite of a number of picnic cases supposed to have come from drinking contaminated creek water in a public park. Cincinnati has had trouble from a similar source. The Minneapolis health department has been carrying out an energetic campaign to enforce fully the ordinances governing pasteurization.

Milwaukee continues to maintain a low rate by the sedulous use of water chlorination. For many reasons it seems hardly wise to depend indefinitely on this single barrier between the consumer and a highly and irregularly polluted raw water. A report made during the year by an eminent consulting engineer recommends the installation of a rapid sand filter plant as an additional safeguard.

Kansas City, Mo., brings up the bottom of the list, a circumstance hardly creditable to that municipality in view of the far greater improvement effected in typhoid rates during the last decade by cities less favorably situated. Why should Kansas City have an average typhoid rate for 1919-1920 nearly double that of Washington? During the summer the residents of Kansas City were warned to boil water drawn for drinking purposes from the public supply. There are fortunately now few cities in the United States that periodically have to make this humiliating announcement.

Group 3 (from 200,000 to 300,000 population) again makes an excellent record. Although most of the cities in this group had relatively low death rates in 1919, six of the eleven show a still further reduction in 1920. Rochester, which had the lowest average of the group for the five-year period 1916-1920 (2.9), had the amazingly low rate of 1.0 in 1920. The city of Columbus, Ohio, which from ten to fifteen years ago had an average rate of 40.0, had a rate of only 2.5 last year. Almost without exception the 1920 rates in the cities of this group were lower than the quinquennial average, indicating that the low mark has not yet been reached.

TABLE 4.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 3 (FROM 200,000 TO 300,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1906-1910
Rochester, N. Y.	1.0	3.8	2.9	9.6	12.8
St. Paul	2.1	3.0	3.1	9.2	18.3
Columbus, Ohio	2.5	3.0	7.1	15.8	40.0
Portland, Ore.	3.5	3.6	4.5	10.8	23.2
Akron, Ohio	3.7	8.4	....	....	....
Providence, R. I.	3.8	3.4	4.4	10.2	14.3
Denver	5.0	3.2	5.8	12.0	37.5
Oakland, Calif.	5.5	3.2	3.8	8.7	21.5
Louisville, Ky.	5.5	9.0	9.7	19.7	52.7
Jersey City	6.7	2.2	4.5	7.2	12.6
Toledo, Ohio	7.3	3.1	10.6	31.4	37.5
Atlanta, Ga.	12.8	9.6	14.2	31.4	58.4

Louisville is worthy of special mention, since it has achieved not only the lowest typhoid rate in its sanitary history, but a rate which compares favorably with that of other cities without Louisville's climatic and racial difficulties. This result has been obtained only by persistent and well-considered endeavors. In that city constant vigilance must be maintained against the use of water from the Ohio River and other polluted sources.

The Louisville Department of Health has had to overcome the familiar opposition to the closing of private wells in thickly settled districts. The coolness and palatability of well water are obvious advantages, but hardly sufficient to counterbalance the existence of dangerous contamination. It is just such detailed, painstaking and often difficult work, the closing of polluted wells, the enforcement of sewer connection or of installation of sanitary privies, and the tracking of typhoid carriers, that is steadily cutting down typhoid rates in American cities.

TABLE 5.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 4 (FROM 150,000 TO 200,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1906-1910
Worcester, Mass.	1.7	2.8	3.5	5.0	11.8
Syracuse, N. Y.	4.0	6.7	7.7	12.3	15.6
New Haven, Conn.	6.1	5.7	6.8	18.2	30.8
Richmond, Va.	6.4	3.7	9.7	15.7	34.0
Dayton, Ohio	7.1	4.5	9.3	14.8	22.5
Omaha	7.8	4.4	5.7	14.9	40.7
Memphis, Tenn.	8.0	58.4	27.7	42.5	35.3
San Antonio, Texas	9.9	9.6	23.3	29.5	....
Dallas, Texas	14.3	12.2	17.2	....	....
Birmingham, Ala.	14.4	14.6	31.5	....	....

St. Paul again has a very low rate despite a little flare-up of typhoid in the summer, part of which was believed to be due to a carrier in a boarding house. Jersey City seems to have had an unusual prevalence of typhoid, the 1920 rate (6.7) being considerably higher than the recent five-year average (4.5) and almost up to the level of the 1911-1915 average (7.2). This is somewhat surprising for a community with Jersey City's unusually good record during the last fifteen years. No explanation is at hand. Oakland also has a 1920 rate considerably higher than its five-year average. The newcomer in this group—Akron, Ohio—seems to be well in line with the other cities.

Group 4 (from 150,000 to 200,000 population) happens to contain a number of cities in the Southern states where, as is well known, the relatively large negro population and the favorable temperature for fly breeding combine to render typhoid control particularly difficult. Birmingham, however, is putting up a good fight, and in 1920 even reduced slightly its relatively low rate of 1919. It is said that a few years ago there were at least 8,000 insanitary privies in that city, and that most of these have been replaced either by sewerage connections or by sanitary installations.

It will be remembered that in 1919 Memphis suffered from a serious water-borne outbreak of typhoid which raised its typhoid rate for that year to a figure far beyond that of any other large American city. Some one in Memphis evidently felt that an explanation was needed, since brief editorials all couched in identical language under the heading "Memphis Typhoid" appeared in a number of papers in different parts of the United States. The editorial contained this paragraph:

> In the spring of 1919, after a terrific rainstorm, one of the sewers broke. Before the accident was discovered, two days later, sewage had seeped into one of the wells which supplied the city with artesian drinking water. The city's health department gave warning to the people in the affected districts not to drink the water. Police and sanitary inspectors visited all houses as a further measure of caution. However, many people paid little attention to the warning, although tank wagons with pure water constantly passed through the section. The result was that sixty-seven of Memphis' total of typhoid deaths for the year occurred among these careless people.

It need hardly be pointed out that a warning given two days after such an accident as the one described, although doubtless a desirable precaution, could not be expected to prevent a very high percentage of infection. Chlorinating apparatus for regular treatment of the public water supply has now been installed. A number of privately owned and operated deep wells continue to give some concern to the city authorities. The excellent record made by Memphis in 1920 goes far to bear out the statement in our eighth annual report that Memphis had made good progress in controlling the general typhoid situation, and that, barring the unfortunate accident to its water supply, the city had much of which to be proud. During 1920, special interest was taken in the proper control of the milk supply.

Richmond again bears off the palm for the Southern cities, although the 1921 rate is somewhat higher than that for the preceding year. There are apparently few cities North or South that are as successful as Richmond in getting all, or nearly all, typhoid cases reported to the health authorities. It is thought that the 1920 Richmond typhoid rate was unduly swollen by an unusually high proportion of nonresident deaths, but this is probably true also of some other communities concerning which information is not available.

The Omaha typhoid rate for 1920 was considerably higher than the five-year average. Milk-borne typhoid was believed to be largely responsible.

Worcester, Mass., which has led this group of cities in each five-year period since 1906, makes a new low record and gets a place on the Honor Roll.

TABLE 6.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 5 (FROM 125,000 TO 150,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1905-1910
Bridgeport, Conn.	1.4	3.8	4.8	5.0	10.3
Scranton, Pa.	1.5	1.3	3.8	9.3	31.5
Grand Rapids, Mich.	2.2	5.1	9.1	25.5	29.7
Hartford, Conn.	2.9	0.9	6.0	15.9	19.0
Springfield, Mass.	4.6	2.6	4.4	17.6	....
Youngstown, Ohio	6.7	13.8	....	....	....
Paterson, N. J.	14.7	4.2	6.7	9.1	19.3

Group 5 (from 125,000 to 150,000 population) has two surprises, first the remarkably low rate in Grand Rapids after some years of rather disappointing performance, and, second, a rate in Paterson, N. J. (14.7) which is not only much higher than the 1916-1920 average (6.7), but higher than the average for 1911-1915 (9.1).

Scranton gets a place on the Honor Roll for the second consecutive year. Bridgeport and Hartford also make an excellent showing.

Group 6 (from 100,000 to 125,000 population) contains several cities appearing for the first time on our lists, having overtopped the population limit of 100,000 in the fourteenth census. Yonkers, N. Y., which is just over the line (population, Jan. 1, 1920, 100,226) makes a conspicuous début by reporting no single death from typhoid in the calendar year, thus emulating Spokane's record of 1919. Yonkers seems to have had a good typhoid record since 1906.

Norfolk, Va., has the low rate of 3.4, as contrasted with the very high rate of 53.9 in 1910. Spokane seems to have had a number of cases due to infection contracted at a summer resort. Albany, N. Y., is reported

TABLE 7.—DEATH RATES FROM TYPHOID IN CITIES OF GROUP 6 (FROM 100,000 TO 125,000 POPULATION)

	Deaths from Typhoid per 100,000 Population				
	1920	1919	Average 1916-1920	Average 1911-1915	Average 1906-1910
Yonkers, N. Y.	0.0	1.0	2.2	8.5	10.2
Tacoma, Wash.	1.5	1.6	2.9	10.4	19.0
Lowell, Mass.	2.7	3.4	5.2	10.2	13.9
Cambridge, Mass.	2.7	1.7	2.5	4.0	9.8
Kansas City, Kan.	2.9	7.0	9.4	....	....
Camden, N. J.	3.4	2.7	4.9	4.5	....
Norfolk, Va.	3.4	....	....	....	....
Albany, N. Y.	3.5	7.6	8.0	18.6	17.4
Fall River, Mass.	5.0	3.0	8.5	13.4	13.5
Reading, Pa.	5.6	6.1	10.0	31.9	42.0
Salt Lake City	5.9	5.4	9.3	13.2	....
Spokane, Wash.	6.7	0.0	4.9	17.1	50.3
Trenton, N. J.	8.3	6.8	8.6	22.3	....
Nashville, Tenn.	9.3	15.8	20.7	40.2	61.2
New Bedford, Mass.	10.6	1.6	6.0	15.0	16.1

TABLE 8.—DEATH RATES FROM TYPHOID IN 1920

Honor Roll (from 0.0 to 2.0)			
Yonkers, N. Y.	0.0	Scranton, Pa.	1.5
Rochester, N. Y.	1.0	Tacoma, Wash.	1.5
Chicago	1.1	Worcester, Mass.	1.7
Bridgeport, Conn.	1.4	Newark, N. J.	1.9
Boston	1.5	Seattle	1.9
First Rank (from 2.0 to 5.0)			
St. Paul	2.1	Cleveland	3.2
Milwaukee	2.2	Philadelphia	3.3
Grand Rapids, Mich.	2.2	Camden, N. J.	3 4
New York	2.4	Norfolk, Va.	3 4
Columbus, Ohio	2.5	Albany, N. Y.	3.5
Los Angeles	2.6	Portland, Ore.	3.5
Minneapolis	2.6	Akron, Ohio	3.7
St. Louis	2.7	Providence, R. I.	3.8
Pittsburgh	2.7	Indianapolis	3.8
Lowell, Mass.	2.7	Syracuse, N. Y.	4 0
Cambridge, Mass.	2.7	Springfield, Mass.	4 6
Hartford, Conn.	2.9	Baltimore	4.7
Kansas City, Kan.	2.9	Denver	5.0
Cincinnati	3.0	Fall River, Mass.	5.0
San Francisco	3.1		
Second Rank (from 5.0 to 10.0)			
Detroit	5.1	Spokane, Wash.	6.7
Buffalo	5.1	Dayton, Ohio	7.1
Louisville, Ky.	5.5	Toledo, Ohio	7.3
Oakland, Calif.	5.5	New Orleans	7.4
Reading, Pa.	5.6	Kansas City, Mo.	7.6
Salt Lake City	5.9	Omaha	7.8
New Haven, Conn.	6.1	Memphis, Tenn.	7.9
Richmond, Va.	6.4	Trenton, N. J.	8.3
Washington	6.5	Nashville, Tenn.	9.3
Youngstown, Ohio	6.7	San Antonio, Texas	9.9
Jersey City	6.7		
Third Rank (from 10.0 to 20.0)			
New Bedford, Mass.	10.6	Birmingham, Ala.	14.4
Atlanta, Ga.	12.8	Paterson, N. J.	14.7
Dallas, Texas	14.3		

to have had a February outbreak of gastro-intestinal disease attributed to the water supply. This was not followed, however, by any marked increase of typhoid. The contamination of the water was supposed to be caused by the use of an inadequate amount of coagulant owing to shortage on account of transportation difficulties. If one must drink diluted sewage it is fortunate, indeed, if there are few typhoid bacilli in the sewage.

The rates for this group of cities are now so low for the most part that there is little use in instituting detailed comparisons of rates for a single year. It is obviously largely a matter of chance whether there are two or five typhoid deaths in a population of approximately 100,000, and no sanitary significance is likely to attach to such fluctuations. Special attention, however, must be drawn to the admirable record of Nashville. There is a great difference between a rate of 61 (average 1906-1910) and a rate of 9 (1920). The steady improvement in the typhoid situation in Nashville is one of the outstanding facts in our record of the last nine years. Few cities have made such progress in the face of great difficulties. Even Richmond did not start at as low a level in its 1906-1910 average.

New Bedford drops from the Honor Roll to a city of the third rank. Some special source of typhoid was evidently tapped in that city in 1920.

In reviewing the whole record for 1920, it appears that typhoid is still decreasing in the large cities of this country at a rapid rate. Tables 9 and 10 show plainly what has occurred. Every group of cities has shared in the decline; and while the rates in the larger cities have been somewhat less than in cities below 200,000 population, the differences seem due to geographic location rather than to size. There are fifty-four cities for which averages for these full five-year periods are now available.

TABLE 9.—AVERAGE DEATHS FROM TYPHOID PER HUNDRED THOUSAND IN EACH GROUP, 1916, 1917, 1918, 1919 and 1920

Group	Year	No. of Cities	Total Population	No. of Typhoid Deaths	Av. Deaths per 100,000
1	1916	9	13,743,746	854	6.2
1	1917	9	14,027,263	774	5.5
1	1918	9	13,809,901	598	4.3
1	1919	9	15,019,516	463	3.1
1	1920	12	16,526,740	460	2.8
2	1916	10	4,053,281	344	8.5
2	1917	10	4,150,099	329	7.9
2	1918	10	4,372,088	298	6.8
2	1919	10	4,511,181	204	4.5
2	1920	9	3,463,760	141	4.1
3	1916	10	2,635,983	248	9.4
3	1917	10	2,701,029	173	6.4
3	1918	10	2,773,716	193	6.9
3	1919	10	2,829,092	134	4.7
3	1920	12	2,951,373	142	4.8
4	1916	14	2,250,991	330	14.7
4	1917	14	2,310,372	307	13.3
4	1918	14	2,449,736	331	13.5
4	1919	14	3,564,860	210	8.2
4	1920	10	1,707,624	135	7.9
5	1916	17	1,983,918	235	11.8
5	1917	17	2,031,313	229	11.3
5	1918	17	2,053,215	240	11.7
5	1919	17	2,103,710	115	5.5
5	1920	7	962,436	46	4.8
6	1920	15	1,718,166	83	4.8
Total....	1916	60	25,667,919	2,011	8.1
Total....	1917	60	25,220,076	1,812	7.2
Total. ..	1918	60	25,458,656	1,660	6.5
Total....	1919	60	27,028,359	1,126	4.2
Total....	1920	65	27,330,099	1,007	3.7

In our last summary the striking drop in typhoid occurring between 1918 and 1919 (Table 7) was ascribed in large part to the typhoid immunization practiced in the army camps in 1917-1918. Additional facts are now at hand to bear out this belief. In a number of localities it has been found that whereas before 1919 the male typhoid rate in the age-group 20-30 was somewhat higher than the female, this relation was reversed in 1919 and the female typhoid rate was much higher than—in some cases more than double—that of the male rate for the corresponding years. It is especially interesting to note that the vaccination immunity persisted to a considerable degree in 1920 and, so far as specific data are at hand, showed no signs of wearing off. The general typhoid death rate seems to corroborate this inference, since the 1920 rate fell below that of 1919 in about the same ratio as that of 1918 fell below that of 1917. At all events, the 1920 rate gives no indication that the men inoculated against typhoid in 1917 and 1918 had in any large proportion lost their immunity in 1920.

TABLE 10.—TOTAL AVERAGE TYPHOID DEATH RATE (1910-1920)

	Total Population (57 Cities)* Estimated by U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910..........................	20,996,035	4,114	19.59
1911..........................	21,545,014	3,391	15.74
1912..........................	22,093,993	2,775	12.56
1913..........................	22,642,972	2,892	12.77
1914..........................	23,191,951	2,408	10.38
1915..........................	23,740,930	2,068	8.71
1916..........................	24,205,359	1,842	7.61
1917..........................	24,740,068	1,647	6.65
1918..........................	24,971,278	1,557	6.23
1919..........................	25,526,186	987	3,87
1920..........................	26,154,013	921	3.52

* Eleven cities are omitted from this summary because data for the full period are not available.

TABLE 11.—NUMBER OF CITIES WITH RATES ABOVE 20 AND BELOW 10

	Number of Cities with Average Typhoid Rates Above 20	Number of Cities with Average Typhoid Rates Below 10
1906–1910..................	31	1
1911–1915..................	9	16
1916–1920..................	2	44

In going over the reports and discussion of typhoid in various cities, one is impressed with the relative frequency of small outbreaks—sometimes hardly half a dozen cases—attributable to drinking the contaminated water of rivers, small streams or springs in public parks or recreation grounds. Oftentimes the water drunk at a "picnic party" is from a source so obviously and so badly contaminated that only the very young or very ignorant would think of using it. In addition to the precaution of making such sources as difficult of access as possible, it would seem that educational influence must be largely relied on to prevent this mode of infection.

A comparison of the Honor Roll (typhoid death-rate from 0.0 to 2.0) for 1920 with that for 1919 shows that the number of cities with the lowest rate has increased from eight to ten. Three cities, Chicago, Scranton, Pa., and Tacoma, Wash., are on the Honor Roll in both years. Cambridge, Mass., has the distinction of making the best record of any American city for the whole fifteen-year period.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, MARCH 26, 1921

COORDINATION IN PUBLIC HEALTH WORK

The movement for better health conditions is now about twenty years old. Beginning with discussion and agitation on specific questions, followed by the organization of a large number of separate societies, it has now reached the stage where the need of coordination and cooperation has become urgent. A number of striking illustrations of this tendency have been seen recently. The various organizations interested in child welfare have formed a federation known as the National Child Hygiene Council, for the purpose of coordinating their work and eliminating duplication, including the American Child Hygiene Association, the American Red Cross, the Child Hygiene Organization of America, the National Child Labor Commission, the National Organization for Public Health Nursing and the National Tuberculosis Association. The council announces as its ultimate goal the development of a comprehensive and well planned child health program on a national scale. It also plans for a community demonstration of what such a program should be.

Another centralizing movement is the organization of the Eye Sight Conservation Council, already noted in our news columns.[1] This council has for its objects the conservation and improvement of vision by arousing public interest in eye hygiene and defective vision, and the protection of the eyes in hazardous occupations.

The same tendency toward coordination and cooperation is found in the Women's Foundation for Health, made up of the representatives of fourteen national women's organizations, among which are the General Federation of Women's Clubs, the Women's Christian Temperance Union, the Young Women's Christian Association, the National Association of Collegiate Alumnae, the Congress of Mothers' and Parent-Teachers' Associations, and others. This body is organized for the attainment of health rather than for the prevention of disease, a most significant and constructive distinction.

Another example of this synthetic tendency is the American Conference on Hospital Service, made up of representatives of twelve national organizations, including the three governmental medical services, the American Hospital Association, the American College of Surgeons, the Catholic Hospital Association, the National Association for Public Health Nursing, and the American Medical Association. This body has established a library and service bureau, and plans to hold annual conferences on hospital management and standardization.

Last, and perhaps most important in its possibilities, is the National Health Council, recently organized as the result of seven years of agitation and discussion. This body is made up of representatives of the American Public Health Association, American Red Cross, American Social Hygiene Association, the Conference of State Health Officers, the National Child Hygiene Council, National Committee for Mental Hygiene, National Organization for Public Health Nursing, National Tuberculosis Association, and the Council on Health and Public Instruction of the American Medical Association. It is intended as a clearing house and coordinating center for constructive organization as well as for the formulation of a uniform policy in the public health field, the development of economy and effectiveness, and the elimination of duplication and confusion in public health work.

It has been obvious for many years that organization in public health has been carried to an absurd point, and that efficiency in administration and effectiveness in public appeal have been largely impaired thereby. It is natural that in a field so large and of such recent development there should be, for the time being, over-organization and duplication of superfluous activities. The pendulum is now swinging in the opposite direction. There is a strong tendency toward cooperation and combination as a substitute for division and rivalry. What the future may bring in the organization of the public for health purposes it is difficult to predict; but the present tendency toward mutual understanding and cooperation is both encouraging and desirable.

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[1] Conservation of Vision, General News, J. A. M. A. **76**: 600 (Feb. 26) 1921.

ARE THERE MORE STRAINS THAN ONE OF SPIROCHAETA PALLIDA?

In 1894, Fournier[1] introduced the concept "parasyphilis," and his investigations and deductions, with those of Erb, have been considered as important contributions confirming the causal relation of syphilis to paresis and tabes. Although the term "parasyphilis" has fallen into disrepute, the definite linking of *Spirochaeta pallida* with the two diseases provided a large field for experimentation and speculation. Thus, the questions whether neurosyphilis is to be considered as a manifestation of a disease more commonly associated with lesions of other structures, or whether there are more strains than one of the spirochete, have attracted the attention of many scientists. What Fournier demonstrated by clinical methods Noguchi afterward confirmed by recovering the spirochete from the brain, subarachnoid fluid and blood of general paralytics.

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[1] Fournier: Les affections parasyphilitiques, Paris, 1894.

After the establishment of the syphilitic origin of paresis and tabes, it was natural that the relative frequency of their occurrence in the history of the disease should be subject to scrutiny by syphilographers, and that investigation should be undertaken to account for the wide divergence in symptoms of a disease attributable to a common causative agent. In 1893, Morel-Lavalée [2] quoted the now well known case of the girl Marthe X, who in 1870 and 1871 infected five successive lovers with syphilis, each one of them succumbing later to paresis. While this series may have had the significance of *post hoc* rather than *propter hoc,* it stimulated investigation to determine whether the exciting cause of syphilis in its many forms was a single organism or whether there were diverse strains of the responsible spirochete.

Up to the present, nothing absolutely definite has come out of these researches. In 1914, Nichols [3] reported the results of a series of experiments relative to the localizing power of *Spirochaeta pallida* and suggested that there were more strains than one of the organism. The same author [4] later reported on experiments made with a strain of *Spirochaeta pallida* recovered from a patient with neurosyphilis, and in this report suggested the existence of different strains with varying invasive power and with individual characteristics. He cited the three forms of the spirochete classified by Noguchi, the thick, thin and medium, and stated that the one with which he worked belonged to the first type. "The question of the variation of strains of a pathogenic micro-organism is a complicated one," he says, "and calls for a consideration of variations in the host as well as in the parasite itself." In 1916, Reasoner [5] reviewed the work of Neisser, Uhlenhuth and Mulzer, Steiner, Weygandt and Jacob, Noguchi and Nichols, and Wile, Zinsser and Hopkins, and further elaborated that done with a strain isolated by Nichols and Hough from a "neurorecidiv." From a number of experiments on rabbits, he concluded that it is possible to demonstrate satisfactorily fixed differences in various strains of syphilis as found in the rabbit; that it is possible to produce nervous involvement in the rabbit without actual intracranial inoculation; that no morphologic differences in the various strains were discovered, and that granting that there are different strains or types of syphilis differing in invasiveness or predilection for certain tissues, the individual resistance of the infected person must still be considered as a factor in the development of the disease.

Of the work undertaken on the continent along this line, that of Levaditi and Marie [6] attracted wide attention. Their studies began in 1914, and were first reported on in 1919. Both are strongly of the opinion that there are two independent strains of *Spirochaeta pallida,* one of which they term the dermotropic and the other the neurotropic, in accordance with their selective action on body structures. In two instances, through accidental inoculation of investigators, they had opportunity to observe results in the human species. Among the significant facts brought out were the different selective affinity for the two so-called strains: the difference in the periods of incubation and, what seems particularly significant, the fact that an animal infected with one strain, while immune to subsequent inoculation with the same virus, has no acquired immunity to infection by the other strain. While they admit the possibility of the evolution of a special strain from a common source, by propagation in the nervous centers, they suggest that this evolution may give rise to a really new strain and that this strain may persist like a mendelian variant as such in place of reverting to its former characteristics; that a developed neurotropic spirochete will thereafter function as such rather than lapse again into a form which may embrace dermotropic attributes. As academic support of their theory, they cite the fact that immunity to any one of the relapsing fevers, African, European or American, does not safeguard the patient from an infection against the others, in spite of the morphologic resemblance of the spirilla and the similarity of the course of the disease which they produce. More recently, Pagniez [7] reviewed this report, and remarks that we are coming more and more to the belief in the existence of different strains in the same micro-organisms, as evidenced by the tendency toward the use of polyvalent serums. To him virulence of the organism seems to be the important factor, and he concludes that syphilis cannot long claim exemption to this law, and that even at the present time one would not be far wrong in differentiating strains in the virus of the disease.

Finally, Laumonier [8] does not agree with Levaditi and Marie. He is inclined to believe that there is a difference in the host rather than in the organism itself, and that the variance in results may be accounted for on this ground rather than by any divergence in the strains of the spirochete itself. This side of the question is, of course, equally entitled to consideration. It is fundamental to the science of bacteriology to consider in any infection the virulence of the infecting organism and the resistance of the host. Further investigations of the various phases of syphilitic infection may possibly bring to light facts which will tend materially to betterment of our knowledge of etiology of syphilitic manifestations and corresponding improvements in therapy.

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[2] Morel-Lavalée: Paralysie générale et syphilis, Rev. de méd. **13**: 137-154, 1893.

[3] Nichols, H. J.: Observations on the Pathology of Syphilis, J. A. M. A. **63**: 466 (Aug. 8) 1914.

[4] Nichols, H. J.: J. Exper. Med. **19**: 362, 1914.

[5] Reasoner, M. A.: Some Phases of Experimental Syphilis, J. A. M. A. **67**: 1799 (Dec. 16) 1916.

[6] Levaditi, C., and Marie, A.: Etude sur le treponème de la paralysie générale, Bulletin de l'Inst. Pasteur, November, 1919, p. 741.

[7] Pagniez, P.: De la pluralité des germes syphilitiques, Presse méd. **28**: 266 (May 1) 1920.

[8] Laumonier: Y-a-t-il plusieurs syphilis? Gaz. d. hôp., Aug. 19 and 20, 1920, p. 1127.

THE EPINEPHRIN TEST IN RELATION TO THE THYROID GLAND

The possible functional interrelationships of various endocrine organ systems in health and disease have become a popular subject for speculation in the last few years. Some of the "tests" now applied in the clinical diagnosis of disordered function of ductless glands are based on assumed interactivities of the sort just referred to. The Goetsch test may be classed in this category. The development of useful methods for the study of the respiratory exchange has made it possible to add facts regarding the metabolism, even in man, to those more easily acquired data respecting pulse rate, blood pressure and body temperature. Any one who will take pains to examine what has been written in regard to this subject will soon be apprised of the contradictions and confusion in the assertions of a rapidly growing number of writers in a field in which accurate observation and clear thinking have been all too rare.

Not long ago, Sandiford[1] of the Mayo Foundation reported the effect of the subcutaneous injection of epinephrin on the metabolic rate, pulse rate and blood pressure of patients suffering from various disorders of the ductless glands. She concluded that doses of 0.5 c.c. of a 1: 1,000 solution of epinephrin chlorid invariably cause an increase in the metabolic rate. This increase is usually accompanied by an increase in the ventilation rate, respiration rate, number of heart beats each minute, volume of each beat, greater utilization of the blood carrying power and peripheral dilatation, with an increased systolic and decreased diastolic blood pressure. In these tests no relationship was found between the intensity of the reaction and the degree of hyperthyroidism or hypothyroidism. Consequently, Sandiford concludes that there is no sound physiologic foundation for the assumption that the character of the reaction following such injections of epinephrin is indicative of the activity of the thyroid gland.

Marine and Lenhart[2] of Western Reserve University Medical School have confirmed these findings in experiments on animals. By comparison of the effects of the subcutaneous injection of epinephrin in both normal and thyroidectomized rabbits—also in the same animal before and after thyroidectomy—it was found that a rise in oxygen consumption occurs in every case. There is evidence, however, that in general the onset of the rise in oxygen consumption following administration of epinephrin is delayed in thyroidectomized animals, and also that it does not last so long. Nevertheless, the metabolism is unquestionably increased by the suprarenal hormone even when no thyroids are present.

One naturally speculates as to the cause of the altered metabolism under the conditions cited, in which the increase in the rate of cellular combustion may vary between values of 4 and 48 per cent. in terms of calorific increase. Previous writers[1] have pointed out the similarity between the increment in metabolic rate after the injection of small doses of epinephrin and that found by Lusk to attend a carbohydrate plethora. This suggests that the epinephrin effects likewise may be due to the liberation of considerable quantities of carbohydrate products in the body as the outcome of the administration of the hormone. In any event, the failure of several competent investigators to discover a strict parallelism between the changes in blood pressures and pulse rate and the degree of hyperthyroidism throws into question the diagnostic value of the epinephrin reaction[3] in such conditions.

Current Comment

THE SOURCE OF TUBERCULOSIS IN CHILDHOOD

Sir Clifford Allbutt remarked a few years ago at a session of one of the sections of the British Medical Association devoted to tuberculosis: "Probably most of us here have had tuberculosis and recovered from it." This epitomizes the widespread current belief that tuberculous infection is a common fate of childhood and that the seeming freedom from the disease in later years is due to the successful resistance of the human organism to the development and spread of the lesions acquired so commonly in the early periods of life. A recent writer[4] has frankly remarked, in reference to the bacillus of tuberculosis, that a germ which is so constantly present in almost every community of civilized peoples must be breathed and swallowed by most persons. This statement is intended to emphasize the belief that these bacilli gain entrance to the system essentially by way of the respiratory and the alimentary tracts, respectively. The question as to the relative significance of these two ever open pathways of infection is one of considerable importance, for on the answer depends in some measure the direction in which early prophylaxis against tuberculosis can most effectively be pursued. Effort must, of course, be concentrated on the maintenance of effective immunity factors, in any event. The building up of a potent resistance by the promotion of good health is a prime requisite. But if the fight is to be carried outside the already invaded human organism into its environment, shall it be directed more vigorously against food or against air? The Journal has no desire to enter the field as a protagonist, yet it recognizes the propriety of presenting the latest evidence from time to time. In this spirit, reference is made to the outcome of an elaborate series of necropsies at the Babies' Hospital in New York by Wollstein and Spence.[5] Although, as was expected, they show the great frequency of tuberculosis in infancy and early childhood, there is suggestive evidence of a decline of tuberculosis among young children admitted to this institution during the last six years. The findings indicate the greater incidence of tuberculosis of infants and young children acquired by inspiring tubercle bacilli compared with that acquired by swallowing the bacilli with milk or food. In only five out of 184 necropsies showing tuberculous invasion were the lungs not involved, and in only seven were the bronchial glands not the seat of tuberculous lesions. In the light of such facts the respiratory factor in the genesis of tuberculosis cannot be minimized.

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[1] Sandiford, Irene: The Effect of the Subcutaneous Injection of Adrenalin Chlorid on the Heat Production, Blood Pressure and Pulse Rate in Man, Am. J. Physiol. **51**: 407 (April) 1920.

[2] Marine, David, and Lenhart, C. H.: The Influence of Glands with Internal Secretions on the Respiratory Exchange, I, Effect of the Subcutaneous Injection of Adrenalin on Normal and Thyroidectomized Rabbits, Am. J. Physiol. **54**: 248 (Dec.) 1920.

[3] Goetsch, E.: New York State M. J. **18**: 259 (July) 1918.

[4] Handbook of Therapy, Chicago, American Medical Association, 1920, p. 191.

URINE SUGAR IN INFANCY

With refinement of the methods of testing for sugars it has become clear that the normal urine is not always absolutely free from these carbohydrates. It is true that such familiar tests as the reaction with Fehling's solution fail to give a positive indication when applied to samples of urine obtained during health. On the other hand, more delicate reactions unquestionably give a positive response indicating that even the normal human kidney is not a perfect barrier against the escape of sugar from the blood in which it is continually circulating. The quantity of sugar that thus finds its way into the urine may be less than a gram per day and consequently fails to be detected; but a sufficiently sensitive test tells the story. Consequently, Stanley Benedict has proposed to designate an unusual excretion of sugar by the term glycuresis rather than glycosuria, which latter seems to be an almost neverfailing phenomenon. As the sugar content of the blood fluctuates to a certain extent in relation to the amount of carbohydrate ingested, it has long seemed reasonable to associate so-called postprandial glycosuria with postprandial hyperglycemia. The conclusion respecting the percentage of blood sugar above which the glycosuria occurs has depended on the refinement of the analytic methods used in the estimation of the carbohydrate in the blood and urine, respectively, as well as on the functional state of the kidneys concerned. These general considerations have lately been further substantiated by Greenthal[6] of the Department of Pediatrics at the Cornell University Medical College, who likewise comes to the conclusion, after employing the methods of Benedict, that the urine of all normal infants contains a determinable amount of reducing sugar. The amount of sugar excreted is not dependent on the volume of urine but is directly proportional to the amount of sugar ingested. As the amount of sugar in the diet is increased, the total urine sugar increases. This increase is chiefly in the fermentable portion and, as a result, the percentage of nonfermentable sugar becomes less. In infants, excretion of sugar, both fermentable and nonfermentable, is fairly constant when the intake of sugar is constant. If these positive findings contradict some of the earlier statements of pediatricians in regard to the carbohydrate problems of infancy, they must be attributed to the advent of more adequate methods. It also is apparent that, in estimating sugar tolerance, careful quantitative determinations of the urine sugar offer the best basis for decision.

MANGANESE AS A POISON

The toxicology of manganese has until recently been little understood. Used therapeutically as potassium permanganate essentially for external application, the element has not been a cause of poisoning, nor have the small quantities that occasionally find internal use in man presented toxicologic problems. Industrial workers are sometimes exposed to the dusts of ores containing considerable admixtures of manganese compounds. This is particularly true in zinc mines, where the oxids of manganese, iron and zinc occur together. Some ores also have a high content of manganese as a silicate. As the sources of menace are insoluble dusts, the chief portals of entry into the body must be the alimentary canal and the respiratory tract.[1] The latter is commonly borne in mind as a path of invasion when matter in particulate form is concerned. The possible effects of coal dust on the lungs of the miner and of quarry dust on those of the stone cutter are widely appreciated by those who deal with industrial menaces. Less consideration is usually given to the equally potent danger from swallowed dusts. In the case of the latter the risk depends primarily on their solubility in the alimentary secretions. Investigations of Reiman and Minot[2] in the Laboratory of Applied Physiology at the Harvard Medical School demonstrate that ores containing manganese as oxids and silicates are soluble in gastric juice. Manganese is absorbed in the blood stream, causing in most cases a slight temporary rise in manganese concentration followed by a quick return to normal. In none of the cases studied was the manganese content of the blood increased by the ingestion of manganese ores to a value of more than double the normal level, and in some of the subjects no increase was noted. Even prolonged feeding of large amounts of manganese ore to dogs failed to produce significant changes in manganese content of the blood and tissues or to cause any pathologic symptoms. Manganese ores are thus nontoxic, and in order to produce symptoms of poisoning must be ingested by persons who are peculiarly susceptible. This doubtless serves to explain the comparative rarity of cases of severe intoxication caused by this element in clinical experience. Incidentally, it may be noted that manganese is far more widely distributed in traces in nature than is commonly supposed, so that it has even been rated by some as being among the essential components of living matter.

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[5] Wollstein, Martha, and Spence, R. C.: A Study of Tuberculosis in Infants and Young Children, Am. J. Dis. Child. **21**: 48 (Jan.) 1921.

[6] Greenthal, R. M.: A Study of the Urine Sugar in Infants, Am. J. Dis. Child. **20**: 556 (Dec.) 1920.

[1] Edsall, D. L.; Wilbur, E. P., and Drinker, C. K.: J. Indust. Hyg. **1**: 183 (Aug.) 1919.

[2] Reiman, C. K., and Minot, A. S.: Absorption and Elimination of Manganese Ingested as Oxides and Silicates, J. Biol. Chem. **45**: 133 (Dec.) 1920.

Association News

THE BOSTON SESSION

Clinics Preceding the Scientific Assembly

The Local Committee on Arrangements announces that among other features which are being provided for the entertainment and instruction of the Fellows who attend the annual session will be a series of clinics in the Boston hospitals, June 6 and 7. The hospitals participating are the Boston City Hospital, the Boston Lying-in Hospital, Carney Hospital, the Children's Hospital, the Eye and Ear Infirmary, the Free Hospital for Women, the Floating Hospital, the Forsyth Dental Infirmary, the Good Samaritan Hospital, the Huntington Memorial Hospital, the Infant's Hospital, the Massachusetts General Hospital, the New England Hospital for Women and Children, the Peter Bent Brigham Hospital, the Parker Hill Hospital (Public Health Hospital) and the St. Elizabeth Hospital. In addition, the Angell Memorial Animal Hospital will be open for inspection during the days of the annual session. These arrangements will make available to visiting physicians the clinical facilities of the medical center in which the annual session is to be held. In addition to the clinics, Fellows are invited to visit the open air classes conducted in connection with the Boston public schools.

Medical Historical Exhibit at the Boston Public Library

In the room used for exhibits on the floor of the special libraries at the Boston Public Library, there will be an exhibit of early texts (Hippocrates to Sydenham) dealing with fevers and with specific infections. These will be arranged in chronological order. In addition to the texts, there will be considerable illustrative material touching on hospitalization and treatment, the use of baths, venesection, new remedies, pest banners, broadsides and medals, also Saint Roch and Saint Sebastian, and various aspects of the plague and syphilis dealt with in the graphic arts. General texts illustrating the Greek, Byzantine, Mohammedan and medieval practice in fevers will occupy half of the space allotted. The other half will contain tracts on the plague and syphilis, original descriptions, new diseases and primary treatises on the doctrine of contagium vivum. A descriptive catalogue will be ready for distribution at the time of the annual session.

ANNUAL CONFERENCE ON MEDICAL EDUCATION AND HOSPITALS, LICENSURE AND PUBLIC HEALTH

Held in Chicago, March 7-10, 1921

MEDICAL EDUCATION AND HOSPITALS

(Continued from page 801)

TRIAL REPORT OF THE COMMITTEE ON GRADUATE INSTRUCTION IN PHYSIOLOGY

Dr. Joseph Erlanger, St. Louis: The course of training of candidates for a career in physiology may be divided into (I) collegiate training and (II) professional training, the latter term being used in a broad sense to include work done toward the Ph.D. degree as well as toward the M.D. degree, since in either case the candidate is preparing himself for a profession.

I. Collegiate. (a) Minimal. Two years of college work, including physics, chemistry (through organic) and biology. (b) Maximal. A full college course, including the usual liberal training, the subjects mentioned under I a, German and French, and courses leading through calculus, advanced physics and physical chemistry. II. Professional. 1. In the graduate school (the departments of a university medical school are regarded as departments of the graduate school). (a) Minimal. Requirements for the Ph.D. degree with physiology as major. (b) Maximal. Same as under II, 1 a, but minors to include courses advancing the training in some one or two of the cognate subjects mentioned under I b. 2. In the medical school. (a) Minimal. Four year medical course. (b) Maximal. Four year medical course with ample time for electives, which should include some of the subjects mentioned under I b and II 1 b, in which the student may happen to be deficient, investigation in physiology and physiologic journal club.

An internship is not regarded as essential; but if a fifth year should be required for graduation or medical licensure, then those intending to go into physiology should be allowed to devote that year to laboratory work. In order to satisfy legal requirements and still leave the way open to a scientific career, provision might be made for interns in physiology whose function would be to do for physiology what pathologic interns now do for pathology.

The training as tabulated above should suffice to prepare the student for an assistantship in a physiologic department where, under the apprenticeship of a competent physiologist, with the preparation of demonstrations, practice in teaching, participation in a journal club, and, especially, research as his duties, the candidate, should be given an opportunity to demonstrate his worth.

The problem confronting physiology and certain other of the preclinical sciences differs from the general problem to be solved by the Committees on Graduate Medical Instruction in that the physiologist can practice his profession in a university only, whereas relatively few clinicians expect to devote themselves to university work.

GRADUATE INSTRUCTION IN PHARMACOLOGY

Dr. Charles W. Edmunds, Ann Arbor, Mich.: There are three groups of men for whom graduate instruction in pharmacology has to be provided: Those who expect to become pharmacologists; those who enter pharmacology, but who later may go into internal medicine, and finally, those who are preparing for one of the medical or surgical specialties, and who desire some work in this subject as a part of their graduate training.

The relation between pharmacology and internal medicine is so intimate that graduate courses in pharmacology for those who plan ultimately to go into internal medicine require separate discussion. Provision should be made for two types of students. The first of these is the graduate student whose major subject is internal medicine. Such a student will require further training in the fundamental sciences, more particularly in pathology, bacteriology, immunology, physiology and pharmacology. Of these fundamental sciences one might properly be selected as a chief minor subject. Should pharmacology be so selected, the student while receiving his main training in the clinic should also be given special training in pharmacology. This could be accomplished by having him assist in pharmacologic demonstrations and experiments or in the teaching of pharmacology and therapeutics. He might also do special work on a pharmacologic problem that possesses clinical interest but which requires animal experimentation. The second type of graduate student would be the one who has chosen pharmacology as his major subject but who expected ultimately to go into internal medicine. In such a case the course would not differ greatly from that taken by the graduate student who planned to remain in pharmacology. The former, however, might more properly assist in the teaching of therapeutics and conduct a clinical research on some pharmacologic problem.

Coming now to the training of the pharmacologist proper, there is first of all to be considered his preparatory training, and secondly, his special graduate instruction. The preliminary training would be practically the same as is demanded for admission to the best medical schools today, viz.: two years of college work or more, if possible, the same to include German and French, and the usual sciences. It is advisable that more than the minimum amount of chemistry and physics should be taken, if possible. It should be clearly understood that the preparatory training mentioned is to be considered to represent only the minimum amount which is to be demanded, and that the possession of a Ph.D. degree with chemistry as a major will be a very distinct asset to the future pharmacologist. In the medical school, the student should take the full course leading to the M.D. degree; but in those schools allowing electives, these should usually be selected from the group including chemistry, physiology and pharmacology.

After graduation, it is highly desirable that he should take a year's general internship. In this matter, pharmacology in its demand differs from some of the other preclinical branches in which the Ph.D. degree may suffice in place of the M.D., and the intern year is not so important as it is in pharmacology.

Coming now to special training, it may be said that it should extend over a period of at least three years. This training may be secured in one institution, but it is advisable, on account of its broadening effect, that the student should migrate from one institution to another.

Medical school authorities must recognize that it takes as much natural ability, time and energy to train a pharmacologist as it does to train men for the other branches of the medical sciences. Therefore, if pharmacology is to compete with these sciences for men, it must do so on equal terms; it must offer equal opportunities and equal rewards. If pharmacology is not to be on an equal footing with physiology, biologic chemistry and other sciences, and if the men properly trained are not to receive just treatment, there is no need to provide courses for graduate instruction. The courses may exist on paper, but no one will enter them.

POSTGRADUATE TEACHING IN PATHOLOGY

Dr. James Ewing, New York: Since the interpretation of data gathered in the pathologic laboratory is possible only in the light of clinical information, a preliminary clinical training, preferably in a large hospital, or in several special hospitals, will greatly increase the beginner's chances of advancing far in pathology.

Teaching experience is a valuable influence in the training of a pathologist. It broadens his interests, systematizes his work, reveals defects in his knowledge, and trains him in the use of language and literature, while such service may be the source of a salary which will tide him over lean years. A transfer from one branch of pathology to another, or to a systematic course in bacteriology, would form a desirable variation in the teaching experience. Routine teaching, however, should not consume a substantial part of the young pathologist's time or energy. The major part of training in pathology is best accomplished in a university hospital laboratory, in which there are numerous necropsies, a constant flow of material of all types, and a full and competent discussion of the problems of disease as they arise in an active general hospital. Here also he may gather profit by frequent visits to the wards, the operating room, and the roentgen-ray department of the hospital, to keep him in touch with the problems of the clinic.

A synopsis of the scheme thus outlined for the training of the higher grade of pathologist may be presented as follows:

Course for degree Ph.D. in Pathology.
Prerequisite—M.D. degree from a good medical school.
One or more years as hospital intern advisable.
Three years' service in a university or hospital laboratory.
Teaching experience, not over ten hours weekly, for which a salary or fellowship is provided.
Advanced work of practical character, or as instructor in bacteriology.
Minor course in biochemistry, embryology, etc
Reading of literature; case reports.
Production of a thesis.

In order to maintain candidates for the degree in pathology over the period of three or more years, a system of fellowships is highly desirable, if not essential.

The matter of awarding the Ph.D. degree in pathology to undergraduates in medicine has revealed a difference of opinion in the committee. The writer and others hold that this degree in pathology should signify not only general competency, but some special fitness in that field, and the ability to accomplish in it independent original work.

University laboratories should provide special courses in subjects in which the school is particularly well equipped, for pathologists desiring additional training. These courses may include: experimental pathology; medicolegal pathology; necropsy technics; surgical pathology; tumor diagnosis; tropical diseases; serology; clinical microscopy, and chemistry. Comparatively few American pathologists have failed to spend one or more periods in pursuit of such courses in European laboratories.

From the inspection of many of the postgraduate courses in the clinical specialties now being given in this country, we feel that they are generally of a high order from the clinical side, but that the deficient training of the average student in general pathology often renders the pathologic work rather superficial.

The committee believes that the present standard of pathologic service in the great majority of hospitals is exceedingly low, and it feels that this condition has seriously affected the welfare of patients and lowered the efficiency of hospital practice to the danger point. That this situation is clearly recognized by clinicians, especially since the revelations of the war, is also apparent from the insistent calls for hospital pathologists that cannot possibly be met. There is little doubt that this dilemma has been reached mainly because of the misconceptions of the clinical staffs of hospitals, and of some medical schools, regarding the functions of a pathologist.

What are the functions of the hospital pathologist which make him essential in a well ordered institution?

1. To investigate the causes of the fatalities that occur in the hospital, to elucidate the course of the disease, record the lesions observed to correct partial or erroneous diagnosis, and to help to reduce the preventable deaths.

2. To study the obscure and the rare cases and problems that arise in the laboratory, wards and operating rooms, with all means at the disposal of a well equipped pathologic laboratory, including pathologic anatomy and histology, bacteriology, chemistry and serology.

3. To keep himself familiar with the literature and progress of the medical sciences, so that he may become a competent authority in his own field, and prove of service to his clinical colleagues, most of whom have less time to devote to such pursuits.

4. To serve as consultant in the wards and operating rooms, where by virtue of his knowledge, especially of pathologic anatomy and bacteriology, he should be able to bring data with which, as a rule, the clinician is less familiar.

5. To cooperate with the internist in general diagnosis; to serve the surgeon in gross anatomic and physical diagnosis so that both may escape the thraldom of the frozen section, the probatory incision and the exploratory laparotomy; to work out with the radiologist the interpretation of plates. The wide use of the pathologic conference shows how the progressive clinical staff values the service of the consulting pathologist.

6. To supervise the work of the clinical laboratory, maintaining technical standards, restraining excessive demands, establishing correct indications for the resort to laboratory tests, and aiding in clinical research.

7. To pursue systematic research in problems of pathology, and to stimulate and train others in such work.

For the continued supply of such men the committee is deeply concerned, and it regards this field as the most important in postgraduate training in pathology.

As preliminary training for such posts, we recommend the course outlined for the degree of Ph.D. in pathology, but there seems little probability that many men can take the necessary time for such studies before they become absorbed in routine hospital work.

Dr. Louis B. Wilson, Rochester, Minn., chairman of the Council's Committee on Graduate Medical Education, presented a summary of the reports on graduate training in the specialties by means of charts.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Thirty-First Annual Meeting, held in Chicago, March 8, 1921

Tuesday, March 8—Morning

Higher Medical Education: The True Interest of the Public and of the Profession

Dr. William Pepper, Philadelphia: The time has come to consider seriously whether the so-called "two year premedical course" is producing students properly prepared to study medicine. Already five medical schools have evidently decided that they believe that two years of college work is insufficient. Quite a few medical teachers feel that a third year of chemistry is needed, so that the student will have had qualitative analysis in addition to general inorganic and organic chemistry. The two year premedical course contains only specified amounts of physics, biology, chemistry, English and French or German, and in consequence practically no time remains for any other college subjects. The best plan would be a combination of seven years, the college granting its undergraduate degree at the completion of the first year in medicine. For years to come some medical schools will limit the size of their classes and select the best students, men with more than the minimum entrance requirements. Students are beginning to realize this; and in order to increase their chances of getting into the medical school of their choice, they are taking more than the required two years of premedical study. Until the colleges of arts and science cooperate with the medical schools, the number of medical schools raising their entrance requirements above two years will remain rather limited, but the number of students who will present for admission to medical schools more than two years of college work will steadily increase, and eventually the requirement will become much more common than it is today.

Teaching of General Medicine

Dr. Charles P. Emerson, Indianapolis: The objects of the course in general medicine are, first, to train the many students who will practice general medicine, and, second, to lay for the few who plan to specialize in internal medicine a satisfactory foundation for their advanced work. Six hundred and forty hours is entirely too brief a time in which successfully to teach general medicine. The spirit of research should permeate the entire medical department. A clinical teacher fails if he is not engaged in some medical research, and the senior students also should be encouraged to undertake limited problems. We approve of the requirement of a thesis for graduation. Some clinical teachers believe that the weeding out of unfit students should come during the premedical and preclinical years. We would protest. Students may lead their classes in the premedical sciences and be "unfits" in the clinical branches. The clinical teacher of today should be allowed the time to review with his students each medical science from the angle of his own subject. Not only will the best of students each year forget a certain (not small) amount of each science unless it is reviewed, but it is also true that a real anatomist and a real chemist will not teach anatomy, chemistry, etc., in a manner quite satisfactory to the internist or the surgeon; and the more excellent these courses as judged by university standards, the greater the specialists these teachers are, the more unsatisfactory at first to clinical teachers will the results be.

All laboratory examinations should, so far as is possible, be discussed in connection with the history and physical examination of the patients. Tht present sharp separation of laboratory and ward should be condemned strongly. There should be a course in physical diagnosis during the second semester, consisting of one, or better two, demonstrations each week to the class as a whole, and one practice period of two hours each week for each student who also shall be required to practice outside of class hours. Surface anatomy of the living and regional anatomy, so far as it is important in medical diagnosis, should not be combined with the course taught in the surgical curriculum, since it should be very different. Recitations in clinical medicine from a textbook might well begin in the second year after the course in general pathology is about half completed, and should be continued during the first half of the third year. The purpose of this recitation is to teach something of diseases rarely seen in the wards and to emphasize the cardinal feature of each common disease. There are some good arguments in favor of a few clinical lectures during the second year in order that the students may get the clinical point of view early; but in a crowded curriculum this is hardly worth the time it would consume, and especially since the same object may be attained more profitably by developing the clinical side of the demonstrations in physical diagnosis and surface anatomy. There should be thirty-six weeks of clinical diagnosis, two periods of laboratory medical diagnosis of at least two hours each and one hour for recitation each week. No more than one third of each laboratory period should be spent in the formal demonstration. During this course the student should examine as many different specimens as possible. The examination of each specimen should be preceded by a brief statement of the case concerned and in some cases by the demonstration of the patient himself. The student as clinical clerk should be assigned to one medical service, and be the assistant of but one intern at a time and responsible to him for definite ward duties. He should have his own desk space, his own locker and individual apparatus. At least one clinical medical conference should be held each week attended by the entire class, a conference at which the teacher is in large degree the presiding officer and critic. Here the students will demonstrate their most instructive cases. There should be dispensary service in the third or fourth years, preferably the fourth, four days a week. Some schools offer many short courses in special medical topics. Several schools offer elective courses in experimental medicine open only to the best students of the class. The students should be required to report on the important literature of their interesting ward cases. It is important also that during the third or fourth years the students be actually trained in the use of current literature. Clinical pathologic conferences are valuable. We urge that there be given during the third or fourth year a well planned course in the history of medicine of at least one hour a week for thirty-six weeks. One of the strongest arguments in favor of the study of the history of medicine is our present disregard of the various forms of physical therapy and the resulting strength of the many popular schools of irregular practitioners. There are strong arguments in favor of a department of environmental medicine. While hygiene is so closely related to bacteriology that it may, in part at least, be taught as a second year subject, preventive medicine, on the other hand, presupposes a fairly complete course of medicine and logically should be taught toward the end of the senior year. We fail to know any reason which justifies the presence of the subjects hygiene and preventive medicine earlier in the curriculum. The lectures in life insurance could be enlarged to one of the most valuable courses in medicine. The actuaries of life insurance companies are collecting valuable statistics which can define accurately to us the significance of clinical signs and symptoms and which should in time place prognosis on a surer foundation.

DERMATOLOGY AND SYPHILOLOGY

Dermatology and syphilology should be taught in one department, but should be correlated with other departments. Dermatology and syphilology should have an important place in the curriculum. The majority of communicable diseases have cutaneous signs among their early manifestations. The personnel of the teaching staff should comprise a full professor sitting in the faculty as chief of the department of dermatology and syphilology. The course in dermatology and syphilology requires a minimum of from eighty-five to 100 hours. Adequate equipment should be provided to teach the special treatment of skin diseases and syphilis. In conjunction with a department of preventive medicine, the department of dermatology and syphilology should give the medical student careful training in the social service methods of following up those afflicted with the great group of communicable skin diseases and most particularly with syphilis.

The course might be thus divided: A preliminary course of fifteen lectures in the third year: 1. To review the physiology and histology of the skin and to study the method of vesicle formation, edema, acute and chronic inflammatory processes as they occur in the skin, and the mode of formation of papules and elementary skin lesions. 2. To study the pathology of the more important dermatoses and of syphilis. 3. To study cutaneous reactions, sensitization to light and its various reactions to chemicals of all kinds, including pollens, dyes, professional dermatoses, etc. 4. To cover the historical outline, parasitology and immunologic processes in syphilis. In the fourth year: 1. From thirty to thirty-five clinical lectures on dermatology. 2. From twenty to twenty-five clinical lectures on syphilology. 3. From twenty to twenty-five hours of section teaching. The department of dermatology and syphilology should have at its disposal a certain number of hospital beds so that the student may become familiar with types of dermatoses and syphilitic lesions not seen in an ambulatory clinic.

Surgery and Surgical Specialties

Dr. Hugh Cabot, Ann Arbor, Mich.: The very strong tendency of recent years to what may be called "block teaching" in the preclinical subjects has had definite advantages in enabling these subjects to be driven home and thereby create a solider foundation. On the other hand, it has also had a distinct tendency to create the impression that the branches so taught are done and over with. This produces an undesirable isolation and accentuates the tendency to a sharp break between the first two years of the curriculum, which are largely preclinical, and the last two years, which are largely clinical. Surgical diagnosis cannot be taught, except with the most intimate association with pathology and bacteriology. Surgical treatment cannot be taught without the most intimate association with anatomy. It seems fairly clear that it is not feasible to begin the teaching of surgery earlier than is at present the case.

Very desirable exercises tending to draw together surgery, pathology and bacteriology are the careful review of all patients coming to necropsy, such discussions to be conducted by the surgeon, the pathologist and the bacteriologist jointly. Greater effort must be made to interest the teachers in these departments in the clinical problems and lead to their closer association with the surgeon, while in the field of anatomy effort must be made to increase the working knowledge of the surgical teachers in embryology and anatomy as they come up in daily relation to surgical diagnosis and operative surgery. Unless we are prepared to regard all diagnosis as essentially medical, and to admit that surgery is only a department of applied therapeutics, the teaching of medicine and the teaching of surgery should go hand in hand. But there is grave danger, with the present marked tendency to separation in the teaching of these subjects, of the development of a medical view versus a surgical view of the same condition. With the present general distribution of hours between the department of medicine and the department of surgery we are in accord.

The developments of recent years have shown a strong tendency to abandon didactic and ex cathedra teaching and rely more on those methods which bring the student and the patient into closer contact. Didactic lectures are not a desirable method of teaching surgery as a whole. If used on too large a scale they tend simply to relieve the student of the requirement to read, which is, in fact, for him a most important method of learning.

The substitution of the clinical for the didactic lecture has been a common and very wise practice. It is not a substitute for section teaching or bedside instruction, but rather a substitute for the didactic lecture, which must be illustrated, if at all, only by drawings and diagrams. The older practice of conducting quizzes based on textbook reading has been largely superseded by quizzes based on clinical lectures, bedside and section teaching. Section teaching is essential when dealing with the relatively large classes that are today the rule. It is the modern answer to the grave damage that resulted to the teaching of surgery when medical schools became thoroughly organized and the old days of "walking the hospital" disappeared. Within reason, sections should be made as small as possible; but with large classes this will require a number of instructors, which is likely to prove a severe strain on the budget.

The practice of introducing students directly into the hospital as part of its machinery fosters in the student the practice of getting close to his patient, and accentuates the necessity of some understanding of a patient's psychology as a prerequisite to obtaining a decent history or to making a satisfactory physical examination. One of the most important things in the teaching of medicine is that the student should learn how and where to obtain information on any given subject.

The teaching of surgical specialties should fit into the general scheme of the teaching of surgery as part and parcel of the regional teaching. The surgical specialties are better taught over at least a two-year period rather than crowded into one.

The plan for the whole teaching of surgery must be made by the chief of general surgery in the interests of balance. Early in the teaching of the principles of surgery must be laid down the underlying principles of the management of fractures and dislocations. They may be taught early in the course, and as these principles are those underlying much of orthopedic surgery, they may often be taught to advantage by the orthopedic department. The same view applies to the diseases of bones, including osteomyelitis and tumors.

As a preliminary to the teaching of the diagnosis and treatment in genito-urinary surgery, the physiology and pathology of renal function should be reviewed and the tests for renal function demonstrated and actually carried out by the student. The physiology of urination should be stressed, and the anatomy and physiology of the genital tract in the male reviewed. Then, thorough instruction in urethral and genital infections should be given, as these conditions are constantly facing every practitioner in every field. It is desirable, where possible, that the teaching of venereal infections and syphilis be conducted more or less jointly, and it will save some time. Next should be laid down the principles of urethral, bladder and ureteral examinations and the place of cystoscopy in the diagnosis of urinary lesions.

The diagnosis of diseases of the ear, nose and throat depends on methods of examination so technical in character and so difficult to acquire that it seems necessary to begin the work by a short intensive course in the technic of examination. This is best given in the junior year, and forms one of the so-called demonstration courses given to sections as large as the clinical facilities and material will permit. Throughout the course the effort is made to impress the student with the fact that he has not been created a specialist in this line but that he has been given merely an outline of the work necessary for every general practitioner and that, to acquire even a working knowledge of the subject, postgraduate work is necessary.

It is recommended that the undergraduate teaching in ophthalmology be given in the third and fourth year of the prescribed medical course. While it is impossible to give sufficient instruction in the regular medical course to qualify one as a specialist, the student should know the possible ocular manifestations of general disease processes and be familiar with the more ordinary disease conditions of the eye, especially with those in which the sight of the patient is in jeopardy.

No attempt should be made to make roentgenologists out of undergraduate students. They must know the theory and principles of roentgenology, and above all, they must understand the place of this diagnostic method in the field of surgery. It is sound practice to begin the teaching in the third year and carry it through to the end of the course, and this teaching should roughly follow the lines already laid down for the other specialties. Much use should be made of roentgenology in the joint medical and surgical clinics, as in no other way can the varying position of the method be kept constantly before the student.

DISCUSSION

DR. JAMES EWING, New York: The work of the internist is now becoming so extensive that we must look about for some means of limiting the scope of his work which we can safely bring before undergraduate students. We must differentiate between the primary and secondary phenomena of disease. In teaching the undergraduate students we ought to confine our attention largely to the primary phenomena of disease and make it clear that when we examine the blood and urine and various functions of all organs, we are digressing from the essential principles of the practice of medicine. Unless we do that, there is going to be somewhere in the training of the student a very serious deficiency. I find that men are deficient in their knowledge and education of the primary phenomena of disease. The great majority of medical students turned out from the best medical schools are unable to recognize the beginning of cancer in the various organs. They have never seen it. They do not understand the methods of differentiating benign from malignant processes in these organs.

DR. G. CANBY ROBINSON, Nashville, Tenn.: We should attempt to bring internal medicine and special pathology together. Special pathology and internal medicine should parallel each other.

DR. J. J. R. MACLEOD, Toronto, Ont.: We have evolved a curriculum which conforms to the standards you have laid down, but which makes a decided constructive attempt to correlate more accurately the clinical with the laboratory subjects. Throughout the whole of the course the student must be made to realize that the science of medicine and surgery depends on the application of the fundamental sciences—physics, chemistry, biology, etc. Physics is given early in the course. We take him through physiology, biochemistry and anatomy, and then into the clinic, where he is brought face to face with the practical application of the principles of these sciences in the practice of medicine and surgery. In the United States many of the premedical and fundamental medical sciences are given in schools in buildings that are situated at a distance from the clinics, and there may be practical difficulties in working out the correlation; but I imagine that in the future laboratories in the fundamental medical science will be brought into closer touch geographically with the clinical wards. Teachers in the clinical branches should be given opportunity to talk over informally the application of physiologic and biochemical methods in the study of the symptoms of disease. We are making an attempt to do that in Toronto.

DR. W. F. R. PHILLIPS, Charleston, S. C.: Preclinical teachers are asked to furnish a scientific basis on which the art of medicine is founded. The clinician should tell the teachers of physiology, pathology, etc., what tools he finds defective, and then an endeavor should be made to correct those defects. As a teacher of anatomy, I cannot impart knowledge and make an anatomist out of a student in the length of time I have at my disposal.

DR. ROBERT WILSON, Charleston, S. C.: I should like to emphasize the need of readjusting the relation between ward teaching and dispensary teaching. Our students are not familiar with the clinical aspects of the disease problem, but in attempting to unravel those diseases when they present themselves in their incipient forms in dispensary service, I feel that we ought to put senior students in the dispensary and junior students in the wards, or make an arrangement by which the seniors and juniors shall work in wards and dispensaries.

DR. LOUIS B. WILSON, Rochester, Minn.: There are certain personal characteristics that should be developed in the medical student, even at the sacrifice of a little knowledge. The first of these is thoroughness. The enormous number of subjects now taught in medical schools is materially reducing the sense of thoroughness necessary in the graduate. Students do not seem to know what it means to go absolutely and completely to the bottom of a subject. Another characteristic is modesty and real honesty to oneself.

DR. M. G. SEELIG, St. Louis: By intensifying the art side of surgery we have developed what Treves described, as the greatest menace to surgery, that is the simon pure brilliant technician. The only man who is the real, qualified, well rounded surgeon is he who has approached surgery from his student days under the inspiration and instruction of properly impassioned instructors with the idea that the fundamental regulating factor in surgery is the scientific basis on which it rests.

DR. GEORGE E. ARMSTRONG, Montreal: There is a great difference between the teacher and the communicator of knowledge. I want the student to record his observation, say what his impression is, and you will be surprised how far he can go without teaching him. It is important for a student to see an abdomen opened and to know what it looks like. The reason and instruction you give him after that are much more valuable; he appreciates them more; it is a part of his knowledge.

Dr. B. D. Myers, Bloomington, Ind.: The anatomist, in addition to teaching anatomy, is confronted with the necessity of teaching the language of medicine, and anatomic nomenclature is not small. There is danger in connection with the quiz of the knowledge of the student being brought out in a fragmentary way. If the student is called on in the so-called quiz to give a discussion of the subject, it is much better.

Teaching of Obstetrics and Gynecology

Dr. J. Whitridge Williams, Baltimore: Obstetrics and gynecology should be merged into a single department for teaching purposes, irrespective of what the individual members of the staff may prefer to do in their private practice. The reason for this recommendation is twofold: First, that the two subdivisions embrace the entire field of the physiology and pathology of the female reproductive organs, and thus constitute a subject sufficiently important to occupy fully the attention of well trained and intelligent men; and, secondly, they overlap to such an extent that when taught separately considerable reduplication of teaching effort must occur, which leads to an unnecessary waste of time. The essential surgical training can be obtained only in gynecology, and, conversely, correct gynecologic thinking requires extensive obstetric training. In this country most gynecologists have no obstetric training, with the result that, although one half of their work originates from injuries or infections occurring at the time of labor or abortion, they take no interest in their mode of origin or in preventing their occurrence.

The chief cause for the prevalence of poor obstetric training in this country lies in the tardy appreciation by authorities of medical schools of the physical needs of the department of obstetrics. Until recently it was generally believed that obstetrics could be taught suitably by lectures, supplemented by an outpatient service in the homes of the poor, and a few beds in a corner of the hospital for operative cases. An adequate supply of indoor clinical material is essential to the proper teaching of obstetrics, and its lack cannot be supplied by work in the homes of the poor, no matter how extensive.

Men of the type necessary to head women's clinics, such as we have outlined, will be chosen because they have demonstrated that they will be prepared to spend the rest of their days in demonstrating to younger men the joy of a life devoted to the pursuit of knowledge and to the welfare of the patients and students committeed to their care.

In a well organized service, every student, as soon as he has learned obstetric anatomy and the physiology of normal labor, should serve for at least two weeks in the dispensary, spending the first week in learning the essentials of obstetric examination, palpation and pelvimetry, and the second week in becoming acquainted with the details of prenatal care. Later, he should be afforded additional facilities for perfecting himself in the technic of pelvimetry and palpation on patients awaiting delivery in the wards, and then be given the opportunity to take part in at least ten normal deliveries in the ward, being required to follow each patient from the time of admission to the delivery room until she is discharged from the hospital. Toward the end of his experience, each students should be allowed to deliver several patients under the supervision of a competent instructor. In the postpartum clinic, the student should be taught that his responsibility does not end with the delivery of the patient, but continues until she can be discharged in such physical condition as to be able to attend to her household duties without effort and to suckle her child.

The fundamental obligatory courses should be conducted by the professor and by the senior members of the department. The professor should personally conduct such courses as demonstrate the interlocking relations between gynecology and obstetrics, and he should also take a personal, although necessarily small, part in the various phases of dispensary activity. The value of obligatory instruction in any subiect lies not so much in the time occupied as in the manner in which it is given. If the student is brought into direct personal contact with the personnel of an enthusiastically conducted clinic he will receive an impression concerning its aims, which he will fail to get from freer access to a service of much larger size conducted in a perfunctory manner.

DISCUSSION

Dr. Joseph B. De Lee, Chicago: I agree with Dr. Williams as to the necessity of having gynecologic and obstetric teaching under the headship of one professor, a full-time man. The difficulties of getting a full-time man are great, and in most cities insurmountable at present, for financial reasons principally.

Dr. L. E. Burch, Nashville, Tenn.: In a university hospital the man in charge of obstetrics should also be in charge of gynecology. He should have had a broad obstetric and gynecologic training. I do not mean that the head of the department should practice either gynecology or obstetrics alone. It is not possible for a man to attend to a large obstetric service and at the same time carry on a large gynecologic practice, for the reason that if he is up the greater part of the night attending to obstetric cases it is impossible for him, if in charge of the department, to do himself full duty or his patients full justice. In teaching I have obtained the best results by assigning a lesson in a standard textbook and then emphasizing the important points, elucidating the subject with models, charts, lantern slides, and pathologic specimens.

Dr. James M. H. Rowland, Baltimore: Combining gynecology and obstetrics into one chair in charge of a full-time teacher would tend to give the best teaching. As to the character of teaching, there is no doubt that a well demonstrated case of labor in a hospital is worth more than any case can possibly be that is seen on the outside.

Dr. Jennings C. Litzenberg, Minneapolis: From a pedagogic standpoint, obstetrics and gynecology are inseparable. You cannot make a good obstetrician without training him gynecologically, and you cannot make a good gynecologist without an extensive obstetric training.

Dr. George M. Kober, Washington, D. C.: In our university hospital, 250 beds are devoted to obstetrics and gynecology, about one third the bed capacity of the hospital. We have a prenatal clinic and an infant welfare station.

Dr. Alice W. Tallant, Philadelphia: I should like to make a plea for an outdoor obstetric service. After students have had indoor work demonstrated to them in their third year of obstetrics, they can gain valuable knowledge from studying and coming in contact with obstetric patients in their homes.

Undergraduate Medical Curriculum

Dr. Frank Billings, Chicago: The character of the reports made by committees representing the fundamental and the clinical branches on the principles and policies which should be followed in undergraduate and in graduate medical training indicates the need of a decided modification in the curriculum of the medical school. Specialism in the teaching of and in the practice of medicine has been permitted to warp our judgment and to divert us from the proper course to pursue in the attempt to educate and train the student of medicine. There are not a sufficient number of efficiently trained general practitioners or of adequately trained specialists to meet the public need. We are all practically in agreement that primarily the student should be educated broadly and comprehensively so that he may be qualified to practice general medicine. If he is desirous of becoming an internist, a general surgeon or a specialist in one of the narrower fields of practice, he must have adequate postgraduate medical training to qualify him for the work. Therefore, the chief product of the medical school should be the graduation of resourceful, broadly educated and well trained practitioners of medicine.

We may arrive at a better conception of what the education of the general practitioner should be if we consider what are the obligations and responsibilities of the general practitioner to the community he serves. In practice, he is a family physician, and in this, his chief rôle, he is responsible for the safe and sane treatment of the family in illness and injury. He counsels and advises the family on all problems which confront it in relation to individual and general hygiene, public sanitation, education and community obligations and responsibilities. He must have a good general knowledge of the principles relating to epidemiology, immunology, sanitation, medical jurisprudence and sociology, that he may act rationally when confronted with the problems which relate to the application of tried and proved measures of disease prevention for the protection and welfare of the multiplied families —the community for whom he is responsible. He must advise, guide and safeguard the expectant mother through gestation. He must so manage the labor that it will terminate within a reasonable time without instrumental interference and without serious injury to the mother and child. He must be able, when necessary, to meet the not infrequent obstetric emergencies, and especially to recognize the serious complications at an early stage of labor so that consultation may be secured, if he is not technically able fully to safeguard the two lives for which he has assumed responsibility. He must be able to give the best advise and management in the care of infants and children. This implies a knowledge of the underlying principles and also the actual personal contact and personal experience in a modern infant and child welfare clinic in a medical school training. He must understand the principles of psychology and of neuropsychiatry to enable him to recognize mental abnormalities in childhood and in adult life. For these mental conditions and their management and treatment he will usually not assume responsibility, but will direct the related responsible individuals to physicians qualified in this work. He must be a well trained diagnostician and generally able to recognize existing morbid tissue changes and the related abnormal functions. He should be able to trace the beginning of the pathologic changes and have a reasonable comprehension of the ultimate result.

He should know what management and treatment to give. He should have command of a selected few tested and tried pharmacologic products which he may use with skill and usually with great benefit to the patient. His knowledge of the principles of immunology and bacteriology will enable him to apply recognized specific serums and a few antigenic vaccines with judgment and skill therapeutically and prophylactically. In the general management of his patients he will utilize rest, a proper environment and, so far as available, physical treatment. He may easily command hydrotherapy, thermotherapy and occupational therapy, and in some communities electrotherapy and massotherapy. He will have a proper conception of the value of calisthenic and other active exercises in the restoration of the functions of the locomotor apparatus. He will understand asepsis and will perform minor and emergency operative surgery with confidence and ability. He will especially care for emergency surgery in the form of fractures of the bones and the uncomplicated joint dislocations. His knowledge will enable him to know his limitations in major surgery and to safeguard the life and health of his patients by reference to well qualified surgeons.

This statement of the functions of the general practitioner indicates the need of a broad academic education and mental training preliminary to the study of medicine. It is not necessary that I enumerate the various steps which should be taken in the medical training of the family practitioner. The inference is plain that he must have a good knowledge of general and physiologic chemistry, of human anatomy and physiology, of pharmacology, of general pathology with constant training through the four years of residence in morbid anatomy, of epidemiology, immunology and psychology. In the clinical branches he must have the training of his brain, special senses and hands in the recognition of disease. He must learn to use the simple diagnostic aids in the form of instruments and laboratory tests. With this knowledge of the methods of diagnosis he must have constant and daily opportunity to study disease as expressed in the ambulatory and ward patients. He must have an opportunity to observe the etiologic relations of occupations, environment, social conditions and other factors to disease. He must learn and recognize the importance of community as well as individual disease. He must have the opportunity to observe the results of medical treatment and management and the final condition of the patient after operative surgery. He must have an opportunity to witness minor surgical operations, emergency surgery and especially to have practical training in the treatment of fractures of the bones and of dislocations. In the hospital, he should have an opportunity for the practical study of dietetics and of dietotherapy. He should have practical experience in the measures of disinfection in the sick room and especially in the control of communicable diseases. In the fifth, or intern year, the major part of the training should be along the same lines as that of the third and fourth years in residence. The bright and energetic student will find opportunity to apply himself to elective investigatory work with much benefit to himself. But the large majority of the medical class will be fully engaged in this broad and necessary practical training.

Finally, it must be said that in addition to the educational qualifications, both academic and medical, the family physician must be a man of character. His daily life must be a practical expression of honesty, morality, and resourcefulness in service to his patients. He will have a due consideration of his own health and responsibilities and at proper periods will play as he works with well directed energy, giving and asking half the road and fair play.

(To be continued)

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Graduate Course for Colored Physicians.—A four weeks' graduate course on medicine for colored physicians will be given at the John A. Andrews Memorial Hospital, Tuskegee Institute, beginning April 4. It will consist of lectures, moving picture demonstrations, of surgical technic, roentgen-ray demonstrations, laboratory teachings, etc. Courses will be held all day and evenings.

Milk Dealers Fight Pasteurization.—Dr. Gottfried Kohler, assistant commissioner of health of Chicago, was called last week to Birmingham to testify as an expert on the value of pasteurization of the city's milk supply as a health measure. The city of Birmingham has an ordinance which provides that all milk, except certified milk and grade "A," shall be pasteurized. The milk dealers' association of that city brought suit and obtained a temporary injunction enjoining the city from enforcing the ordinance. Desiring to have the ordinance sustained, the health authorities of Birmingham called Dr. Kohler to testify as an expert in the case.

CONNECTICUT

Health Department Bills Lost.—Following the acceptance of unfavorable reports from the committee on public health and safety, the house rejected bills providing an appropriation for a laboratory to be used by the state department of health and the agricultural experiment station, and for the establishment of separate bureaus dealing with public health nursing, child hygiene, and education. Measures that would give the state department of health control of inspection of meat and other food products were also rejected.

Changes at Yale University.—The graduate school has been authorized to confer the degree of Doctor of Philosophy for work in clinical medicine, and in pharmacology and toxicology. Dr. Yandell Henderson, hitherto professor of physiology in the Yale Medical School, has been transferred to the Graduate School of Yale University under the title of Professor of Applied Physiology. The tuition fee in the medical school, beginning with the next university year, has been increased from $240 to $300, and announcement is made that beginning with a year from next fall three years of collegiate work, or its equivalent, instead of the present two years shall be required of all candidates for admission to the school of medicine.

GEORGIA

School of Public Health.—The Georgia Medical College at Augusta, having received a recent legislative appropriation of $20,000 for a school of public health to train physicians as county health officers in the state—supplemented by funds from the International Health Board of the Rockefeller Foundation—concluded a two weeks' intensive course of instruction for public health workers. Dr. Charles C. Bass, Tulane University, New Orleans; Dr. Ernest C. Levy, director of public welfare, and Dr. H. H. Hibbs, director of school social work and public health, Richmond, Va ; Dr. Watson S. Rankin, commissioner of health of North Carolina, and Dr. Leslie L. Lumsden, U. S. Public Health Service, were among the special lecturers. Educational films on malaria, hookworm and venereal diseases were shown.

ILLINOIS

Commissioned Medical Officers Organize.—The Association of Military Surgeons of Illinois was organized in Chicago, March 17, as a state branch of the Association of Military Surgeons of the United States, with the following officers: Gustavus M. Blech, president; William McIlwain Thompson, vice president; James J. McKinley, treasurer, and Alfred deRoulet, secretary. The association is composed of commissioned medical officers of the Army, Navy, Public Health Service and National Guard, active or discharged (reserved). Officers and former officers who desire to join should address the secretary at 7 West Madison Street, Chicago.

Chicago

Dr. Mendel Speaker Before Chemists.—Dr. Lafayette B. Mendel, professor of physiologic chemistry, Yale University, and a member of the Council on Pharmacy and Chemistry, A. M. A., spoke before 500 members of the Chicago Section of the American Chemical Society on Friday, March 18. Preceding the talk, a dinner in honor of Dr. Mendel was served at the Quadrangle Club, University of Chicago.

Survey of Child Health Complete.—The Division of Child Hygiene of the health department has completed the survey referred to in these notes in a recent issue with the following results: Out of nearly 500,000 children examined, 3,698 were found with discharging ears and 2,979 with impaired hearing. Of affected ears 3,066 were found with one ear affected and 632 with both ears. Those deaf, all degrees, in one ear were 2,021; both ears, 958. Discharging ears as sequela of contagious diseases, 1,724; tonsil and adenoid affections, 1,047. Deafness as sequela of contagious diseases, 1,166; tonsil and adenoid affections, 1,356.

INDIANA

Indiana Physician Fined.—It is reported that Dr. Ira H. Jordan, Michigan City, pleaded guilty to prescribing liquor unlawfully and was fined $400 in court, at Laporte.

Lung Medicine Bill Defeated.—The house has voted to postpone indefinitely further consideration of Senate Bill 120 providing for state inspection and testing of lung medicines.

Fines for Misbranding Articles.—It is reported the Wright Medicine Company, Peru, was recently fined $100 and costs for shipping misbranded articles from Indiana into Missouri. The article was fraudulently represented as being a remedy for rheumatism.——The Dermacilia Manufacturing Company, Hammond, was recently fined $100 and costs for shipping articles misbranded "Dermacilia Eye Remedy" and "Dermacilia Ointment."

Hospital News.—Estimates and plans are being developed for the building of additional wings, to cost approximately $100,000, to Julietta Hospital, Indianapolis, for the incurable insane, to provide hospital facilities for the inmates of that institution.——In order to relieve the crowded condition in the Central Hospital for the insane there will be a redistribution of population in the five state hospitals. There are 1,410 patients in the Central Hospital at the present time, and 359 applying for entrance. The Northern Hospital has 1,016 inmates with 45 applicants; the Eastern 899 inmates with 75 applicants; Southern 781 inmates with 31 applicants; the Southeastern 1,202 inmates with 34 applicants.

KENTUCKY

Course in Public Health at Louisville.—The University of Louisville has established a course in public health consisting of certain elective subjects in the junior and senior years, certain vacation field work in the summer following the junior year, and a fifth year corresponding to a hospital internship, following which the student may receive the degree of Doctor of Public Health in addition to the M.D. degree.

MAINE

Secretary for Public Health Association.—Mr. Walter D. Thurber, managing director of the Illinois Tuberculosis Association, has been appointed executive secretary of the state public health association to succeed Mr. W. A. Harris, resigned.

Personal.—A bomb exploded while Dr. John L. Pepper, Madison, was opening a package received by mail. His right hand was blown off, his left hand and lower jaw injured and his eyes filled with powder. It was necessary to amputate his right arm.

MARYLAND

Personal.—Dr. Hugh H. Young, director of the James Buchanan Brady Institute, Johns Hopkins Hospital, who has been under treatment at the hospital for a slight heart disturbance, has left for Atlantic City for a month's rest.——Dr. Howard A. Kelly has left for his annual vacation in Florida and will spend several weeks hunting and fishing.——Dr. Henry J. Berkley recently underwent a slight operation at the Johns Hopkins Hospital.

MASSACHUSETTS

Leper Colony Abandoned.—Penikese Island, Buzzards Bay, was abandoned as a leper colony, March 10. The thirteen lepers on the island with three from Bridgeport, Conn., and two from Richmond, Va., were transferred by special car to the federal leprosarium recently established at Carville, La.

Personal.—Dr. Selskar M. Gunn, associate director of the International Health Board of the Rockefeller Foundation, and formerly associated with the Massachusetts Institute of Technology, has been appointed by the government of Czechoslovakia as technical adviser to the ministry of public health and physical education.

MINNESOTA

Personal.—On March 12, the Mayo Foundation was addressed by Dr. James Ewing, President Vincent and Dr. Charles Choyce.——Dr. Royal N. Chapman, assistant professor of entomology of the University of Minnesota, delivered a lecture, March 15, before an open meeting of the Mayo Foundation Alumni Chapter of Sigma Xi.

Refuses to Obey State Board's Order.—To enable Minneapolis' babies to have raw milk, Dr. Francis E. Harrington, Minneapolis, health commissioner, has announced that the health department will disregard the order of the state livestock sanitary board and will furnish veterinarians with tuberculin for testing dairy cows. According to Dr. Harrington, the state order was issued because the state had no funds to reimburse herd owners for infected cattle condemned as a result of tuberculin tests. The order of the state board does not apply to cattle for interstate shipment.

MONTANA

Personal.—At the regular March meeting of the Cascade County Medical Society, held at Great Falls, Dr. Charles E. K. Vidal, superintendent of the tuberculosis sanatorium at Galen, gave an address on work with tuberculous patients.

House Concurs in Siegfriedt Bill.—Despite objections, and after several amendments had been made, the house concurred in the Siegfreidt Bill, S. B. 289, which permits the issuance by physicians of whisky prescriptions under the regulations of the Volstead act.

NEW JERSEY

Midwife Loses License.—The New Jersey Board of Medical Examiners reports that it has revoked the license to practice midwifery of Ida Campagna Quadara on the charge of criminal abortion.

Illegal Practitioners Fined.—It is reported that Norbert F. Capek was convicted, on January 10, of practicing medicine without a license and fined $200 and costs; and on March 10, Mary Ann Maniar of New Brunswick was fined $200 for practicing medicine without a license.

Physicians' Licenses Revoked.—The New Jersey Board of Medical Examiners reports that on Feb. 15, 1921, it revoked the licenses to practice medicine and surgery of Dr. Alfred C. Pedrick, Passaic, and of Dr. Louis S. Blumberg, Newark. Both physicians were charged with criminal abortion. Dr. Blumberg has appealed from the decision of the board and his case is now before the supreme court.

Preventive Health Work.—Child hygiene work is being carried on extensively in all parts of New Jersey under the supervision of the state department of health. In 1920, seventy-nine child hygiene nurses made 105,437 visits to approximately 12,000 babies and 2,000 expectant mothers, exercising at the same time supervision over the children of preschool age, detecting and having corrected many defects and deformities. The nurses in their visits have discovered 214 late reported births and 282 unreported births, thus materially helping complete birth registration. Two hundred and eighty-five cases of bad housing and insanitary conditions were discovered and reported by the nurses to the proper authorities. They have also helped in the checking of contagious diseases having reported 279 cases discovered in their home visits. Special efforts have been taken toward the prevention of blindness by taking eye smears in suspicious cases. This work has been made possible by an appropriation of $150,000 for child hygiene activities, the largest amount appropriated by any state in the Union.

NEW YORK

State Legislation.—A bill has been introduced in the state legislature to provide adequate and scientific medical and surgical treatment for residents and industrial workers in rural districts of the state. The measure seeks to authorize a county or city to create one or more health centers and to provide state aid. The bill carries an appropriation of $25,000.

Utica to Have Health Department.—As a result of the recent investigation by the joint legislative committee on taxation and retrenchment, a bill has been introduced which will permit Utica—as well as other cities of the second and third class—to have a health department under a commissioner of health. Utica, at present, operates under a health officer who reports to the commissioner of public safety.

New York City

Personal.—Miss Winifred Holt, founder of the Lighthouse, an educational center for the blind, has been presented with a gold medal in behalf of King Victor Emmanuel of Italy in recognition of her work among the blind of Italy during the war.

Camp Merritt Base Hospital Officers Association.—The association will hold its second annual meeting at the New York Athletic Club, 58 West Fifty-Ninth Street, April 9. The meeting will be at 6:30 and dinner will be served at 7:30.

Harvey Lecture.—Dr. F. Gowland Hopkins, professor of biochemistry in the University of Cambridge, will deliver the ninth of the current series of Harvey Society lectures at the New York Academy of Medicine, April 2, on the subject of "The Chemical Dynamics of Muscle."

Van Cortland Hospital Reopened.—This institution, which is an annex to Montefiore Home and was operated by the government for the care of wounded officers, has been reopened as a rest house for patients able to pay and who wish to take advantage of its outdoor situation.

Influenza Makes Steady Gain.—Though not reaching epidemic proportions, influenza has been steadily increasing in this city since January 1. From January 1 until March 14, there were 1,038 cases and 120 deaths reported. At the present time a larger number of cases of influenza are being reported to the health department daily than at any time during the winter.

NORTH CAROLINA

Physicians Appointed by the Governor.—Governor Morrison has appointed North Carolina physicians to membership on governing boards as follows: State Hospital for Insane at Raleigh, Dr. Leslie B. Evans, Bertie County, four years; State Hospital for Insane at Goldsboro (colored patients only), Dr. John D. Robinson, Duplin County, two years, Dr. H. V. Horton, Forsythe County, four years; State Hospital for Insane, Raleigh, Dr. Guy S. Kirby, McDowell County, two years, Dr. John M. Belk, Union County, four years; State School for Blind, Raleigh, Dr. Wiley A. Rogers, Macon County, six years; Caswell School for Feebleminded, Kinston, Dr. M. R. Stephenson, Northampton County, four years, Dr. Isaac W. Faison, Mecklenburg County, six years.

Hospital News.—The will of the late George W. Watts, Durham, provides an additional bequest of $200,000 to Watts Hospital, Durham. This bequest with his former benefactions to the institution, founded by him and bearing his name, exceed $1,000,000.——Public meetings have been recently held to formulate plans for the erection of a general hospital for Greensboro, to cost $300,000.——At Asheville plans are being perfected for the construction of the fourth hospital in the state exclusively for negroes, which is expected to care for twenty patients. Churches of the city will take special offerings, March 20. It is expected to open the place in a few months.——A drive is now on in Moore County to complete the erection of and to erase the debt on the McConnell Memorial Hospital at the Farm Life School recently built in memory of James McConnell, an American aviator from this county, who lost his life in service with the escadrille in 1918.

OHIO

The Cincinnati College of Surgeons.—The Cincinnati College of Surgeons was organized, February 22. Membership is restricted to residents of Cincinnati and its environs. The officers are: president, Archibald I. Carson; president-elect, Charles L. Bonifield; treasurer, Goodrich B. Rhodes; secretary, Charles T. Souther.

Seventy-Fifth Anniversary of State Association.—The state medical association will hold its seventy-fifth annual meeting, May 3-5, at Columbus. Dr. Joseph R. Eastman, University of Indiana School of Medicine, will deliver an address on "Surgery" and Dr. Reuben Peterson, University of Michigan, on "Obstetrics." Lieut.-Col. Henry Smith, India, will deliver a special address before the eye, ear, nose and throat section on "Ophthalmology,". and he will also hold an eye clinic at one of the hospitals on the second day of the meeting.

PENNSYLVANIA

Philadelphia

Personal. — Prof. E. Newton of Princeton University addressed the Physiological Society, March 21, on the subject, "Bioluminescence."——Dr. George A. Knowles has been reappointed a trustee of the state hospital at Norristown.

Officers Elected.—The Philadelphia Academy of Medicine and Allied Sciences elected the following officers: president, Thomas Spotuas Burwell; vice president, DeHaven Hinkson; treasurer, I. M. Lawrence; recording secretary, C. Eugene Allen, and corresponding secretary, John P. Turner.

To Extend Health Law.—A measure to extend the jurisdiction and supervision of the Department of Public Health of Philadelphia was introduced in the House by Representative Harry J. Trainer. The measure was proposed by Dr. Charles L. Furbush, health director in Philadelphia. The Philadelphia Board of Health, in one bill, is directed to make rules and regulations for the sanitary conduct of the business of preparing, exposing and offering for sale articles of food. The bill creates in the department of health the division of food inspection, which is to be made up by a consolidation of the division of meat and cattle inspection and the division of milk inspection in the department.

TEXAS

Physicians Plan State Meeting.—Committees of Dallas physicians are arranging a program for the meeting of the Texas State Medical Society to be held at Dallas, May 10-12. Lieut.-Col. Henry Smith, London, formerly of the British Government India Medical Service, is expected to attend the convention.

State Legislation.—A bill has been introduced in the house authorizing the board of health to prevent the use of materials which have been subjected to infectious disease in making and remaking marketable products. The measure imposes a fine of from $25 to $500 or six months in jail—or both fine and imprisonment—for violation of the provisions of the proposed law.

Negro Health Week.—For the third time the Texas Public Health Association is announcing its cooperation with all of the states having a large negro population, in the National Negro Health Week, April 3-9. The purposes of Negro Health Week are to educate the people of that race in the methods of preventing disease and in the improving of local sanitary conditions. A special program for each of the days of the week has been prepared. The Negro Health Week is held at approximately the same time each year. Last year over 200,000 negroes of Texas participated in some form or other in the celebration of this week. Any one interested in having an active part in Negro Health Week can secure full information by writing Dwight E. Breed, Executive Secretary, Texas Public Health Association, 616 Littlefield Building, Austin.

WEST VIRGINIA

Personal.—At the last meeting of the Kanawha Medical Society held, March 15, at Charleston, a gold watch was presented to Dr. Samuel L. Jepson, who recently retired from the state health commission as a token of the esteem in which he is held by the local medical fraternity. The presentation was made by Dr. Floyd F. Farnsworth.

CANADA

Personal.—Dr. Charles S. McVicar, recently in command of the Toronto (Military) Orthopoedic Hospital, is now at the Mayo Clinic and may remain there for some time.——Dr. Charles J. Hastings, M. O. H., Toronto, who has been in Florida for some time, has returned.

Hospital News.—A new hospital for the east end of Toronto will soon be erected. It will accommodate 250 patients. The site will be purchased during the present year, and one unit of the hospital will be built this year.——The new Reception Hospital for Toronto is to cost $400,000 and will be erected within a short distance of the General Hospital.

Society News.—The Niagara District Medical Association met last on January 26. Dr. James F. Rice, Buffalo, was present and read a paper on "Thyroid Therapy."——The North Waterloo Medical Society met at Kitchener, Ont., in January. Dr. Norman B. Gwyn, Toronto, read a paper on "Encephalitis Lethargica."—The Lambton County Medical Society met in February at Wyoming. The officers elected are: president, Dr. Charles W. Sawers, Wyoming; vice president, Dr. George H. R. Hamilton, Petrolia; secretary-treasurer, Dr. Charles H. Smith, Petrolia.——The South Waterloo Medical Society met in February at Galt. Dr. John A. Oille, Toronto, conducted a clinic on a number of cases of disease of the heart.——At the last meeting of the Alberta Medical Association, Dr. William F. Gershaw, Medicine Hat, the president, paid a tribute to the memory of the late Dr. James D. Lafferty, Calgary, one of the pioneers in medicine in Alberta—a man of high ideals, a good physician, and a good citizen.——The Ontario Medical Association seeks to have a medical man appointed a member of the board of commissioners of the workman's compensation.

GENERAL

Federation of State Medical Boards Elects Officers.—At its annual meeting held in Chicago, March 8, the Federation of State Medical Boards of the United States elected its officers as follows: president, Dr. David A. Strickler, Denver; vice president, Dr. K. C. P. Bonner, Morehead City, N. C.; secretary-treasurer, Dr. Walter L. Bierring, Des Moines, Iowa, and for member of the executive committee, Dr. Byron U. Richards, Providence, R. I.

Palmer Ruling on Alcohol Prescriptions to Stand.—Definite announcement that former Attorney-General Palmer's opinion permitting physicians to prescribe beer for medical purposes would continue to remain in force under the Harding administration has been made by Attorney-General Daugherty. He stated that he had no intention of revising the opinion of his predecessor. It is understood that regulations carrying out Mr. Palmer's opinion that beer may be prescribed by physicians as a medicine will be left to the new Commissioner of Internal Revenues. The present commissioner states that the full effect of the opinion cannot at this time be determined.

Personal.—Dr. Haven Emerson, formerly commissioner of health of New York City, has been appointed to the position of medical adviser and assistant director of the Bureau of War Risk Insurance.——Sir Norman Moore, London, president of the Royal College of Physicians, has appointed Dr. Herbert R. Spencer, London, to deliver the Harveian oration in October, and Dr. Michael C. Grabham, Madeira, to deliver the Bradshaw lecture in November. Dr. Major Greenwood, London, will deliver the Milroy lectures in 1922.——At a recent meeting of the University of Kansas, Chapter of Sigma Xi, Dr. Arthur F. Coca of the Cornell University Medical School, editor of the *Journal of Immunology*, gave an address on "Hypersensitiveness" Dr Coca has been recently studying the hypersensitiveness of Indian students at Haskell Institute, Lawrence, Kan.——Dr. Carl L. Alsberg, chief of the Bureau of Chemistry of the U. S. Department of Agriculture, has been appointed director of the Food Research Institute which is to be established at Stanford University by the Carnegie Corporation. He will assume his new work on July 1.

LATIN AMERICA

Chutro in Madrid.—Dr. Pedro Chutro, professor of clinical surgery of the medical school of Buenos Aires, well known in this country, is now at Madrid, Spain, where he has given several lectures.

Agitation for Secretary of Public Health in Chile.—The *Revista Médica de Chile* reproduces the arguments recently presented at a conference at Santiago urging the necessity for the foundation or creation of a department in the national government to coordinate the public health work and extend it. The same number gives also the statutes of the Chilean League for Social Hygiene and the report it recently presented to the war department which had requested advice on plans for social hygiene during mobilization in the province of Tacna.

Personal.—Dr. José Jorge Callejas of Honduras has returned after a trip to the United States.——Dr. Julio Aspuru España, editor of the *Revista Médica* of Tegucigalpa, Honduras, has been appointed professor of the medical school of Nicaragua.——Dr. Luis M. DeBayle of Léon, Nicaragua, who has been for some time at the Mayo Clinic, is planning to return to his country.——Dr. A. Scroggie Vergara was appointed to the fellowship offered to a young Chilean physician by the Chilean-American Association which has headquarters in New York. The fellowship provides for a year of study at the New York Post-Graduate Medical School and Hospital, as was recently mentioned, page 531.

Bill to Regulate Medical Advertising in Uruguay.—The *Boletín* of the national public health service contains the bill presented in the Uruguay legislature by the senator from Florida, Dr. A. Gallinal. It was referred to the Consejo Nacional de Higiene for advice, and the Consejo endorses it most decidedly, giving ample reasons therefor. The bill would prohibit all medical or pharmaceutical advertising by nonmedical persons, and all exaggerated claims by medical and allied persons. It would prohibit also the importation of nostrums and the sale or exhibition by pharmacists of any remedies claimed to treat certain symptoms or diseases. The Consejo Nacional de Higiene is given full power in the bill to pass judgment on the remedies, etc., offered and on the various questions as they arise in connection with the enforcement of the bill. It limits to a simple notice of name and address the advertisements of midwives. Penalties of from 100 to 1,000 pesos are imposed, or equivalent prison terms.

FOREIGN

Smallpox in Spain.—There has just occurred a severe outbreak at Mequinenza, Zaragoza, with several deaths and another at Adra, Almería.

Foot-and-Mouth Disease in Spain.—Spanish authorities have admitted officially the presence of foot-and-mouth disease in Fuentes de Jiloca and in Daroca, Zaragoza.

Personal.—The University of Cambridge has awarded its doctorate of laws to Sir Patrick Manson of the London School of Tropical Medicine and Dr. Albert Calmette of the Paris Pasteur Institute.

National Bureau of Mouth Hygiene.—New Zealand has established a national bureau of mouth hygiene with a director and staff assistants who will care for the mouths of all schoolchildren at government expense.

Congress of Radiology and Physiotherapy.—The Electrotherapeutic Section of the Royal Society of Medicine and the British Association of Radiology and Physiotherapy have organized a congress to be held in London, April 14-16.

American Students in Italy.—The *Policlinico* relates that the Italian-American Society is planning to send 250 American university students to Italy this summer vacation for a brief visit to scientific institutions and industrial establishments.

Street Renamed in Memory of Physician.—The city of Bordeaux has officially changed the name of the street on which the late Professor Demons resided to *rue du Docteur-Demons* as a tribute to his memory. He was professor of surgery until his retirement in 1911 and died in July, 1920.

Medicolegal Congress.—The *Liége médical* gives the details in regard to the Sixth Congress on Legal Medicine of French Speaking Countries. It is to be held at Brussels, May 23 and 24, and then will adjourn to Liége for the two following days. Professor Héger-Gilbert will preside at Brussels and Professor Stockis at Liége. The official organ of these congresses is the *Annales de médecine légale*, which is sent to all subscribers to the congress; the fee is 50 francs for members. The main topics to be discussed are penitentiary anthropology and psychiatry; the Code and the abnormal; identification of alkaloids by spectrography; mechanical asphyxia; traumatic shock, and hydrocyanic acid poisoning. The treasurer's address is Dr. De Laet, 66 rue de Livourne, Bruxelles.

Requirements for Admission of Foreign Student to German Universities.—Until recently a candidate for admission to a German university merely sent in his application a month before the opening of the term. The rules have been changed now, according to the *Deutsche medizinische Wochenschrift* of Feb. 3, 1921, p. 137. The candidate has to apply for permission to enter the country, and present credentials showing educational equivalents to the grade desired; also evidence that he has sufficient knowledge of the German language; also a description written by himself of his previous career, and, finally, evidence that the student has sufficient means for his support and work. The acceptance of the candidate depends on whether there is room in the institution of learning selected, and further on whether there is reciprocity with the candidate's home state.

Twenty-Fifth Anniversary of Medical School for Natives.—The first medical school for natives in the French colonies was founded at Tananarive on the island of Madagascar in 1896. The school has conferred the medical degree on 336 graduates but fifty-six of these belonged to a previous régime. The school has also conferred the title of midwife on 208 native women. The epidemic of influenza in 1919 caused 100,000 deaths in the island, including a number of native physicians. When the World War broke out, many native physicians offered their services to France and thirteen were placed as assistant physicians in the army camps and five were appointed *médecins aides-majors.* Their devotion to the care of the wounded won the *médaille militaire* for one of them, and two others were cited for especial gallantry. Dr. Fontoynont has long been the dean of the medical school.

Deaths in Other Countries

Dr. **L. Rossini** of Albano, Italy, aiding the victims of a night railroad accident, succumbed to heart disease aggravated by the cold and exertion.——Dr. **E. Béraneck,** professor of biology at the University of Neuchâtel, Switzerland, aged 61, author of numerous works on bacteriology and biology, and inventor of the method of extracting the endotoxin of the tubercle bacillus to aid in preparation of tuberculin.——The cable brings word of the death of Dr. **León Becerra,** chief health officer of Guayaquil, Ecuador, a member of the Rockefeller commission studying the yellow fever situation. His death was the result of injuries in a street car accident.——Dr. **J. Rohmer,** professor of ophthalmology at the University of Nancy.——Dr. **F. Selberg,** a leader in the organization of the profession in Berlin, aged 78.——Dr. **M. Thiemich,** professor of children's diseases at the University of Leipzig, aged 51.——Dr. **S. Ribbing,** formerly professor of internal medicine at the University of Lund, aged 76.

Death of Dr. Semon.—Sir Felix Semon, K.C.V.O., M.D., F.R.C.P., died March 1 at Rignalls, Great Missenden, England, at the age of 72 years. In accordance with the expressed wish of Sir Felix, the body was cremated. He was born at Danzig in 1849 and began his medical studies at Heidelberg in 1868. During the Franco-Prussian War he served as a volunteer with the Prussian Guard. The war over he resumed his medical studies and took the M.D. degree at Berlin in 1873, and the German Staats Examen in the following year. He then studied in Vienna and Paris, devoting his attention more particularly to diseases of the throat and nose, and becoming expert in the use of the laryngoscope, then recently introduced into medicine. He decided to settle in England, acted as clinical assistant at the Throat Hospital in Golden Square in 1875, was admitted a member of the Royal College of Physicians in 1876, and was elected F.R.C.P. in 1885. In 1894 the German emperor conferred on him the title of Royal Prussian Professor, the Order of the Red Eagle having been given him in 1888. In 1893 he was one of the founders of the Laryngological Society —now merged in the Royal Society of Medicine—and was elected president for the years 1894-1896. At the Diamond Jubilee in 1897 he received the honor of knighthood, and in 1902 he was decorated C.V.O., being advanced to K.C.V.O. in 1905. In 1897 he resigned his appointment at St. Thomas' Hospital owing to the increase in his private practice, and in 1901 he was appointed Physician Extraordinary to King Edward VII. Dr. Semon continued to enjoy a large laryngologic practice until 1911, when he retired. British laryngologists and many of his foreign confrères then collected a sum of £1,040 as a testimonial to the esteem in which he was held. This sum he presented to the University of London to establish "The Semon Lecture Fund" for the purpose of awarding a commemorative bronze medal for the best work in the treatment of diseases of the throat and nose, and to found a lectureship to be called the "Semon Lectureship in Laryngology." In 1884 he founded the *Internationales Centralblatt fuer Laryngologie und Rhinologie,* and for twenty-five years he acted as its editor. His chief work was in connection with cancer of the throat and with the functions and diseases of the motor nerves of the larynx.

Government Services

Establish Reserve Corps Course

Announcement was made by Surgeon-General Ireland that the medical school of the University of Oregon at Portland will establish a reserve officers corps unit. The course will not be inaugurated until next September. Lieut.-Col. Frank Baker, U. S. Medical Corps, has been appointed as professor of military science and tactics at the University of Oregon and will conduct the reserve officers' school there.

Surgeon-General Inspects Hospital

Surgeon-General Ireland after a formal inspection of the new hospital constructed at the Soldier's Home in Washington, D. C., has accepted it from the contractors. The structure is a magnificent one. The Soldiers' Home is managed by a board of directors composed of the Surgeon-General, the Adjutant-General, the Quartermaster-General and the Inspector-General of the Army.

Quarantine Station at Norfolk

The U. S. Public Health Service is expected shortly to increase its force of officers on duty at the new quarantine station at Norfolk, Va., because of the increased number of immigrants coming into that port. The Hamburg-American Steamship Line which has been landing immigrants to the United States at New York has decided to use the Norfolk harbor in order to avoid congestion and delay. The quarantine station at Norfolk is on Craney Island and is one of the finest on the Atlantic Coast. It was completed last year and cost $1,000,000.

Dr. Sawyer Assumes New Duties

Dr. Charles E. Sawyer, the President's physician, is making a general study of the medical and welfare activities of the governments. Dr. Sawyer has been given direct authority by the President to investigate these subjects and to present the accumulated facts. It is reported that the President proposes to establish during his administration an executive department to be called the Department of Public Welfare. Dr. Sawyer's headquarters are Room 244 of the State, War and Navy Building, Washington, D. C.

Regulations Concerning the Reserve Officers' Corps Will Be Published

The regulations covering the Reserve Officers' Corps of the Army will shortly be made public, having been completed by the board of officers equally representing the Regular Army and the reserve corps. The regulations cover the policies and rules affecting the organization, distribution and training of National Guard and organized reserves and all policies and regulations affecting the appointment, assignment, promotion and discharge of reserve officers. The board, which was appointed last year, has spent over eight months working on the regulations, having made trips to various Army camps to secure the opinions of regular as well as reserve officers.

Committee Appointed to Select Hospital Sites

Appointment of a committee of physicians, to survey the country for the purpose of selecting the most advantageous sites and locating the soldier rehabilitation hospitals provided for by recent legislation, has been announced by Secretary of the Treasury Mellon. The members include: Drs. Pearce Bailey, New York; Frank Billings, Chicago; Chancellor W. G. Bowman and Dr. William C. White, Pittsburgh, chairman. The duty of this committee is to recommend to Secretary Mellon the sites for the new hospitals to be constructed by the government and operated under the Bureau of War Risk Insurance. The sum to be expended will be $12,500,000. Secretary Mellon has already received more than 200 applications from various parts of the country making request for the location of these hospitals. The headquarters have been established in the Butler Building, Washington, D. C. The members of the committee are now in Washington, and are holding conferences with departmental heads, including the War Risk Bureau, the U. S. Public Health Service and Assistant Secretary of the Treasury, Ewing LaPorte, to ascertain the facts with reference to hospital requirements, in possession of these departments.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 1, 1921.

A Means of Obtaining the Collective Opinion of the Profession

The minister of health made a request to a deputation of the British Medical Association that he be provided with a body really representative of the whole profession, which he could consult on questions of policy, instead of being approached by half a dozen bodies, each claiming to represent the profession. The association accordingly invited certain medical bodies to cooperate with it in constituting such a body, and has thus stated its views: 1. The body must represent the views of the medical profession and the medical profession alone. The minister has asked for such a body. When he wishes for the views of the dental, pharmaceutic or nursing professions, he will naturally call on organizations representing these professions. 2. The body must be an immediately and directly responsible body—that is to say, it must recognize the authority of its constituents and no other authority. It must be under the constitutional control of the whole of its constituents without undue bias toward any one section. A body which the bulk of the profession felt they had no direct means of controlling would be worse than useless for the purpose of the minister, and might do great damage to the interests of the profession. 3. The body must be really representative. That is to say, it must have modern constitutional methods of ascertaining the opinion of its constituents and securing their acceptance of agreements made on their behalf. 4. The constituents of the body must be directly and immediately concerned with medical politics, and trained in the expression on such matters. Bodies exclusively or mainly scientific have no concern with medical politics and have no machinery for dealing with such matters. 5. The body must not profess to promote the interests of the community rather than those of physicians. Physicians are also citizens, but what the minister requires is a body which will tell him what physicians as physicians think, whether as to the interests of their profession or as to questions of public health.

The British Medical Association considers that, acting alone, it would be justified in claiming the qualifications enumerated. It contains 52 per cent. of the profession. If those who are not practicing and what may be called "floating medical population" be eliminated, then it contains 60 per cent. of the active members of the profession. It is really representative of its members and has well-tried machinery for ascertaining their views. Moreover, it is recognized informally by large numbers of physicians who do not belong to it as the body which voices the wishes and sentiments of the profession as a whole. In order to make itself as useful as possible to all sections of the profession, the association has always tried to work with organized bodies representing distinct sections. Representatives of the Society of Health Officers, the Medical Women's Federation, the Poor Law Medical Officers' Association and the Medico-Psychological Association have frequently sat on committees of the association. The Insurance Acts Committee of the association in a very special way represents the interests of the 14,000 physicians engaged in national health insurance work. A majority of the committee consists of members elected directly by the local medical panel committees with no restriction as to whether members of the association or not. The association therefore feels that if, as it expects, it secures the cooperation of the societies named above, it will be able to offer the minister a body which (with the exception of the body next to be mentioned) is representative of all the organized medical profession, both generally and sectionally. The exception referred to is that of the Royal College of Physicians of London and the Royal College of Surgeons of England. The association recognizes that these are able to speak for the consultant section of the profession in a way which is not open even to the British Medical Association. The association has intimated to them that their cooperation in the matter under consideration would be greatly valued.

It is noteworthy that one important body—the Medico-Political Union—is not mentioned by the association. This consists of about 3,000 physicians, and is registered as a trade union. It believes that the interests of the profession can be effectually promoted only by trade unionism, and has attacked the British Medical Association and criticized its methods as weak. Attempts at cooperation between the two bodies have taken place, for they profess the same objects and many physicians are members of both, but evidently hostility predominates. There is another body, the Federation of Medical and Allied Societies (dental, pharmaceutic, etc.) which, as described in previous letters to The Journal, was formed for the purpose of federating all medical societies into a body representative of the whole profession, the very thing asked for by the minister. Its efforts have not been regarded with much favor by the British Medical Association. It recently invited a conference with a view to discussing cooperation on the lines suggested by the minister, and invited the British Medical Association. But the latter declined, saying that it was itself engaged in the same task. The federation makes one claim, which the British Medical Association evidently does not—ability to give the government advice on medical matters from the standpoint of the public interest without any professional bias.

Epidemic Encephalitis

Epidemic or lethargic encephalitis is present in this country. One hundred and thirty-six patients are under treatment, and twenty-two fresh cases have been notified in a week. There are twenty-two in London. The numbers are too small for the disease to be described as epidemic. So far no deaths have occurred.

The Extravagance of the Pensions Ministry

One thing for which the present government is becoming notorious, in spite of the crushing burden of the war on the taxpayer, is extravagance. This fact is beginning to be grasped by even the dullest of its supporters. Sir John Collie, formerly principal director of medical services of the ministry of pensions, defends with tenacity against the rejoinder of the ministry his charge of extravagance, reported in a previous letter to The Journal. One-man boards should take the place of three-men boards in dealing with routine examinations, for which one fifth of the whole medical profession is now employed. When he was director, he had examinations of neurasthenics conducted by one good man on the understanding that he was entitled to the assistance of colleagues examining in different parts of the same hall. This system worked for a year without a single complaint. All his friends now sitting on medical boards are unanimous in condemnation of three men sitting on a board. He was told that during a sitting each member noted separately in each case the degree of disability. The findings of the examiners agreed, except that in one instance his informant had reported 10 per cent. more disability than his colleagues; but he attributed this to the fact that it was his first day on the board. The present system of paying pensions for small disabilities to men in employment is disastrous. No wonder that the sum paid for pensions last year amounted to $590,000,000. A lump sum should be paid in such cases. Of eighty such persons drawing pensions of from $1 to $5 a week whom Sir John passed as not fit for work, not one has broken down. Surely it was never intended that able-bodied men should draw these doles. From what he knows of such cases he is sure that a lump sum would gladly have been accepted, which would have saved administrative expenses.

Baby Killed by a Rat

An inquest has been held on a child, aged 3 months, who was left sleeping by her mother in the living room at the east end of London. On returning she saw a large rat jump away from the child, who was bitten in two places at the back of the neck. Death from septic poisoning followed. Such a gruesome tragedy must be very uncommon. The only analogous case in this country which I can recall occurred some years ago. Ferrets broke loose from a cage and killed an infant who had been left in charge of a young child while the parents were out.

PARIS

(From Our Regular Correspondent)

March 4, 1921.

Appreciation of Articles on Biologic Therapy

Dr. L. Cheinisse, editor of the "Mouvement Thérapeutique" in the *Presse médicale,* refers in a recent number to the series of articles on biologic therapy that appeared not long ago in The Journal. In this connection he calls the attention of French readers to the rôle played by the American Medical Association and the Council on Pharmacy and Chemistry in the campaign against abuses and frauds in the matter of pharmaceutic products.

Archives of General and Experimental Morphology

Under the scientific direction of Professors Anthony and Prenant, Paris; Bataillon and Bouin, Strasbourg, and Latarjet and Policard, Lyons, the publishing house of Octave Doin has undertaken the publication of the *Archives de morphologie générale et expérimentale.* The Archives will publish at irregular intervals, and without subscription, original articles by French writers (or at least written in the French language) on anatomy, histology, embryology and experimental morphology. Each article will be published in full in the form of a separate monograph of octavo size and will be sold at a price varying with its importance and the character of its illustrations.

Abandoned Children in Paris

The number of children turned over to the hands of public charity organizations is decreasing. The maximal number of children abandoned in Paris was reached in 1898; namely, 5,200. In 1904 the number decreased to 4,800. Since then the record has been: 1905, 4,350; 1910, 3,525; 1915, 2,750; 1916, 2,950; 1917, 2,300; 1918, 3,150, and 1919, 3,675. For 1920, up to November, 3,090 entries are recorded.

Prizes for Large Families

The General Council of the Department of the Seine has instituted prizes for large families. These prizes are accorded to the mothers of legitimate children and of recognized illegitimate children. The mothers must have resided for three years in a commune of the department and must have given birth to at least two living children. For the third child 300 francs are bestowed; 350 francs for the fourth, 400 francs for the fifth, and so on, there being a progressive increase of 50 francs for each additional child. These prizes are payable in two instalments—150 francs on the thirtieth day after birth, and the balance when the child is 1 year old. Monsieur Latour, the reporter of the budget, pointed out that this act would entail a heavy expense for the department and requested the council to pass a resolution asking the administration to levy a municipal tax on bachelors. The funds thus secured would permit the city to meet the increased obligations incurred by this endeavor to raise the birth rate.

Infant Welfare

At the request of Monsieur Granger, the municipal council of Paris has granted an appropriation of 50,000 francs, for the first six months of 1921, in aid of the Franco-American infant welfare movement.

Gift of Mme. Mathias Duval to the Paris Faculty of Medicine

The Council of the Paris Faculty of Medicine, at its last meeting, accepted a gift of 50,000 francs from Mme. Mathias Duval, widow of the eminent professor of histology. The sum is given without any conditions as to the manner in which it shall be expended. A committee has been appointed to decide how the sum can best be employed.

Attendance at the University of Paris

This is the record of attendance in the various departments of the University of Paris for the period from 1905 to 1921:

	1905-06	1906-07	1907-08	1908-09	1909-10	1910-11	1911-12	1912-13
Law	5,708	6,392	6,911	7,135	6,751	6,683	6,560	6,591
Medicine	2,825	2,794	3,040	2,902	3,124	3,252	2,251	3,291
Sciences	1,368	1,494	1,370	1,346	1,285	1,138	1,150	1,119
Belles-lettres	1,251	1,537	1,377	1,298	1,354	1,325	1,314	1,332
Pharmacy	1,029	882	789	753	719	620	640	570
Totals	12,181	13,099	13,487	13,434	13,233	13,018	12,921	12,903

	1913-14	1914-15	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21
Law	6,637	898	1,327	1,311	1,614	3,080	5,798	3,332
Medicine	3,245	636	788	866	1,433	2,126	3,511	1,522
Sciences	1,175	358	432	529	611	1,040	1,999	1,558
Belles-lettres	1,327	372	430	442	434	789	1,247	907
Pharmacy	562	121	173	197	292	315	516	315
Totals	12,946	2,385	3,150	3,345	4,384	7,350	13,071	7,634

There is only one department that has not fallen off; namely, the department of science, which is, in fact, higher than the prewar standard. The department of pharmacy continues to decline; but this movement was noticed long before the beginning of the war, and is due to the fact that there are too many pharmacists in France. The department of belles-lettres has fallen off considerably. The law department has declined 50 per cent. and the medical department more than 50 per cent. It is probable that these conditions are due in the main to the abnormal financial situation. The various departments have witnessed a decline in a direct ratio with the length of their courses. The department of science has increased because the diploma of a civil engineer is soon acquired and a remunerative position soon secured. Medicine, on the contrary, requires a minimum of seven years of study, and the first years of practice often necessitate an additional income from other sources, which fact must also be considered.

The Fifteenth French Congress of Medicine

This congress will be held in Strasbourg from Oct. 3-5, 1921, under the chairmanship of Dr. Bard, professor of clinical medicine in the University of Strasbourg. These are the subjects to be discussed: (1) the anatomic and functional adaptation of the heart to pathologic conditions of the circulation; papers by (Mademoiselle) Dr. Cottin of Strasbourg and Dr. Demeyer of Brussels; (2) glycemia; papers by Professor Ambard, Strasbourg; Dr. Chabanier, Paris, and Dr. Baudoin, Paris, and (3) antianaphylaxis; papers by Professor Widal, Paris; Drs. Abrami and Pasteur-Vallery-Radot, Paris, and Dr. Péhu, Lyons. Information in regard to the congress may be secured from the general secretary, Prof. Léon Blum, à la clinique médicale B, Strasbourg, France.

BELGIUM

(From Our Regular Correspondent)

Feb. 15, 1921.

Medical Inspection of Schools

Evidence that we are living in an age of reforms in social medicine continues to accumulate. More and more our legislators are showing their interest in the amelioration of conditions pertaining to professional, industrial and social hygiene. At the foundation of any system of hygiene must be placed all the movements set on foot to protect the health of childhood. The schools must be closely inspected, and it is for this reason that in response to a request from the ministry of arts and sciences the Fédération médicale belge has drawn up a series of desiderata concerning the medical inspection of schools. The program proposed by the federation is summed up in nine special suggestions or demands:

1. The medical inspection of schools should include the study of the architectural plans, the general hygiene of the schools and the individual examination of the pupils.
2. A card index of the pupils should be kept, and the medical portion of the information should be collected and edited in such a manner as to prevent the violation of medical secrecy and any interference with the interests of the family physician.
3. School health administration constitutes a service by itself and has no connection whatsoever with public charity services.
4. The medical inspector will in no case give any medical attention or institute any method of treatment, as medical inspection is carried out solely on the basis of prevention and precaution.
5. Specialists (ophthalmologists, otolaryngologists, dentists, etc.) should be charged with the examination of children referred by the medical inspectors, and should receive special remuneration.
6. The number of children constituting the assignment of a medical inspector should never exceed 500.
7. Medical inspectors of schools shall be remunerated on the basis of 3 francs per pupil.
8. A special remuneration shall be accorded medical inspectors employed by the government or the school management to make visits, reports, etc., in connection with general inspection, hygienic conditions, or any mission not having for its direct object the individual examination of the pupils. The remuneration for such visits shall be fixed at 15 francs per visit, and a mileage allowance of 1 franc per kilometer shall be made (for both coming and going) in case the distance transversed exceeds 3 kilometers.
9. Physicians who are invested with communal authority may be appointed medical inspectors of schools. This is in the interest of public policy, for in the majority of the communes the physicians (or the physician) are members of the communal council, and consequently the law would be difficult to apply. Furthermore, it would often happen that strict application of the law would prevent the commune from getting the benefit of the knowledge and experience of those physicians who have occupied themselves most with questions of hygiene.

The Brisseau Memorial

At its spring session, the Société belge d'ophthalmologie adopted a resolution presented by Messieurs Van Duyse and De Mets looking toward the erection of a memorial to Brisseau, the famous demonstrator of the nature of cataract. The Belgian committee to which the matter was referred has secured the support of the Société française d'ophthalmologie, which has delegated Messieurs Lapersonne and Terrien, and also a number of foreigners, to assist in the matter. The committee hopes to be able to erect a monument worthy of the practitioner whose name is too little known to the public and even to the medical world.

Pyelography with Potassium Iodid

Before the Société belge d'urologie, Dr. Beyer demonstrated recently the method of procedure in giving injections of collargol, oily substances and thorium nitrate. In conjunction with Dr. Denobele, he has tried out various substances, all of which are harmless and may be used as contrast mediums: a 3 per cent. solution of silver nitrate, a 10 per cent. solution of strontium bromid, a 12 per cent. solution of calcium bromid and a 12 per cent. solution of potassium iodid. The last solution is the least toxic and the most easily prepared; it is absolutely harmless. In the discussion that followed this communication, Dr. Le Clerc-Dandoy stated that, following the example of Dr. Papin (Paris), he used a 30 per cent. solution of sodium bromid, combined with a small quantity of mercuric oxycyanid. Care must be taken to inject the solution very slowly, and a very small urethral catheter should be used so as to allow the back-flow of the solution.

Dr. François mentioned that the Baltimore school had raised a cry of alarm and had recommended a 20 per cent. solution of sodium bromid. Thorium may have a markedly irritative effect. François stated that he himself, following a roentgenographic examination of the bladder with thorium, was one day compelled to perform an emergency cystostomy, the patient being unable to evacuate the bladder and catheterization having become impossible.

Impressions of America and England

Dr. René Sand has recently published an account of his travels in England and America under the title "Notes recueillies au cours d'enquêtes successivement poursuivies aux Etats-Unis et en Angleterre" (Notes on England and the United States). Certain phases of industrial organization, social medicine and physical education in the Anglo-Saxon countries interested him to such an extent that he is endeavoring to get the public authorities in his own country to adopt them. It seems hardly indicated to develop here the contents of the various chapters of this work since the general organization of social medicine in America, which we take as our model, is well known to American physicians, but we wished merely to call attention to the work of our compatriot which pays homage to the progress made in America.

PRAGUE

(From Our Regular Correspondent)

March 1, 1921.

Return of Health Commission

The commission of the ministry of public health and physical education, consisting of six high officials in the ministry, which made a trip to the United States and England under the auspices of the Rockefeller Foundation for the study of public health administration, has returned home. A scheme for a special department of reorganization of the ministry and the entire public health service in the republic is being considered.

Typhus Fever

Scattered focal areas of typhus fever have appeared again in Slovakia and Ruthenia. It is to be expected that more cases will follow, because typhus fever in that part of the world is not a winter but a spring disease. The same thing is true about smallpox, although there is a law on compulsory vaccination in existence. It is difficult, of course, to put it into effect owing to transportation difficulties and ignorance of the population in the eastern part of the republic.

Emigration to America

The emigration from Slovakia and Ruthenia to America continues at a rate as high as 5,000 persons each month. Because there has not been efficient medical inspection of emigrants before they were given passports by the Czechoslovak authorities, a number have been turned back. The ministry of public health has conceived a plan to organize a center for all emigrants in Uherské Hradiste, where there is a large and modern delousing and quarantine plant which was built originally for the Austrian army. The plan is to have all the emigrants medically inspected before they can apply for a passport. The same standards will be used as those for medical inspection of aliens in ports of the United States. The passport will be given out only when the emigrant has passed through the plant at Uherské Hradiste. The Czechoslovak authorities would like to have an American agent sent to Uherské Hradiste to issue American visés on the passports. There would be a ticket agency at the detention station, and through cars would carry the emigrants directly to the ports of embarkation. The danger then of spreading diseases in Europe and carrying it to the United States would thus be largely avoided.

Children's Hospital Opened

A model children's hospital has been opened at Bycica in one of the poorest districts in Slovakia. The hospital was equipped through the joint efforts of the English mission of Lady Muriel Paget and the League of Red Cross Societies. A system of child welfare clinics has been organized throughout the district connected with the hospital. The scheme is planned as a field demonstration, and it is anticipated that it will be taken over at the end of the first year by the Czech authorities. Its distinct value has already been demonstrated by the keen interest which Slovak peasants showed for the work.

BERLIN

(From Our Regular Correspondent)

March 1, 1921.

Nutrition of Children in Saxony

In accordance with a ministerial decree issued by the government of Saxony, July 1, 1920, an examination of all children from 6 to 14 years of age, including the pupils of higher institutions of learning and boarding schools, is being made in almost all the communes of Saxony. The system employed is that introduced and successfully used by the Quakers in selecting children most in need of special nutritional care. In accordance with this system the children are divided into four groups. Group 1 comprises children in a satisfactory, or at least fairly good, condition of health. Group 2 takes in the children who are slightly undernourished, for whom special nutritional care is desirable from a medical standpoint but not absolutely necessary. In Group 3 are placed children who are markedly undernourished, presenting evidence of retarded physical development (deficiency in weight and height), scrofula, late rachitis or marked anemia. Group 4 is composed of children who are in a serious condition as the result of a prolonged period of undernutrition. To this group belong all chronic patients, especially tuberculous children. The children of Groups 3 and 4 are regarded by their physicians as absolutely needing special nutritional care. In the classification of the children in the various groups the difference between the normal condition and the actual condition is the decisive factor. In order, therefore, to get a basis for the comparison as to mass and weight and thus be able to establish the deviations from normal, a table for the normal condition was worked out from the data given by Heubner. In examining into the general condition of the children, musculature, the panniculus adiposus and the mucous membranes of the children are taken carefully into account. The measurements of the children are taken, in accordance with exact directions, by teachers, welfare workers and nurses. The final opinion on the condition of the child lies, however, entirely in the hands of physicians. In this article we are considering the results of the examinations made up to November, 1920. To that date, 173,780 children had been examined in accordance with the principles outlined above, whereby it was established that 36,694 children, or 21.11 per cent., belonged to Group 1; 49,294, or 28.38 per cent., to Group 2; 58,983, or 33.94 per cent., to Group 3, and 28,809, or 16.57 per cent., to Group 4. Of the total number of children examined, 50.51 per cent. were markedly undernourished, underdeveloped physically, scrofulous, rachitic or notably anemic, or were in a serious condition due to undernutrition.

Reorganization of the Public Health Service of Greater Berlin

Now that the plans for the reorganization of the public health service as drawn up by the committee selected for that purpose have been accepted by the magistracy or city council, a new division of labor is to go into effect. Public health affairs in the new city commune are under the control of a "deputation for the public health service of the new city commune of Berlin." The chairman of the deputation is Stadtmedizinalrat Dr. Rabnow. The deputation has a central public health office and is made up of several departments with various subdivisions. Department I consists of six subdivisions: (1) the working out of general directions and questions of policy for the whole district; (2) standardization of tariff schedules, conditions of employment, assignments to service, etc., for the whole district; (3) preparation of uniform report blanks and the establishment of a uniform system of reporting; (4) collection of material for medical statistics; (5) supervision of all communal institutions in Berlin (now existing or to be established) dealing with the problem of instruction in public health service and the training of personnel, and (6) supervision of private institutions that are aided by the city commune. Department II has charge of certain institutions: (1) the Hygienic and Bacteriologic Institute, the function of which is to supervise fumigation and disinfection, vaccination and other general measures for the control of epidemics, and (2) the Chemical Institute. Department III comprises everything pertaining to social hygiene proper. Department IV deals with hospitals: (1) general hospitals; (2) special institutions (hospitals for the insane, hospitals for special diseases, retreats, sanatoriums, etc. Department V includes all forms of welfare work. Department VI, the central public health office, has charge of matters pertaining to the nutrition of the sick, the medical aspects of the welfare work for the war injured, matters pertaining to the commissioners for the poor, the so-called *Vertrauensärzte* and inspection of prescription departments. The Central Deputation has several standing committees, on (1) retreats; (2) welfare work; (3) private hospitals; (4) hospitals for the insane; (5) social hygiene, and (6) hospitals (excluding hospitals for the insane, retreats and private hospitals). The various committees administer their affairs independently, but important matters must be submitted to the Deputation. The relations between the Deputation for the Public Health Service and the several districts are regulated by common agreement. It has now been definitely established that in every outlying district a local deputation for the public health service will be created. The local deputations will have a voice in the management of the institutions located in their district. The outlying districts retain full control of the institutions that serve their local needs.

Marriages

ORION CHESTER D. JONES, Lieut., M. R. C., U. S. Army, to Mrs. Estelle Bland Hill, both of Lompoc, Calif., at Santa Ana, Calif., February 24.

WILLIAM CHAMBERS, Lieut.-Com., U. S. Navy, to Miss Kathryn A. Willis of Atlantic City, N. J., at Peking, China, February 2.

CHARLES WILLIAM FINNERTY, West Somerville, Mass., to Miss Sara Agnes Flannigan of Portsmouth, Ohio, January 26.

JOHN M. SKIRPAN, Monessen, Pa., to Miss Emma Dorothy Hadock of Plymouth, Pa., January 12.

JAMES THOMAS A. WRIGHT, New York, to Miss Mayme Raymer of Pittsburgh, Nov. 3, 1920.

ARTHUR ALLEN GIBSON to Mrs. Margaret Mae Hale, both of Somerville, Mass., March 6.

CARL LESLIE HOAG, San Francisco, to Miss Josephine Green of Santa Cruz, Calif., March 3.

SIGMUND ARTHUR AGATSTON to Miss Blanche Simon, both of New York, March 11.

Deaths

James Donald Dunlop ⊕ Alpena, Mich.; University of the City of New York, 1884; Queens University, Kingston, Ont., 1887; aged 65; superintendent of the Alpena City Hospital from 1886-1890; for three years health officer of Alpena; at one time president of the Thunder Bay Medical Society and Alpena County Medical Society; died, March 2, following an operation for appendicitis.

Austin Ira Donaldson, Washington, Ind.; Medical College of Indiana, Indianapolis, 1903; aged 47; a member of the Indiana State Medical Association; captain, M. C., U. S. Army, and discharged, Dec. 21, 1918; health commissioner of Daviess County; died, February 27, from typhoid fever.

Frank Walker Sears, Binghamton, N. Y.; College of Physicians and Surgeons in the City of New York, 1895; aged 63; a member of the Medical Society of the State of New York; major, M. C., N. Y. N. G., and discharged, April 3, 1919; died, March 8, from pneumonia.

Charles Maitland Mann, Petersburg, N. Y.; Cornell University Medical College, Ithaca and New York, 1907; aged 37; lieutenant, M. C., U. S. Army, and discharged, July 21, 1919; a member of the Medical Society of the State of New York; died, March 7.

Bernard Blaine Buell, Vermilion, Ohio; Cleveland College of Physicians and Surgeons, 1909; aged 37; a member of the Ohio State Medical Association; was instantly killed, March 14, when the automobile in which he was riding was struck by a passenger train.

Harrison Stephenson Marsh, Kansas City, Mo.; University of Missouri, Columbia, 1908; aged 34; pediatrist to St. Anthony's Home for Infants, and a member of the staff of the General Hospital, Kansas City; died, February 10, following an operation.

Edward Leroy Leonard, Fulton, Ohio; Starling Medical College, Columbus, Ohio, 1892; aged 57; captain, M. C., U. S. Army, and discharged, Dec. 12, 1918; a member of the Ohio State Medical Association; died, March 7, from heart disease.

Albert Clayton Carney ⊕ Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1889; aged 52; a member of the American Academy of Ophthalmology and Oto-Laryngology; died, March 2, from cardiorenal disease.

Frederick Hamilton Blayney ⊕ Capt., M. C., U. S. Army, Chicago; University of Illinois, Chicago, 1898; aged 51; major, M. C., Ill. N. G., prior to the World War; died in Washington, D. C., March 4.

Rufus J. Teague, Roxboro, N. C.; University of Maryland, Baltimore, 1890; aged 56; a member of the Medical Society of the State of North Carolina; died in St. Luke's Hospital, Richmond, Va., Dec. 27, 1920.

James Way Allbritain, Columbus, Ohio; Ohio Medical University, Columbus, 1898; aged 45; who served with an aero squadron in France during the World War; died, March 5, from lethargic encephalitis.

Henry W. A. Pechmann, Holley and Hulbutson, N. Y.; Bellevue Hospital Medical College, 1895; a member of the Medical Society of the State of New York; died, March 5, from cerebral hemorrhage.

Henry D. Squire, Sheboygan, Wis.; Western Homeopathic College, Cleveland, 1864; aged 81; a practitioner of Sheboygan for nearly half a century; died, March 1, from cerebral hemorrhage.

Joseph Jerome Ferguson ⊕ Greenville, Miss.; University of Nashville, Tenn., 1903; aged 52; president of the Washington County Medical Society; died, February 28, from cerebral hemorrhage.

James Ruffin Cottell, Louisville, Ky.; University of Louisville, Ky., 1912; aged 30; lieutenant, M. C., U. S. Army, and discharged, Sept. 9, 1918; died, February 23, from nephritis.

George Albert Bragdon, Middletown, Conn.; Bowdoin Medical School, Brunswick and Portland, Me., 1870; aged 79; a member of the Massachusetts Medical Society; died, March 3.

John D. Green, Manilla, Ind. Louisville (Ky.) Medical College, 1897; aged 57; a member of the Indiana State Medical Association; died, February 26, from cerebral hemorrhage.

Louis W. Bains, Brookshire, Texas; Tulane University, New Orleans, 1885; aged 58; a member of the State Medical Association of Texas; died in Houston, Texas, February 25.

Harry Byron Patterson ⊕ Pittsburgh; University of Pennsylvania, Philadelphia, 1901; aged 41; major, M. C., U. S. Army, and discharged, June 25, 1919; died, Dec. 31, 1920.

Arthur R. Choppin ⊕ Capt., M. C., U. S. Army, Alexandria, La.; Tulane University, New Orleans, 1894; aged 51; on duty at Fort Sam Houston, Texas; died, February 28.

Amasa Howard, Chelmsford, Mass.; Dartmouth Medical School, Hanover, N. H., 1882; aged 63; a member of the Massachusetts Medical Society; died, March 2.

Edmond Joseph Beardsley, Alexandria, Ind.; Chicago Homeopathic Medical College, 1886; aged 59; health officer of Alexandria for fifteen years; died, February 28.

William T. Campbell, Media, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1882; aged 65; also a dentist; died, February 23, from heart disease.

George L. Bomberger, Independence, W. Va.; University of Pennsylvania, Philadelphia, 1865; aged 80; a veteran of the Civil War; died, March 2, from heart disease.

Eugene Joseph Therrien, Derry, N. H.; University of Vermont, Burlington, 1915; aged 30; captain, M. C., U. S. Army, and discharged, Sept. 2, 1919; died, recently.

Adelbiert Allen John, Oregon, Ill.; Chicago Medical College, 1898; aged 64; died at Augustana Hospital, Chicago, March 2, from carcinoma of the stomach.

Charles Caldwell, Mansfield, Ohio; Harvard University Medical School, 1867; aged 79; a veteran of the Civil War; died, February 26, from senile debility.

George F. Lavin, Detroit; Michigan College of Medicine and Surgery, Detroit, 1894; aged 50; for twelve years city physician of Detroit; died, March 2.

Byron R. O'Connor, Petaluma, Calif.; Philadelphia University of Medicine and Surgery, 1867; aged 82; died, February 25, from heart disease.

Charles W. Winslow ⊕ Oakley, Kan.; Ensworth Medical College, St. Joseph, Mo., 1886; aged 66; died, February 18, from pernicious anemia.

Francis Philip Conway, Newport, R. I.; University of Vermont, Burlington, 1889; aged 46; died, in Brooklyn, February 12, from heart disease.

Ramon Ramirez Santibanez, Mayaguez, P. R.; Jefferson Medical College, 1916; aged 27; died, February 25, from pulmonary tuberculosis.

George Washington Gardiner, Philadelphia; Hahnemann Medical College of Philadelphia, 1876; aged 69; died, suddenly, February 28.

John Scott Rice, Laurel, Ind.; Bellevue Hospital Medical College, 1866; aged 75; also a dentist; died, February 27, from heart disease.

Benjamin Franklin Holmes, Hillsboro, Ohio (license, Ohio, 1896); aged 78; a veteran of the Civil War; died, January 21, from pneumonia.

William J. Sloan, East Liverpool, Ohio; Pulte Medical College, Cincinnati, 1886; aged 80; a veteran of the Civil War; died, January 27.

Richard R. Wheatley, Grand Rapids, Mich.; Jefferson Medical College, 1868; aged 81; died, February 26, from cerebral hemorrhage.

Lawrence Andrew Lynch ⊕ Kansas City, Kan.; John A. Creighton Medical College, Omaha, 1914; aged 28; died, January 3.

Thomas G. Huizinga, Zeeland, Mich.; University of Michigan, Ann Arbor, 1881; aged 60; died in Miami, Fla., February 26.

Marcus A. McKendree ⊕ Bowling Green, Ohio; Eclectic Medical Institute, Cincinnati 1884; aged 67; died, February 23.

Sharp Wilson Hemphill, East Liverpool, Ohio (license, Ohio, 1896); aged 72; died, February 23, from valvular heart disease.

J. M. Rendleman, Exira, Iowa; Atlanta (Ga.) Medical College, 1860; aged 83; a Confederate veteran; died, Dec. 25, 1920.

Augustus Knapp Van Horne, Long Beach, Calif.; Jefferson Medical College, 1856; aged 86; died, February 25.

Charles Augustus Gottman ⊕ Detroit; University of Michigan, Ann Arbor, 1890; aged 51; died, February 10.

Abraham Ferulund, Ogden, Utah (license, Utah, 1893); aged 68; died, February 22, from heart disease.

Benjamin Chilson ⊕ Beloit, Wis.; State University of Iowa, Iowa City, 1882; aged 63; died, March 3.

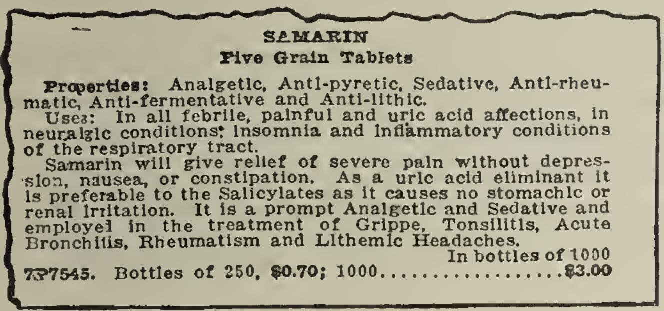
⊕ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

"MODIFIED SALICYLIC ACID" AND "SAMARIN"

The attention of the Laboratory was called to "Modified Salicylic Acid" and "Samarin" put out by the Frank S. Betz Co. of Hammond, Ind. Both are described in the Betz pharmaceutical catalogue but no information is given concerning their composition. In general the Betz pharmaceuticals are nonsecret in composition. These exceptions, therefore, are noteworthy. Since each product is advertised in the catalogue under claims which seemed questionable, regardless of the composition of the preparation, a specimen each of "Modified Salicylic Acid Tablets" and "Samarin Tablets" was obtained and each was examined in the Association's Laboratory.



SAMARIN
Five Grain Tablets

Properties: Analgetic, Anti-pyretic, Sedative, Anti-rheumatic, Anti-fermentative and Anti-lithic.

Uses: In all febrile, painful and uric acid affections, in neuralgic conditions; insomnia and inflammatory conditions of the respiratory tract.

Samarin will give relief of severe pain without depression, nausea, or constipation. As a uric acid eliminant it is preferable to the Salicylates as it causes no stomachic or renal irritation. It is a prompt Analgetic and Sedative and employed in the treatment of Grippe, Tonsilitis, Acute Bronchitis, Rheumatism and Lithemic Headaches.

In bottles of 1000

7P7545. Bottles of 250, $0.70; 1000....................$3.00

A reduced reproduction of the description in the Betz catalogue of "Samarin." The Association's chemists reported that this preparation is a mixture of acetanilid and a salicylate. The label on Samarin failed to declare the presence or amount of acetanilid as the Federal law requires.

MODIFIED SALICYLIC ACID

The tablets of modified salicylic acid were labeled: "Tablets Modified Salicylic Acid 5 Gr. Each tablet contains 4 grs. Acid Salicylic so treated as to render it nonirritating to the stomach." The following statements concerning the product are found in the Betz catalogue:

> "A Substitute for Aspirin and the Salicylates.
>
> "A new product made only in the Betz Laboratory, known by physiological and other tests to be equal to Acetyl Salicylic Acid (Aspirin), and sold at a much lower price.
>
> "The one advantage Aspirin has over Salicylic Acid, is its neutrality and freedom from stomachic irritation; the same can be said of Modified Salicylic Acid.
>
> "Uses—Myalgia, neuralgia and inflammatory rheumatism.
>
> "As an Analgesic—Modified Salicylic Acid comes in competition with Acetanilid and other coal tar products, for the relief of headaches, neuritis and similar painful conditions.
>
> "As an Antipyretic—It far exceeds the Salicylates in power. It has been used for the reduction of the temperature in typhoid fever and rheumatic fever; recommended in acute tonsilitis; also in eczema and other skin diseases.
>
> "The dose of Modified Salicylic Acid is from five to fifteen grains (0.32—1.0 gm.), (same as Aspirin)."

The average weight of ten of the tablets was 0.3843 gm., or about 5.9 grains. Qualitative tests indicated the presence of acetylsalicylic acid (aspirin), calcium sulphate (gypsum), starch, and an acid-insoluble, incombustible substance which was probably talc. The composition of the tablets was found to be essentially as follows:

Acetylsalicylic Acid	81.5 per cent.
Calcium sulphate (gypsum)............	9.2 per cent.
Talc (acid insoluble)...................	0.7 per cent.
Starch (by difference)..................	8.6 per cent.

Each tablet of "Modified Salicylic Acid" contains, therefore, about 4.8 grains of acetylsalicylic acid and about half a grain each of gypsum and starch with a trace of talc. In other words the product essentially is aspirin. Calcium sulphate, either as gypsum or plaster of Paris, has no use in internal medicine. Neither has it any legitimate place in the manufacture of tablets. Its presence in "Modified Salicylic Acid," therefore, is entirely unjustified either by therapeutic or pharmaceutic necessity. There is nothing in this "new product made only in the Betz Laboratory" to warrant the secrecy under which it is sold, nor the extravagant claims which are made for it. Physicians who desire to prescribe acetylsalicylic acid will find several brands of unquestionable purity from reputable manufacturers described in New and Nonofficial Remedies.

SAMARIN

The following statements concerning Samarin are made on the label of the preparation:

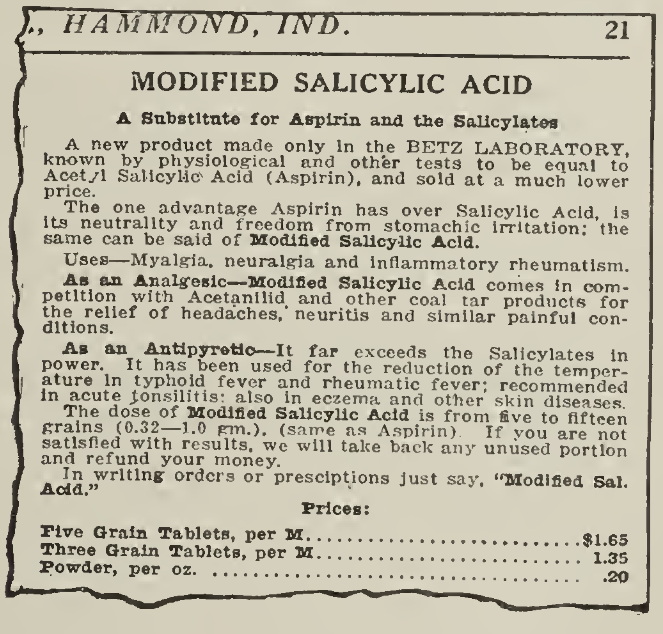
> "Properties: Analgesic, Anti-pyretic, Sedative, Antirheumatic, Anti-fermentative and Anti-lithic, freely soluble, tolerated by the most delicate stomach.
>
> "Uses: In all febrile, painful and uric acid affections, particularly indicated in all neuralgic conditions, insomnia and inflammatory conditions of the respiratory tract.
>
> "Dose—One to three tablets of Samarin, repeated every two or three hours as indicated, not to exceed twelve tablets a day.
>
> "Samarin will give almost immediate relief of severe pain without depression, nausea, or constipation. As a uric acid eliminant it is preferable to the Salicylates, as it causes no stomachic or renal irritation. It is a prompt Analgesic and Sedative, and extensively employed in the treatment of Grippe, Tonsilitis, Acute Bronchitis, Rheumatism and Lithemic Headaches."

The Samarin tablets examined were uncoated and were dyed green throughout. The average weight of ten tablets was 0.35972 gm., or about 5½ grains. Qualitative tests indicated the absence of pyramidon, acetphenetidin, acetylsalicylic acid, free salicylic acid, caffein and other alkaloids, lithium salts and sodium bicarbonate. Tests were obtained for acetanilid, a salicylate, calcium, a sulphate, an acid insoluble, incombustible substance which was probably talc, starch, and a green dye which was not identified.

The analysis indicated the composition of the tablets to be essentially as follows:

Acetanilid	37 per cent.
Calcium Salicylate	32 per cent.
Calcium sulphate (gypsum).............	7 per cent.
Talc (acid-insoluble).....................	6 per cent.
Starch and coloring (by difference)......	18 per cent.

The analysis of Samarin tablets shows that, when stripped of secrecy, misrepresentations and advertising bombast, the preparation is essentially a mixture of acetanilid with a salicylate. The salicylate found is equivalent to about 25 per cent. of free salicylic acid. Each tablet is equivalent to about 2 grains of acetanilid and nearly 1½ grains of salicylic acid. The presence of acetanilid is not declared on the label of the mixture as is required by law. Physicians know that acetanilid is not a safe drug to prescribe in unlimited doses. That the Frank S. Betz Co. is aware of the unsafe character of Samarin is evidenced by the warning on the label not to take more than twelve tablets in a day. Yet the physician who prescribes Samarin does not know that he is giving either acetanilid or a salicylate.



., *HAMMOND, IND.* 21

MODIFIED SALICYLIC ACID

A Substitute for Aspirin and the Salicylates

A new product made only in the BETZ LABORATORY, known by physiological and other tests to be equal to Acetyl Salicylic Acid (Aspirin), and sold at a much lower price.

The one advantage Aspirin has over Salicylic Acid, is its neutrality and freedom from stomachic irritation; the same can be said of **Modified Salicylic Acid.**

Uses—Myalgia, neuralgia and inflammatory rheumatism.

As an Analgesic—Modified Salicylic Acid comes in competition with Acetanilid and other coal tar products for the relief of headaches, neuritis and similar painful conditions.

As an Antipyretic—It far exceeds the Salicylates in power. It has been used for the reduction of the temperature in typhoid fever and rheumatic fever; recommended in acute tonsilitis: also in eczema and other skin diseases.

The dose of **Modified Salicylic Acid** is from five to fifteen grains (0.32—1.0 gm.), (same as Aspirin). If you are not satisfied with results, we will take back any unused portion and refund your money.

In writing orders or presciptions just say, **"Modified Sal. Acid."**

Prices:

Five Grain Tablets, per M..............................$1.65
Three Grain Tablets, per M............................ 1.35
Powder, per oz. .... .20

A reduced reproduction of the description in the Betz pharmaceutical catalogue of "Modified Salicylic Acid." The Association's chemists found that the product is essentially acetylsalicylic acid (aspirin) with gypsum, starch and talc.

Correspondence

THE ENCYCLOPEDIA BRITANNICA AND THE DATE OF THE INTRODUCTION OF ANESTHESIA

To the Editor:—In my paper on "Vivisection" in the *Country Gentleman*, Feb. 12, 1921, the text reads: "Prior to *September 30, 1846*, anesthesia was impossible, for no effective anesthetic was known." In my manuscript, I had written: "Prior to *October 16, 1846*, anesthesia was impossible," etc.

Unfortunately, I did not observe in the revised proof that the date had been altered. I am unwilling to allow my want of care in reading the revised proof to perpetuate and even to support an erroneous date for the first public demonstration of anesthesia. This date is one of the most important in the entire Chronology of Medicine.

The change, I am told, was made by reason of the statement in the Encyclopedia Britannica (Edition 11, Vol. I, p. 1908). This reads: "On the 30th day of September, 1846, Dr. Morton . . . employed the vapour of ether to procure general anesthesia in a case of tooth-extraction, and thereafter administered it in cases requiring surgical operation with complete success. This great achievement marked a new era in surgery." It will be observed that, while the text does not state explicitly that this was the first public administration of ether, the implication that it was the first is very clear.

As a matter of fact, this was not a public demonstration, but a private operation done in Dr. Morton's office. It was not a case of surgical anesthesia. The very brief period of unconsciousness necessary for the instantaneous extraction of a tooth differs materially from a surgical operation, such as was done in the Massachusetts General Hospital, Oct. 16, 1846, when Dr. John C. Warren dissected out a tumor from the neck of Gilbert Abbott, in the presence of the Harvard medical students and a number of distinguished medical men who had been invited to witness the operation. *As a result of this operation, the news of surgical anesthesia spread like wildfire throughout the entire civilized world.*

As Prof. William H. Welch of Johns Hopkins University says in his "Ether Day Address," Oct. 16, 1908 (the first of a series of formal annual addresses on "Ether Day"): "But, whatever may be the difference of opinion [he is discussing the merits of the various claimants for the honor of introducing surgical anesthesia] *one fact of the first historical importance stands and will continue to stand unshaken; the world received the gift of surgical anesthesia as the immediate and direct result of the convincing, public demonstration of its efficacy in this hospital* [the Massachusetts General Hospital] *on the sixteenth day of October, 1846.*"

This public demonstration of surgical anesthesia also gave rise to the nomenclature introduced by Oliver Wendell Holmes, namely, "anesthesia, anesthetic, anesthetist," etc., words then coined by Holmes, for there existed no English term (and its derivatives) for such a state of unconsciousness to pain preceding Oct. 16, 1846.

It is perfectly true that Dr. Crawford W. Long, in Jefferson, Ga., in March, 1842—more than four years before the Morton-Warren operation—did remove a small tumor from a patient under influence of ether. About eight minor surgical operations on patients under ether were performed by him after that date, but, to quote Dr. Welch again, "We cannot assign to him [Long] any influence upon the historical development of our knowledge of surgical anesthesia, or any share in the introduction to the world at large of the blessings of this matchless discovery."

Long made no claim whatever that he was the first to administer ether, nor did he publish a word about it until three years after that first public administration in the Massachusetts General Hospital. In other words, he lacked the alert mind which would instantly have perceived the immense importance of the great discovery which he had stumbled upon. In fact, almost nothing was known about Long's operations until they were exploited by Dr. J. Marion Sims, thirty-one years after 1846 (*Virginia Medical Monthly* **4**:81-100, 1877).

The writer in the Encyclopedia Britannica, a London anesthetist, has given a very incomplete history of the introduction of anesthesia. He has entirely missed the historic significance of the first public surgical operation under ether, Oct. 16, 1846, as contrasted with the private dental operation of Sept. 30, 1846, by Morton, and the still earlier minor surgical operations by Long. He seems, indeed, not to have known anything of this much earlier surgical use of ether by Long, for he does not even mention it, nor does he refer to the operation of Oct. 16, 1846.

Dr. Welch writes me: "A full and accurate statement of the facts is given in Dr. Nathan P. Rice's 'Trials of a Public Benefactor,' New York, 1859. On page 63, Morton himself says (referring to the public operation on October 16, 1846): 'This I consider to be the first demonstration of this new fact in science.'"

W. W. Keen, M.D., Philadelphia.

THE DUCT SIGN IN MUMPS

To the Editor:—Under this title, Cowie (*Am. J. Dis. Child.* **20**:74 [Aug.] 1920) described in detail a "teatulation" of the parotid duct and reddening of its orifice as a sign in mumps. In his conclusions, based on a study of fifty-seven cases, he says, "The duct sign was present in 96 per cent. of the cases recorded, and is probably present in all cases of parotid mumps at some time in the course of the disease."

While in the medical service at the base hospital at Camp Upton, New York, under the supervision of Major Harlow Brooks, I observed daily, for a period of about three months, about 1,000 cases of epidemic parotitis occurring mostly in southern negro soldiers. Unfortunately, however, I have available no accurate statistics of these cases.

At the meeting of the Associated Physicians of Long Island, held at the base hospital, Camp Upton, Long Island, June 22, 1918, I prepared the following program of selected cases in my wards: Mumps: (1) parotid duct redness as a sign; (2) epididymitis—a rather frequent complication; (3) cases of meningism at the onset; (4) endocarditis—a complication; (5) relapse nine days after discharge; (6) sore throat as a prodromal symptom, and (7) the blood picture in mumps.

The parotid duct redness, as I then described it, corresponded almost exactly with the description given by Cowie. I observed the teatulation of the duct and redness of the orifice in most of the cases, but in no case did I see any of the "minute hemorrhagic points" mentioned in his article. Also, at some time or other in almost all of our cases, I was able to observe the exudation from the affected duct of the "clear limpid fluid" mentioned by him. My observations fully confirm his, that "the duct sign is uninfluenced by fever."

In a monograph on "Epidemic Parotitis as a Military Disease" (*M. Clinics N. America* **2**:492 [Sept.] 1918) in which Brooks reports the cases seen at the Base Hospital at Camp Upton from Sept. 5, 1917, to July 12, 1918, he makes only passing mention of the duct sign by saying: "One does usually note that the papilla is edematous, swollen and inflamed, but, in my opinion, not to a diagnostic degree." It is because I was unable, in at least 25 per cent. of the definite cases, to demonstrate this duct sign (neither teatulation nor redness) on the affected side or sides at any time during the disease, that I concluded, as does Cowie, that "the duct sign should be regarded as corroborative evidence of parotid gland involvement."

Moreover, I saw the typical teatulation and redness of the duct in several negroes who never developed the disease or any of its complications. It is true, as Cowie says, that "because of the occasional occurrence of teatulation of Steno's duct in a certain percentage of apparently normal persons and occasionally redness of its orifice, careful differentiation should be made." I observed the teatulation alone in a large number of apparently normal negro soldiers. *The typical duct sign (teatulation and redness) as observed in a large percentage of those who had the disease I also found in many apparently normal negroes.* Whether these typical findings could be found in a similar number of normal white people, I am unable to state.

The London *Medical Press,* in a recent editorial (Oct. 20, 1920, p. 303) fully confirms my opinion as regards this sign when it says: "But to what extent this sign can be regarded as pathognomonic of the disease is still doubtful, for it may also be apparent in a certain number of normal individuals."

Samuel K. Levy, M.D., Brooklyn.

THE GLOVER CANCER SERUM

To the Editor:—During the month of December, 1920, a large number of physicians referred to me copies of an advertisement of an alleged cancer cure prepared by the T. J. Glover Research Laboratories of Toronto, Canada. I immediately obtained some of this serum from the makers, at a cost of $25 for five doses (about 5 c.c. of serum). The serum was a clear, amber colored fluid. During the experiments it was kept, as directed, in a cool place, and it was handled and administered under the most careful asepsis.

This serum was tested on carcinomas and sarcomas of the white rat. These were transplanted tumors which had originated in the mamma of the rat and were much less malignant than the corresponding human tumors. It was assumed that the doses for the rat should be proportional to body weight. In some instances the serum was injected directly into the tumor, in others it was injected subcutaneously or intramuscularly, as recommended by Dr. Glover, and the time intervals also were proportioned as recommended. The serum appeared to be rather toxic, and the injected animals failed slowly in health.

The treatment had not the slightest effect on the growth rate of tumors of either type, nor was any tumor cured. It is evident, therefore, that the statement made by Dr. Glover to the effect that this serum is of no use in the treatment of sarcoma is correct. To this should be added the further statement that the serum has not the slightest effect on carcinomas of the white rat.

These results confirm the report of the Toronto Academy of Medicine, published in The Journal (Feb. 5, 1921, p. 397) as to the worthlessness of this serum as a therapeutic agent for malignant tumors.

Francis Carter Wood, M.D., New York.
Director of Cancer Research, George
Crocker Special Research Fund.

Pulmonary Tuberculosis in Athletes.—It would seem self-evident that, as the main or sole business of the lungs is to serve as an organ for gas exchange, any restriction of their functionating area must be regarded as unphysiological and liable to invite disease. It is a popular impression, for which there is some evidence, that pulmonary tuberculosis is especially liable to attack athletes after they abandon vigorous exercises and assume a sedentary life. In such a case it seems probable that redundancy of pulmonary tissue would lead to excessive atelectasis.—H. Sewall, *Am. Rev. Tuberc.* **4**:825, 1921.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arizona: Phoenix, April 5-6. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

Arkansas: Little Rock, May 10. Sec., Reg. Bd., Dr. T. J. Stout, Brinkley. Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Colorado: Denver, April 5. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, April 12. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

Hawaii: Honolulu, April 11. Sec., Dr. Guy C. Milnor, 401 S. Beretania St., Honolulu.

Idaho: Boise, April 5. Director, Mr. Paul Davis, Boise.

Iowa: Des Moines, April 12-14. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

Kentucky: Louisville, May 10. Sec., Dr. A. T. McCormack, Sixth and Main Sts., Louisville.

Louisiana: New Orleans, May 3. Sec., Dr. F. H. Hardenstein, 702 Macheca Bldg., New Orleans.

Minnesota: Minneapolis, April 5-7. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, April 12. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

Nevada: Carson City, May 2. Sec., Dr. S. L. Lee, Carson City.

New Mexico: Santa Fe, April 11-12. Sec., Dr. R. E. McBride, Las Cruces.

Oklahoma: Oklahoma City, April 12-13. Sec., Dr. J. M. Byrum, Shawnee.

Porto Rico: San Juan, April 5. Sec., Dr. Manuel Quevedo Baez, San Juan.

Rhode Island: Providence, April 7-8. Sec., Dr. Byron U. Richards, State House, Providence.

Utah: Salt Lake City, April 4-5. Sec., Dr. C. L. Olsen, 932 South 5th East St., Salt Lake City.

West Virginia October Examination

Dr. R. T. Davis, state health commissioner, West Virginia Public Health Council, reports the oral and written examination held at Charleston, Oct. 12, 1920. The examination covered 11 subjects and included 132 questions. An average of 80 per cent. was required to pass. Of the 14 candidates examined, 13, including 1 chiropractor, passed, and 1 failed. Fifteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
George Washington University	(1920)	88
University of Maryland	(1918) 88, (1920)	84, 88
St. Louis College of Physicians and Surgeons	(1918)*	
Western Reserve University	(1919)	90
Jefferson Medical College	(1917) 84, (1920)	83
University of Pennsylvania	(1917)	87
Meharry Medical College	(1920)	80
University of Virginia	(1918)	89
National University, Athens	(1911)†	91
FAILED		
Meharry Medical College	(1918)	68

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
George Washington University	(1895)	Ohio
Kentucky University	(1905)	Virginia
Baltimore Medical College	(1898) Maryland, (1911)	Virginia
University of Maryland	(1910) Maryland, (1914)	S. Carolina
University of Minnesota Homeopathic Med. Dept.	(1905)	Minnesota
University of Cincinnati	(1915)	Ohio
Jefferson Medical College	(1915)	Penna.
University of Pennsylvania	(1910)	Maryland
Meharry Medical College	(1897) South Carolina, (1915)	Georgia
University of the South	(1909)	Virginia
Medical College of Virginia	(1917)	Virginia
University College of Medicine, Richmond	(1912)	Virginia

* Grade not given.
† Graduation not verified.

Massachusetts November Examination

Dr. Walter P. Bowers, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination held at Boston, Nov. 11-13, 1920. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 46 candidates examined, 27, including 2 osteopaths, passed, and 19, including 8 osteopaths, failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1915) 80.8, (1918)	84.5
George Washington University	(1907)	83.4
Tulane University	(1918)	81.5
College of Physicians and Surgeons, Boston	(1920)	76.4, 76.5
Harvard University	(1919) 80.7, (1920) 83.4, 85.2, 86.2, (1921)*	79.3, 80.8

Middlesex College of Medicine and Surgery	(1919)	75.1, (1920) 77.8, 81.7, 83.9
Tufts College Medical School	(1917) 84.2, (1919)	78.7
Jefferson Medical College	(1917)	84.5
Temple University	(1919)	78
Women's Medical College of Pennsylvania	(1915)	76.8
University of Virginia	(1917)	89.2
University of Vermont	(1920)	76
Queen's University	(1920)	76.2
McGill University	(1918)	81

Dr. Bowers also reports 3 candidates licensed by special examination:

College PASSED	Year Grad.	Per Cent.
Harvard University	(1892)	83.5
University of Vermont	(1918)	80.2
University of Edinburgh	(1902)	84.2
FAILED		
University of Southern California	(1920)	63.4
Emory University	(1920)	71.9
Baltimore Medical College	(1902)	72
College of Physicians and Surgeons, Boston	(1920)	51.7, 70.8, 72.1
Middlesex College of Medicine and Surgery	(1920)	62.5, 71.3
Tufts College	(1920)	72.1
University of Naples	(1914)†	
Laval University	(1920)‡	69

* These candidates had completed all requirements for the M.D. degree which was awarded in February, 1921.

† Grade not given.

‡ Graduation not verified.

Louisiana December Report

Dr. E. W. Mahler, secretary, Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, Dec. 2-4, 1920. The examination covered 12 subjects and included 100 questions. An average of 75 per cent. was required to pass. Twelve candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Tulane University	(1912) 76.1, (1920) 77.9, 82.9, 87.2, 88.2,	88.3
University of Oklahoma	(1917)	80.3
University of Pennsylvania	(1920)	87.5
Memphis Hospital Medical College	(1901)*	72.8
University of Tennessee	(1908)*	73.8
University of Texas	(1920)	90
University of Virginia	(1920)	86.5

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Tulane University	(1914)	Alabama
University of Michigan Medical School	(1907)	Michigan
University of Virginia	(1911)	Michigan

* Credit allowed for years of practice.

Book Notices

Medical Gymnastics in Medicine and Surgery. By E. Bellis Clayton, M.B., B.C., Director of the Physiotherapeutic Department, King's College Hospital, London. Cloth. Price $1.80 net. Pp. 159. New York: Longmans, Green and Co., 1920.

This book has been written for students of medical gymnastics to be used alongside a book that describes the technic of the various exercises and manipulations, such as Kleen's "Massage and Medical Gymnastics." It attempts to make the operator more intelligent in the application of the prescribed gymnastic treatment by teaching something about the nature of various diseases. "It is essential," says the author that "the masseuse should understand something about the condition which she is treating. There is a great difference between an intelligent, well-taught masseuse and a masseuse who works like a machine. The more thorough the training of the masseuse, the more she realizes that she must rely on her medical man for directions as to details of treatment." It is so obvious that the more of medicine the masseur understands, the better a masseur he is, that it may be questioned whether massage should be practiced by any one who does not have a thorough medical training. Medical gymnastics ignorantly applied may not only be useless, but actually harmful. If medical schools would do their duty toward their students in connection with physical therapy, all physicians would be masseurs; and then we could insist that all *medical* massage be administered by physicians. To this proposition the busy practitioner may object on the ground that he lacks the time. He should remember, however, that right here would be a good field for the help of young medical men just starting in practice, who usually have more time on their hands than they know what to do with. For the limited purpose for which this book is devised, it is well gotten up. The author does not hesitate to say that "in this condition massage is useless," or "medical gymnastics are not indicated." For medical men this book is hardly suitable, as it is merely an epitome of medicine in which a special effort is made to show the indications for massage. Until the day arrives when physicians administer medical gymnastics, this book might be recommended to those who are fitting themselves to assist medical men in this line of work.

Block Anesthesia and Allied Subjects. With Special Chapters on the Maxillary Sinus, the Tonsils, and Neuralgias of the Nervus Trigeminus. For Oral Surgeons, Dentists, Laryngologists, Rhinologists, Otologists and Students. By Arthur E. Smith, D.D.S., M.D., Oral Surgeon to Frances Willard Hospital, Chicago. Cloth. Price, $15. Pp. 895, with 595 illustrations. St. Louis: C. V. Mosby Company, 1920.

This book will fill a distinct place on the shelves of surgeons of the head and neck, and its publication is an important service to surgical and dental science. It offers an up-to-date technic in local analgesia and block anesthesia, accompanied with illustrations that cover every detail of the various steps and maneuvers. The early chapters are devoted to a historical review of general and local anesthesia, together with an outline of the development of the latter, following which are a number of chapters covering the anatomic and general considerations. The latter half of the book gives in careful detail the methods of blocking the principal nerve trunks and their terminal branches. In this part of the work lies its greatest value. The author has used an impressive amount of patience to teach step by step every detail of each procedure. For each block injection the reader will find specific subheadings, such as anatomy, indications and contraindications, the needle employed, technic of injections, amount of solution to inject, time to wait for anesthesia, and structures anesthetized, and there is usually a paragraph on the blocking of interlacing or overlapping branches from neighboring nerves. By means of this arrangement the book becomes a valuable reference guide and as such will find many friends among oral surgeons, otorhinolaryngologists and dental surgeons. The illustrations, virtually all of which are original, are remarkable for their clarity and instructiveness.

Outlines of Physical Diagnosis of the Circulatory and Respiratory Systems. Prepared from the Lectures of Thomas Barnes Futcher, M.D., Associate Professor of Clinical Medicine, The Johns Hopkins University Medical School. By John Gardner Murray, Jr. Second edition. Cloth. Price, $2.75. Pp. 179. Baltimore: The Students' Book Store, 1920.

This volume is arranged with the text on one page, the other page being left blank for notes. It can be carried in the pocket. It is intended for the medical student, but should also be of value to any junior intern. The text is systematically arranged, brief, but fairly complete. For detailed explanations of various phenomena, the student should refer to a more voluminous reference book.

Diagnostische Winke für die Tägliche Praxis, ein Nachschlagebuch für Aerzte und Studierende. Von Dr. E. Graetzer. Second edition. Boards. Price, 16 marks. Pp. 264. Berlin: S. Karger, 1920.

This book is a miniature encyclopedia of medicine in which all the diseases are arranged in alphabetical order. A few of the symptoms and signs are given first, and then the atypical forms of the disease, including a short summary of the conditions requiring differentiation. Too much is attempted for such a small volume. The value that might accrue to the reader rests in the simple mentioning of the atypical variations, together with a short description of the condition under consideration.

La Madre y su Primer Bebe. By Dr. Jorge Bejarano, Médico-Director de la "Gota de leche" de Bogotá. Pp. 70. Paper. Bogotá, 1919.

This is one of recent publications on child hygiene which shows the interest being taken in this all important subject throughout Latin America. The book is written in an interesting style, well suited to its intended audience, the mothers of Colombia. De Bejarano is the director of an infants' milk depot in Bogota, and is familiar with his subject and the needs of his country.

Medicolegal

Fraudulent Exploitation of "Organo Tablets"

(Leach v. Carlisle (U. S.), 267 Fed. R. 61)

The United States Circuit Court of Appeals, Seventh Circuit, in affirming a decree in favor of the defendant, says that the suit was brought by the plaintiff, Fred Leach, doing business as the "Organo Product Company," asking that the defendant, postmaster at Chicago, be restrained from holding and disposing of the mail of the company as prescribed in a fraud order. The plaintiff, under the name of "Packers' Product Company," had previously been engaged in the business of selling an alleged remedy for sexual weakness and disorders in men, which he called "Orchic Extract," consisting of dried and powdered sheep's testicles made into tablet form; but, after a fraud order was issued, in 1918, against that company, and sustained, for conducting a scheme for obtaining money through the mails by false and fraudulent pretenses, he adopted the name of "Organo Product Company," made some changes in his advertising matter, and began marketing the same product, calling it "Organo Tablets."

The issue which was most warmly contested before the postmaster general was that of the merit of animal testicular substances as a remedy for sexual and nervous disorders. It was contended for the government that such remedies in general, and particularly when administered by the mouth, as this was, are so manifestly wanting in merit that any representations to the contrary are essentially fraudulent; while for the plaintiff it was contended, and some evidence tended to show, that such substances, administered as this was, have proved more or less beneficial in some of such ailments. Whether wholly or partly predicated on superstition or fact or both, the thought is as old as the hills that to partake by way of food or otherwise of certain parts of animals will produce beneficial effect in the corresponding part in man—the brain, the heart, the stomach, and notably the testicles. There has long been more or less prevalent the practice of resorting to the testicles of animals as an article of food or medication for prolonging, restoring or augmenting manly strength and sexual power. Considerable literature is extant on the subject, and it appears that some physicians employ such remedies, and that many others decry their use. Under the record facts the most that could be said was that physicians and others, who might reasonably be supposed to possess expert knowledge on the subject, disagree as to whether or not such substances have any remedial virtue. It was not the design of the statutes to vest the postmaster general with authority to determine between contradictory views held in apparent good faith on a subject the merits or demerits of which may fairly be said to be a matter of opinion among those who ought to know.

But any so-called remedy, however meritorious, may in its exploitation become the subject matter of fraud. Indeed, it is too often seen that articles to which more or less merit is popularly ascribed are made a basis or vehicle to carry the grossest frauds, serving only to lend semblance of good faith to the scheme. That modesty or prudery, or whatever else it may be called, which puts a ban on frank and unrestricted reference to human sexual parts, and enfolds their mention and consideration in secrecy and shame, has given quacks and charlatans a most fruitful field for operation, of which they have not been slow to take advantage. Sometimes boldly, but often by suggestion and innuendo, they undertake to make all men believe they have symptoms of most serious sexual disorders when, in truth, they are more often perfectly normal, and that the natural subsidence of virility (which is generally quite as certain as the flight of years) will be arrested, and the victim restored to the vigor of robust youth, and that all sexual troubles will be corrected, if only that particular nostrum be taken, or that plan persistently followed. He who would operate in this peculiar field of endeavor must have a special care that his scheme is not calculated to instil in men unfounded fears, or inspire in them false hopes, as a means to the end of obtaining their money. Careful perusal of the literature put out by the plaintiff to effect the sale of his tablets induced the conclusion that it did not differ materially from the old-time stuff; and the court is of the opinion that the record showed that the postmaster general had abundant ground for his order.

An Insane Person Cannot Be Called in Good Health

(Harris v. New York Life Ins. Co. (W. Va.), 104 S. E. R. 121)

The Supreme Court of Appeals of West Virginia, in reversing a judgment obtained by the plaintiff on a policy of insurance that was issued by the defendant company on the life of his wife, holds that an insane person cannot be said to be in good health. The court says that the defendant set forth that among other statements made by the insured in her application, on which the policy was issued, she undertook, in accordance with the provisions of the application, to give true answers in regard to her family history, some of the answers so given being that her father had died at the age of 65 years from blood poison; that he had been ill one month before his death, previous to which time his health had been good, whereas, instead of his health having been good up until one month prior to his death, he had been confined in an insane asylum for nine years prior thereto, afflicted with paresis. As to the condition of her father's health prior to the illness which resulted in his death, it might be said that the answer of the insured was but the expression of an opinion on her part; but that must be an honest opinion, and must be made in good faith. It appeared that the insured knew that her father had been afflicted for nine years, and because of that affliction had been confined in an insane asylum, and, notwithstanding she had actual knowledge of those facts, she answered that his health was good. It was argued that he was only insane, and that that was not a disease within the meaning of the policy. But the court cannot agree with that conclusion. The fact that the affliction with which one is suffering is a mental disease, instead of a physical disease, makes it no less a disease, and it cannot be said that, even though this answer be treated as an expression of opinion, it was made in good faith, when she knew that he was at the time of his death, and had been for a long while, confined in an asylum for the insane.

Death of Hospital Employee from Influenza as "Injury"

(City and County of San Francisco v. Industrial Accident Commission et al. (Calif.), 191 Pac. R. 26)

The Supreme Court of California affirms an award of compensation in favor of the widow of a hospital steward, named Slattery, who was taken with influenza, Oct. 15, 1918, and died of that disease eight days later. The court says that it was contended that the awarding of compensation under the workmen's compensation act for death by disease, the origin of which was not a bodily injury suffered through violence, was beyond the powers of the commission, under the provision of the state constitution at that time authorizing the legislature to create and enforce a liability on the part of employers to compensate their employees for any injury incurred in the course of their employment. In view, however, of the word "injury" having two possible meanings, a broad one and a narrow one, and the legislature, in construing this provision, having placed on the word the broader meaning, the provision of the workmen's compensation act, whereby a disease arising out of employment is declared to be an injury for which compensation shall be paid, is held to be operative and controlling, and is not unconstitutional.

Secondly, it was contended that Slattery did not contract the influenza from which he died because of his employment, as an epidemic of the disease was raging in the city at the time, and was so general in the city that every member of the community was exposed to it to a greater or less extent, and that one out of every ten in the city contracted it. On the other hand, the evidence showed that the incubation period of the disease was from one to four days, that Slattery in the course of his duties during the five days preceding his being taken ill had had to handle and had been exposed to at least twelve developed cases of influenza, that so far as known he was not exposed to any cases except in the course of his employment, that he lived only half a block from the hospital where he was employed, and during the two weeks preceding his illness had been working very hard, and had gone directly from his home to his work and from his work to his home, and had not been out, that his exposure because of his work was far greater than that of the average person, and that among the nurses in the hospitals of the city, a class exposed in much the same degree as he was, the proportion who contracted the disease ran from 50 to 85 per cent. The preponderance of the medical testimony also was to the effect that he contracted the disease as a result of his peculiar exposure to it incidental to his employment. It, of course, could not be said that from these facts it was certain that Slattery contracted his sickness because of his employment. But certainty was not required.

If there had been no epidemic in San Francisco at the time, and it appeared that Slattery as hospital steward had been exposed directly to a considerable number of influenza patients, and was not known to have been exposed otherwise, and had come down with the disease within the period of incubation after his exposure, the conclusion that the disease was due to his exposure in the course of his work could hardly be questioned; and these were the actual facts, with the single exception that an epidemic was raging. To the extent of the severity of the epidemic the strength of the conclusion was weakened. It might well be that if the epidemic were so severe that the proportion of the general public who were attacked was anything like as great as the proportion of those exposed as was Slattery, the question of whether he was attacked because of the exposure incident to his employment or because of the exposure general to the public would be so much a matter of conjecture and speculation as not to warrant a definite conclusion as the basis of an award. But the proportion of persons exposed as was Slattery who were attacked was so great as compared with that of those not so exposed that it could not be said that the commission was not justified in concluding from it, in connection with the other facts, that his illness was due to the peculiar exposure of his employment. Its conclusion was the more justified by the fact that it coincided with the conclusions of most of the physicians who testified. The opinions of physicians on a point of this character are entitled to consideration, since it is a part of their vocation to observe diseases and how they spread, and to draw conclusions from their observations.

Damages Allowed for the Loss of an Eye

(P. Lorillard Co., Inc., v. Clay (Va.), 104 S. E. R. 384)

The Supreme Court of Appeals of Virginia, in reducing a judgment from $15,000 to $10,000 as damages for the loss of an eye by an unskilled workman about 21 years of age, who had been earning $14 a week before his injury and subsequently returned to his old job at an increase in wages of $4 a week, says that there is no rule of law fixing the measure of damages in cases of this kind. It is a matter to be left to the sound discretion and judgment of an impartial jury, whose verdict will not be disturbed unless it appears that they have been influenced by partiality or prejudice, or have been misled by some mistaken view of the merits of the case. But the opinions of jurors differ widely as to the amount of damages to be allowed. A rich man would not undergo serious physical pain for any amount of money, and would probably vote for large damages; whereas a poor man would probably put a much higher value on money and would vote for a smaller sum. The temperament of men also, and other considerations, lead them to vote for larger or smaller damages. So likewise the facts in one case may warrant a different verdict from the facts of another. The attendant suffering or the subsequent incapacity to follow one's usual calling may be different in one case from what they are in another. Where, however, the facts in a number of cases are substantially the same, the compensation to be made therefor ought not to be left wholly indeterminate, or wholly dependent on the verdict in a particular case, if any means can be discovered by which the amount of the compensation can be reasonably approximated. In eighteen cases, arising in ten different states, in which verdicts for the loss of an eye met the approval of the appelate courts of the states in which they were rendered, the verdicts ranged from $1,400 to $15,000, the average of the whole being $5,424. But many of those cases were decided years ago, and the cost of living has already increased in the last few years. In many respects it has more than doubled. This increase is a legitimate item to be taken into account in fixing the compensation to be made for personal injuries. In view of the average amount heretofore allowed in such cases, and of the recent great increase in the cost of living, the court thinks $10,000 to be a fair allowance here.

Association Not Liable for Expenses of Member Sick at Distant Place

(International & G. N. Ry. Employee's Hospital Association v. Bell (Texas), 224 S. W. R. 309)

The Court of Civil Appeals of Texas, in reversing a judgment for $1,193.10 that was rendered in favor of plaintiff Bell against the defendant hospital association, holds that he was not entitled to recover hospital, medical and surgical expenses incurred by him during a serious spell of sickness, in which he was stated to have had typhoid fever, that befell him in St. Louis, while he was in the performance of the duties of his employment by the International & Great Northern Railway Company. The court says that the association, as stated in its charter, was formed to provide medical and surgical treatment for its members, which included all of the employees of the railway company who might be injured or disabled by accident or sickness while in such employment, under such rules and regulations as might be prescribed by the board of trustees of the association. The fact that the plaintiff, under his contract of employment with the railway company, was required to pay monthly dues of 50 cents to the defendant association could not affect the question of the extent of the benefits to which he was entitled under the charter and rules of the association. Under the construction of those rules he was promised medical treatment only in case of accident or sickness occurring along the line of the road, where the evidence showed that the association had in its employ, for the purpose of treating its members, about 100 physicians and surgeons; and if treated by one of these elsewhere than in the association hospital such treatment could be only temporary, or in cases in which the member was too seriously injured or sick to be removed to the hospital. The plaintiff was unfortunate in that his sickness befell him where he could not obtain the treatment which his payment of the association dues would have entitled him to had his sickness occurred where the facilities for his treatment provided by the association were available; but his misfortune would not justify the extension of the benefits promised him by the association and the imposition of obligations on the association beyond the terms of the contract as evidenced by the charter and rules of the association.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 19-21.
American Assn. of Genito-Urinary Surgeons, Richmond, Va., May 2-3.
American Association of Physicians, Atlantic City, May 10-11.
American Society for Clinical Investigation, Atlantic City, May 9.
Arizona Medical Association, Tucson, April 15-16.
Arkansas Medical Society, Hot Springs, May 3-5.
California, Medical Society of the State of, San Diego, May 10-12.
Connecticut State Medical Society, Hartford, May 18-19.
Florida Medical Association, Pensacola, May 10-11.
Georgia, Medical Association of, Rome, May 4.
Illinois State Medical Society, Springfield, May 17-19.
Iowa State Medical Society, Des Moines, May 11-13.
Kansas Medical Society, Wichita, April 26-28.
Louisiana State Medical Society, New Orleans, April 19-21.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 26-28.
Mississippi State Medical Association, Laurel, May 10-11.
Missouri State Medical Association, St. Joseph, May 17-19.
Nebraska State Medical Association, Lincoln, May 9-12.
New Mexico Medical Society, Albuquerque, April 28-30.
New York, Medical Society of the State of, Brooklyn, May 3.
North Carolina, Medical Society of the State of, Pinehurst, April 26-28.
Ohio State Medical Association, Columbus, May 3-5.
Oklahoma State Medical Association, McAlester, May 17-19.
South Carolina Medical Association, Columbia, April 19-20.
Tennessee State Medical Association, Nashville, April 12-14.
Texas, State Medical Association of, Dallas, May 10-12.
Western Electro-Therapeutic Association, Kansas City, Mo., April 21-23.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

February, 1921, **1**, No. 5

*New Method of Subperitoneal Shortening of Round Ligaments of Uterus. H. Grad, New York.—p. 411.
*Pyelitis in Pregnancy; Report of Cases. G. Baughman, Richmond, Va. —p. 436.
*Thrombophlebitis During Puerperium Following Influenza; Report of Cases. L. F. Smead, Toledo, Ohio.—p. 447.
Pseudocholecystitis. H. D. Meeker, New York.—p. 454.
*Benign Mammary Tumors and Intestinal Toxemia. W. S. Bainbridge, New York.—p. 465.
Missed Abortion; Report of Cases. J. C. Litzenberg, Minneapolis.—p. 475.
*Splenic Leukemia Associated with Pregnancy. G. W. Kosmak, New York.—p. 485.
Ovarian Dermoid Cysts. B. R. McClellan, Xenia, Ohio.—p. 493.
*Status of Intrauterine Stem Pessary: Study of 205 Cases with End-Results in 117 Cases. R. M. Rawls, New York.—p. 499.
Obstruction of Superior Mesenteric Vessels from Bands with Threatened Gangrene of Greater Part of Small Intestine; Recovery. J. N. West, New York.—p. 516.

Subperitoneal Shortening of Round Ligaments.—The operation devised by Grad aims to fasten the strongest portion of the round ligaments to the fibers of the internal ring of the inguinal canal, where the round ligaments emerge from the abdominal cavity. The ligaments are bared of their peritoneal investments and therefore, Grad says, connot fail to unite along the suture line. The proper amount of shortening of the round ligaments by plication in each case can be measured to a nicety. The author claims that by this method of operation no abnormal conditions are created in the pelvic cavity or abdominal wall; no holes are tunneled through the abdominal parieties; the ligaments cannot be overstretched and their vitality endangered by interference with their circulation. It is a definite surgical procedure with no drawbacks. Every step of the operation is under perfect mechanical control. The fallopian tubes are not liable to become traumatized or kinked; the mesosalpinx is not encroached on. With the operation completed, the pelvic organs are left in a normal condition. The operation of shortening the round ligaments is as a rule supplemented by shortening of the uterosacral ligaments and in a certain number of cases, the fundus of the uterus is held forward by a temporary catgut suture, which is placed in a special way. Grad separates the anterior layer of broad ligament from the posterior and after suturing together the folded part of the round ligament, it is buried between the two layers of the broad ligament and anchored in place. The anterior layer of the broad ligament is sutured to the posterior layer of the round ligament in such a manner as to cover all raw surfaces. An analysis of the end results in 100 cases has shown that the operation is an efficient one. It will hold the uterus in normal position and give relief from symptoms. It causes no complications during pregnancy or labor. The operation is devoid of mortality or morbidity. The final results of the operation show 95 per cent. of successes.

Pyelitis in Pregnancy.—Three cases of pyelitis in pregnancy are reported by Baughman. The patients were treated with pelvic lavage; pyelograms being taken from time to time as the pelvic size changed, provided the condition of the patient warranted this added discomfort. In all the cases the right pelvis was principally involved. In two cases the bladder was early and persistently involved. In one case the bladder was occasionally inflamed. In two cases the colon bacillus was the exciting cause. In the last case *Staphylococcus albus* was the causative organism. The symptoms in all cases improved under irrigation, but the most marked improvement was noted following delivery, showing that the obstruction was due to the uterus and its contents.

Thrombophlebitis Following Delivery.—In two of the three cases reported by Smead the onset of the thrombophlebitis occurred on the third day following delivery; in the third case it occurred on the seventh day. The temperature is the most reliable symptom. It rises suddenly from normal to 105 or 106 F. and, in a short time, falls to slightly above or below normal, where it remains until the next sudden rise. Severe, prolonged chills are present in the majority of cases. The pulse rate fluctuates with the temperature, but is relatively low until the patient begins to suffer from severe sepsis, the result of the development of metastatic foci or of extensive abscess formation about the veins or of septicemia. The blood cultures are as often negative as positive. The prolonged course of this disease, lasting for months, is quite characteristic. In phlebitis of the pelvic veins pain is usually absent. The nonsurgical treatment consists in general measures to keep up the body resistance, good food, abundance of fresh air, and the avoidance of anything which may dislodge the thrombus—such as douches, enemas, and pelvic examinations. Vaccine and serum treatment has been disappointing. The surgical treatment has consisted in the ligation or excision of the involved veins and in the drainage of perivascular abscesses. The transperitoneal route has proved better than the extraperitoneal or vaginal approach. The indications for operation are difficult to determine. The greatest conservatism must govern the choice of cases for operation. The majority of patients should not be subjected to operation.

Mammary Tumors and Intestinal Toxemia.—Bainbridge records twenty-five cases of abnormal mammary changes apparently caused by autointoxication. Each patient suffered from a coexistant chronic intestinal toxemia, and the amount of poisoning was reflected, in many instances, in the degree of change in the mammary tissue. When the autointoxication was relieved the breasts either markedly improved or returned entirely to the normal.

Splenic Leukemia in Pregnancy.—Two well developed and subsequently fatal cases of leukemia associated with pregnancy are reported by Kosmak. Ten similar cases have been recorded in the literature. In the majority of cases the woman survived but a short time after labor. One of the author's patients died before delivery took place. In every instance but one in which the definite diagnosis is presented, the splenomedullary type of the disease was observed.

Intra-Uterine Stem Pessary.—Rawls says that the intra-uterine stem pessary gives as good end results as other operative procedures for like indications and from its use there is less primary invalidism and no more liability to sequels or morbidity. The intra-uterine stem should never be used except in carefully studied and selected cases and then the minimum of sequels and morbidity with the maximum of results will be obtained.

American Journal of Public Health, Chicago

January, 1921, **11**, No. 1

Birth and Death Certificates as Legal Evidence. H. B. Hemenway, Springfield, Ill.—p. 1.
Evaporation of Fruits and Vegetables. W. V. Cruess, Berkley, Calif. —p. 6.
Sanitary Conditions in Peru. H. Hanson, Lima, Peru.—p. 13.
B. Coli and B. Aerogenes. M. Levine, Iowa City, Ia.—p. 21.
Maintaining Standards of Animal Foods. M. E. Jaffa, Berkeley, Calif. —p. 23.
The Helpless Narcotic: A Public Menace and a Public Health Responsibility. S. Graham-Mulhall, New York City.—p. 25.
Some Recent Experiments in Narcotic Control. C. E. Terry, Darien, Conn.—p. 32.
Rôle of Dentistry in Personal Hygiene. G. S. Millberry, San Francisco.—p. 53.
Mental Health of Children. G. E. Myers, Los Angeles.—p. 55.
Relation of Industrial Medicine to Public Health. R. T. Legge, Berkley, Calif.—p. 62.
Bacteriologic Methods of Water Analysis Used in the American Expeditionary Force. E. Bartow.—p. 65.
Infant Welfare Health Stations in Bridgeport, Conn. L. A. Wilkes, Bridgeport.—p. 66.

American Review of Tuberculosis, Baltimore

February, 1921, **4**, No. 12

*Pleural Infection Complicating Artificial Pneumothorax Treated with Gentian Violet. B. H. Waters, Loomis, N. Y.—p. 875.
*Tuberculosis from Standpoint of Postmortem. H. E. Robertson, Minneapolis.—p. 882.
Albumin Reaction in Sputum. W. Burdick and H. Gauss, Denver, Colo.—p. 889.
Localized Spontaneous Pyopneumothorax; Report of Case with Roentgenographs. S. Swezey and M. Levy, Denver, Colo.—p. 896.
*Four Years of Framingham Demonstration. D. B. Armstrong.—p. 903.

Résumé of a Tuberculosis Survey of Silk Mill Villege in North Carolina. L. B. McBrayer, Sanatorium, N. C.—p. 920.
Child's Place in Tuberculosis Program. H. D. Chadwick, Westfield, Mass.—p. 926.
Coordination of Antituberculosis Agencies. W. C. Klotz, Charlottesville, Va.—p. 933.

Gentian Violet in Pleural Infection.—The occurrence of septic infection of the pleura in two instances, during the course of artificial compression of the lung in pulmonary tuberculosis, led Waters to the adaption to the pleural cavity of a method similar to that which Churchman uses for the knee joint. Within from twelve to twenty-four hours in the first case a marked and striking change for the better was noted, repeated to a lesser degree after the second treatment, the patient subsequently recovering from this serious complication although marked prostration and a low fever persisted, which were associated with a fresh development of tubercle in the opposite lung. The outcome was even more gratifying in the second case.

Healed Tuberculosis.—A case is cited by Robertson which bears on the question of healed tuberculous lesions. A woman, 57 years of age, had suffered in childhood from Pott's disease of the spine, which appeared to have become arrested at the age of 12. For forty-five years she lived without experiencing or revealing any evidences of active tuberculous foci. She finally died of general arteriosclerosis and angina pectoris. The lymph nodes at the bifurcation of her trachea contained calcareous and caseous masses, while adjoining these were young growing tubercles which had evidently sprung into activity only at a very recent date. This illustration gives a basis for the statement that once infected with tuberculosis the patient can never be assured of absolute freedom from its recurrence. It thus well behooves the entire race to live under such safe hygienic conditions that this specific and real menace to its existence may be reduced to its lowest possible terms.

Tuberculosis in Framingham.—Tuberculosis as a cause of illness in Framingham Armstrong says is apparently being brought under control. This is particularly true as reflected in the decreasing number of advanced cases. As to mortality, the tuberculosis death rate per hundred thousand, corrected for certification was 121.5. For the entire demonstration period thus far, with similar corrections, including the rate for 1920, the figure is 84.2 per hundred thousand—a reduction of about one third. For 1920, the rate was 64.5 per hundred thousand—a reduction of about one half under the predemonstration rate after four years of intensive work. This rate would mean that the same measures if successfully applied to 100,000 people, with 100 deaths a year at the start, would save fifty lives a year. For the United States as a whole, this would mean a saving of 75,000 lives annually. In Framingham, at the beginning of the demonstration, the community was spending approximately 40 cents per capita per year on all kinds of health work. The community is now spending about $2 per capita per year from public and private funds combined. In a city of 100,000 people this would mean an annual health expenditure of about $200,000.

Annals of Surgery, Philadelphia

February, 1921, **73**, No. 2

*Squamous Cell Epithelioma of Skin. A. C. Broders, Rochester, Minn.—p. 141.
*Painless Hypodermoclysis. W. Bartlett, St. Louis, Mo.—p. 161.
Regional Anesthesia. G. L. Labat, Rochester, Minn.—p. 165.
*Some Surgical Aspects of Asphyxia. E. A. Graham, St. Louis, Mo.—p. 170.
Some Underlying Principles of Intestinal and Gastric Surgery. J. S. Horsley, Richmond, Va.—p. 199.
*Solid Tumors of Mesentery. J. L. Ransohoff and A. Friedlander, Cincinnati, Ohio.—p. 211.
Stave Fracture of First Metatarsal Bone. M. B. Cooperman, Philadelphia.—p. 215.
Tumors in South China. J. O. Thomson, Canton, China.—p. 217.
*Pseudopolycythemia: Extraordinary Blood Changes in Patient with Renal Calculus. L. Herman and B. B. V. Lyon, Philadelphia.—p. 223.
Pertrochanteric Fracture of Femur. P. G. Skillern, Jr., Philadelphia.—p. 227.
*Mesenteric Embolism in Hemophiliac. F. B. Block and S. Goldberg, Philadelphia.—p. 229.

Squamous Cell Epithelioma of Skin.—The 256 cases in the series of squamous cell epitheliomas of the skin studied by Broders represent 12.8 per cent. of 2,000 cases of general epithelioma observed in the Mayo Clinic from Nov. 1, 1904, to July 22, 1915. Farmers represented 53.96 per cent. of the cases in males. The site of the cancer was preceded by a mole, wart, pimple, scab, ulcer, leukoplakia, crack, wen, blister, or lump in 51.17 per cent. of the cases. There was a history of injury in 23.82 per cent. of the cases; burns represented 24.59 per cent. of the injuries, and roentgen-ray burns represented 20 per cent. of the burns. Data of interest are: 78.4 per cent. of all lesions occurred above the clavicle; 28.12 per cent. of the patients were treated with acid, paste or plaster before they entered the clinic; 26.95 per cent. were operated on at the clinic. Regional lymph nodes or salivary glands were not removed in 77.96 per cent. Of the 22.03 per cent. of the cases in which the regional lymph nodes or salivary glands were removed, metastasis was demonstrated in 61.53 per cent. The cervical lymph nodes were involved in 31.25 per cent., the submaxillary lpmph nodes in 28.12 per cent., the parotid lymph nodes in 25 per cent., the parotid salivary gland in 25 per cent., and the axillary and inguinal lymph nodes each in 15.62 per cent. Of the patients operated on and traced, 51.77 per cent. are dead; 82.35 per cent. of the living patients have been free from the disease on an average of 7.44 years; 65.51 per cent. died of epithelioma. The actual operative mortality was 0.42 per cent. Patients who were treated with pastes, plaster, etc., before entering the clinic did not get such good total results as those who were not so treated, 57.14 per cent. in the former group and 61.11 per cent. in the latter; the total poor results were 40 per cent. in the former group and 30 per cent. in the latter. Of the patients with metastases, 10.52 per cent. are living. No patient with cervical lymph nodes or more than one group of any lymph nodes involved has been reported living. All the patients reported dead who had metastases died of epithelioma; 66.66 per cent. of the patients reported dead who did not have metastases died of epithelioma; 53.15 per cent. of the patients operated on in whom no regional lymph nodes or salivary glands were removed are living; 81.35 per cent. of these report good results; 54.76 per cent. of the patients reported dead in whom no regional lymph nodes or salivary glands were removed, died of epithelioma. The total good results for the patients with metastasis are 6.66 per cent.; for those without metastasis, 77.77 per cent.; and for those in whom no regional lymph nodes or salivary glands were removed, 66.33 per cent.

Painless Hypodermoclysis.—The vicarious administration of water has been revolutionized in Bartlett's service by the employment of local anesthesia from the beginning to the end of the procedure. He uses 0.05 per cent. procain in great dilution with distilled water. The introduction of a few hundred c.c. of fluid into a partially dehydrated patient to some extent offsets the possible risk of employing what may be considered a toxic dose of the procain which seemed indispensable to the performance of a much needed surgical operation. Bartlett has never observed dangerous toxic symptoms following the employment of procain, although he has far exceeded what is commonly given as the maximum dose. He uses the ordinary proctoclysis apparatus without the drop sight feed attachment. Where hypodermoclysis is used in any of the conditions which are attended by a fall of blood pressure, epinephrin is added to the fluid. It is injected midway between the lower ribs and the prominent upper curve of the ilium as the site of election, since less subsequent damage has occurred here than elsewhere. The introduction of the needle is made painless by an ethyl chlorid spray on the skin. Bartlett considers this method of injecting water into the tissues far superior to proctoclysis, although it is not ideal. Infection or tissue devitalization is possible, and the region affected is quite likely to remain very tender for two or three days, but a continuous inflow of 1/16 per cent. procain can be maintained with most patients, as long as indicated, without causing discomfort or toxic symptoms.

Surgical Aspects of Asphyxia.—Graham discusses the manner in which disturbances of tissue respiration in the human body may occur; the effects of asphyxia, and the recognition of asphyxial effects. Some practical methods of minimizing the effects of asphyxia are presented.

Solid Tumors of Mesentery.—Ransohoff and Friedlander report one case in which the diagnosis was made with the aid of the roentgen ray. A tumor the size of a fetal head was found in the mesosigmoid, just above the rectosigmoid junction. It was a fibrosarcoma. In none of the fifteen cases recorded in the literature and analyzed by the authors had a diagnosis been made.

Blood Changes in Renal Calculus.—The case recorded by Herman and Lyon presents clinical and cytologic evidence that remarkable functional disturbances sometimes occur in the hemopoietic tissues in the absence of demonstrable organic changes in these tissues, in so far as the clinical demonstration of the latter is concerned. No case in the literature bears on a polycythemia in connection with a kidney condition and disappearing when the kidney was removed. Another unusual feature was the sudden flood of leukocytes, mainly polymorphonuclears, after operation.

Mesenteric Embolism in Hemophiliac.—Several unusual features are stressed by Block and Goldberg in the report of their case. A correct preoperative diagnosis was made; recovery followed the operation; the patient was a true hemophiliac, and a female, aged 45. The symptoms of the mesenteric embolism were; nausea, sudden severe abdominal pain, which was cramplike in character, became aggravated and was associated with almost continuous vomiting. The vomitus consisted of a greenish material at times, and at other times it was very foamy but had no characteristic odor nor did it contain blood. The bowels were constipated, although the patient had taken magnesium sulphate, and an enema had been given. The abdomen was not rigid, but there seemed to be a moderate amount of tenderness in the lower left quadrant, but the pain, while more severe in this region, was general. No mass was palpable nor was there any noticeable distention. The peristaltic movements were well heard. Temperature was normal; the pulse was 110 and there was no increase in the respiratory rate. On opening the abdomen there was a gush of blood-stained fluid followed by the prolapse of a moderately distended intestine into the wound. On passing the hand down to the left lower quadrant a firm mass was felt which proved to be an intensely congested ileum which was on the verge of undergoing gangrene. The mesentery of this portion of the gut presented a picture of infarction. The involved area of gut was about 6 inches in length, the intestines below the diseased area appeared quite normal, while the bowel above showed graduated degrees of congestion, most marked, of course, as it approached the infarcted area. The diseased loop, together with several inches of the congested bowel above the infarct and the accompanying mesentery, was removed.

Arkansas Medical Society Journal, Little Rock

February, 1921, **17**, No. 9

Things Which I Think Would Most Help Physician Financially and Not Do Him Any Professional Damage. E. J. Mason, Jonesboro.—p. 175.
Eclampsia. S. J. Allbright, Kensett.—p. 177.

Endocrinology, Los Angeles

January, 1921, **5**, No. 1

Adenoma of Thyroid with Hyperthyroidism (Thyrotoxic Adenoma). History of Recognition of this Disease as Clinical Entity. Study of Symptomatology with Basal Metabolic Rates. W. M. Boothby, Rochester, Minn.—p. 1.
Case of Dystrophia Adiposogenitalis. F. G. Ebaugh and R. G. Hoskins, Baltimore.—p. 21.
Determination of Relative Activity of Thyroid Lobes. N. W. Brown, Toledo, Ohio.—p. 29.
Hypophysis Cerebri of Woodchuck (Marmota Monax) with Special Reference to Hibernation and Inanition. A. T. Rasmussen, Minneapolis.—p. 33.
Controlling Factors in Amphibian Metamorphosis. J. F. Fulton, Jr.—p. 67.

Illinois Medical Journal, Oak Park

January, 1921, **39**, No. 1

Group Diagnosis and Group Therapy. L. F. Barker, Baltimore.—p. 1.
Nasal Cavities and Asthma. G. E. Shambaugh, Chicago.—p. 10.
Principles of Drainage in Empyema. J. F. Binnie, Kansas City, Mo.—p. 13.
Some Experiences Had in Dealing with Appendicitis During Past Twenty-Five Years. E. M. Sala, Rock Island.—p. 14.
Need and Value of Strict Enforcement of Notification in Cases of Suspected and Diagnosed Pulmonary Tuberculosis. E. J. O'Neill, Chicago.—p. 22.
Treatment of Some Pelvic Inflammations. C. H. Tearnan, Decatur.—p. 25.
Blood Transfusion in New-Born. A. Bamberger, Chicago.—p. 27.
Angina Pectoris Treatment with Benzyl Benzoate. A. B. Spach, Chicago.—p. 28.
*Blood Transfusion in Treatment of Pulmonary Tuberculosis. E. B. Freilich, A. J. Hruby, J. J. Mendelsohn, Chicago.—p. 32.
Precancerous Stage. F. D. Moore, Chicago.—p. 34.
Glaucoma. M. Goldenburg, Chicago.—p. 41.
Surgical Treatment of Gastric and Duodenal Ulcer, with a New Method of Pyloroplasty. A. A. Strauss, Chicago.—p. 45.
Enuresis. J. C. Krafft, Chicago.—p. 50.
Empyema: Dakin—Carrel Technic. F. P. Horan, Evanston.—p. 52.
Andrews Operation for Inguinal Hernia with Report of 316 Cases and Modification of Technic. A. Werelius, Chicago.—p. 53.
Tuberculosis of Abdominal Peritoneum. W. B. Metcalf, Chicago.—p. 57.
Eye in Relation to Diseases of Nose, Throat and Teeth. O. Tydings, Chicago.—p. 59.
Peritoneoscope, Pneumoperitoneum and Roentgen-Rays in Abdominal Diagnosis. B. H. Orndoff, Chicago.—p. 61.

Blood Transfusion in Pulmonary Tuberculosis.—The transfusion of blood has been resorted to by the authors in a series of cases at the Chicago Municipal Tuberculosis Sanitarium. The blood of the donor and recipient are tested for iso-agglutinins and isohemolysin, Wassermann tests for syphilis, and complement fixation tests for tuberculosis. In addition the cytology of the blood of the recipient is studied weekly. The transfusion is done by the indirect method at weekly intervals. The recipients are patients in whom the prognosis is doubtful or bad, who are not improving under the usual methods of treatment and are classified as Moderately Advanced B and C, and Far Advanced A and B, according to the classification of the National Tuberculosis Association. Six patients have received from two to five transfusions at weekly intervals of from 100 to 375 c.c. of blood. Transfusion of over 200 c.c. usually resulted in a reaction characterized by chill, fever and sweat with prompt recovery therefrom. The clinical course in this series of cases was not appreciably altered. Changes in the blood of the recipients in this series was a steady deviation to the left or no change as determined by Arneth count. In conclusion, it is evident that normal blood is devoid of that specific element which will arrest the progress of the disease. Further experimental work is now being carried on with a series of cases in which the donors show a positive complement fixation test for tuberculosis.

Indiana State Medical Association Journal, Ft. Wayne

Jan. 15, 1921, **14**, No. 1

Rôle of Roentgen Ray in Diagnosis of Surgical Abdomen with Special Emphasis on Its Use in Gallbladder and Appendiceal Regions. B. R. Kirklin, Muncie.—p. 1.
The Physician: "The Medical Society." F. B. Wynn, Indianapolis.—p. 7.
Suture of Peripheral Nerves. W. C. Moore, Muncie.—p. 11.

Iowa State Medical Society Journal, Des Moines

Feb. 15, 1921, **11**, No. 2

*Operative and Nonoperative Indications in Surgical Tuberculosis. A. Steindler, Iowa City.—p. 33.
Some Aural Complications of Acute Epidemic Parotitis. G. C. Albright, Iowa City.—p. 38.
Work of Women Physicians During War. N. S. Noble, Des Moines.—p. 44.
Early Recognition and Treatment of Intussusception. C. S. Krause, Cedar Rapids.—p. p. 47.
Diet for Pernicious Anemia. R. L. Fenlon, Iowa City.—p. 50.

Treatment of Surgical Tuberculosis.—Among 4,600 cases, Steindler has observed 350 cases of joint tuberculosis, about 7 per cent. Of these cases 253 were treated; twenty-eight were treated operatively and 225 conservatively. As result of his experience Steindler feels that the first thing that deserves warmest advocacy is the securing of all facilities necessary to carry out general treatment especially that of heliotherapy and outdoor life. Barring a few patients in especially favorable circumstances this should mean institutional treatment for the majority of cases. Severe cases of either Pott's disease or hip disease or shoulder disease will do better in recumbency that in ambulatory treatment and the general trend should be more toward prolongation of recumbency. While the division of indications into conservative and operative treatment largely parallels the division into adults and juvenile tuberculosis, there are operative indications for radical interference in children, which, if undertaken at all, should be done at an early time. The best results are obtained by a long period of institutional care so that both recumbent and general hygienic treatment may be administered thoroughly and systematically.

Journal of Biological Chemistry, Baltimore

February, 1921, **45**, No. 3

Removal of Ammonia from Urine Preparatory to Determination of Urea. G. E. Youngburg, Buffalo.—p. 391.
Chemical Study of Several Marine Mollusks of Pacific Coast. P. G. Albrecht, Palto Alto, Calif.—p. 395.
Hemicellulose of Apple Wood. W. E. Tottingham, R. H. Roberts, and S. Lepkovsky, Madison, Wis.—p. 407.
*Estimation of Bile Acids in Bile. C. L. A. Schmidt and A. E. Dart, Berkeley, Calif.—p. 415.
*Effect of Alkali on Efficiency of Water-Soluble Vitamin B. T. B. Osborne and C. S. Leavenworth, New Haven, Conn.—p. 423.
Method for Determination of Chlorin in Solid Tissues. R. D. Bell and E. A. Doisy, Boston.—p. 427.
*Determination of Chlorids in Trichloroacetic Acid Filtrates from Whole Blood and Plasma. M. Smith, Boston.—p. 437.
*Simplified Method for Determination of Chlorids in Blood or Plasma. J. C. Whitehorn, Boston.—p. 449.
Determination of Chlorids in Blood Plasma. J. H. Austin and D. D. Van Slyke, New York.—p. 461.
Improved Apparatus for Use in Folin and Wu's Method for Estimation of Urea in Blood. T. Watson and H. L. White, Los Angeles.—p. 465.
Chemical Structure of Chondridin. P. A. Levene and J. Lopez-Suarez, New York.—p. 467.
*Sulphocyanate Content of Saliva and Urine in Pellagra. M. X. Sullivan and P. R. Dawson, Spartanburg, S. C.—p. 473.
*Carbon Dioxid Absorption Curve and Carbon Dioxid Tension of Blood of Normal Resting Individuals. J. P. Peters, Jr., D. P. Barr and F. D. Rule, New York.—p. 489.
*Carbon Dioxid Absorption Curve and Carbon Dioxid Tension of Blood in Cardiac Dyspnea. J. P. Peters, Jr., and D. P. Barr, New York.—p. 537.
*Carbon Dioxid Absorption Curve and Carbon Dioxid Tension of Blood in Severe Anemia. D. P. Barr and J. P. Peters, Jr., New York.—p. 571.
Possible Asymmetry of Aliphatic Diazo Compounds. P. A. Levene and L. A. Mikeska, New York.—p. 593.

Estimation of Bile Acids in Bile.—A method for the estimation of the nitrogen of bile acids of the taurine and the glycocoll series in bile is described by Schmidt and Dart. It is based on the fact that on hydrolysis with sodium hydroxid the bile acids are split, setting free taurine and glycocoll which react quantitatively with nitric acid. The taurine nitrogen can be estimated from the total sulfur content of protein-free bile. The difference between the amino nitrogen resulting from the splitting of the bile acids, and the taurine nitrogen, less 3 per cent., gives the glycocoll nitrogen.

Effect of Alkali on Vitamin B.—The experiments made by Osborne and Leavenworth confirm the observations of those investigators who have reported the destruction of the water-soluble vitamin B when heated with alkalies. It thus appears that in attempting to concentrate, or isolate, the water-soluble vitamin B dilute alkaline solutions can be used without materially affecting its activity provided a low temperature and a short time of exposure to the alkali are employed.

Determination of Blood Chlorids.—The determination of blood chlorids by several different methods is discussed by Smith. It is pointed out that the simultaneous precipitation of blood proteins and chlorids is open to error. A modification of the McLean-Van Slyke starch-citrate-nitrite solution is introduced. The use of trichloroacetic acid filtrates for determination of chlorids is described.

Determination of Blood Chlorids.—The method of preparing protein-free filtrates by the use of tungstic acid, as developed and used by Folin, was applied by Whitehorn to the determination of chlorids. The same reagents as are used for the determination of urine chlorids are employed. The limit of error is less than 1.5 per cent.

Sulphocyanate Content of Saliva and Urine of Pellagrins.—Examination of the saliva and urine of pellagra patients showed that the sulphocyanate content is, as a rule, less than that of the saliva and urine of the same patients about to be discharged from the hospital as being free from the signs and symptoms characteristic of pellagra. The increase of the sulphocyanate of the saliva and urine seems to be associated with the betterment of the general condition of the patient, with better assimilation, a higher protein metabolism, and presumably a greater detoxifying power of the system as a whole. The increase of sulphocyanate of the urine at discharge, over that of entrance, however, is not proportional to the increase of the total nitrogen of the urine.

Carbon Dioxid Tension of Blood.—A direct method for the estimation of the arterial and venous carbon dioxid tension of human blood is described by Peters and his associates. It has been employed on three normal subjects at rest.

Carbon Dioxid Tension of Blood in Cardiac Dyspnea.—A study has been made by Peters and Barr of the carbon dioxid absorption curve of the blood of seven patients with cardiac decompensation and dyspnea. In three out of the seven low curves were found. In two of these cases the curves returned to the normal level when compensation was established. Clinically, these patients were distinguished by the presence of an extreme degree of cyanosis with little dyspnea. No relation could be established between the reduction of the absorption curve and the oxygen unsaturation of the arterial or venous blood. A low absorption curve was not an indication of the severity of the condition. No signs of renal involvement were discovered in any of these cases. The causes of cardiac dyspnea seem to be: The fact that a greater ventilation is necessary to effect the normal carbon dioxid elimination. This is largely brought about by an impairment of the efficiency of the pulmonary mechanism for the exchange of gases between the blood and the outside air. This necessitates the maintenance of a greater difference in carbon dioxid pressure between the blood in the pulmonary circulation and the alveolar air in order to effect the normal carbon dioxid output. To maintain the carbon dioxid tension and the hydrogen ion concentration at the proper level the alveolar carbon dioxid tension must be abnormally low. In some cases a diminution of the circulation rate may be an additional factor in the production of a carbon dioxid acidosis. Finally, in a certain proportion of the cases, at least, there is a real reduction of the available alkali of the blood. In at least two cases with a reduction of the vailable alkali of the blood were found indications of a comparative insensibility of the respiratory center to its natural physicochemical stimulus, the hydrogen ion concentration of the blood.

Carbon Dioxid Absorption Curve in Anemia.—The carbon dioxid absorption curves of blood from six patients with severe anemia have been studied by Barr and Peters. They have been found to have a flatter slope than have the curves of normal blood. This is explained, in part, by the low percentage of hemoglobin. The flatness of the curves, however, is not exactly proportional to the diminution in the percentage of hemoglobin. The blood of severe anemia has a diminished power of absorbing or dissociating carbon dioxid with changes of carbon dioxid tension. In three cases the hydrogen ion concentration of the arterial blood was determined and found to be relatively low, the p_H being as much as 7.47 in one instance. The venous p_H was surprisingly constant, varying in four cases between 7.32 and 7.38. In severe anemia changes in carbon dioxid tension produce relatively small changes in carbon dioxid content and relatively great variations in hydrogen ion concentration. The fault in the carbon dioxid carrying power and the greater changes in hydrogen ion concentration may explain the dyspnea of anemia.

Journal of Experimental Medicine, Baltimore

Feb. 1, 1921, **33**, No. 2

*Experimental Studies of Nasopharyngeal Secretions from Influenza Patients. I. Transmission Experiments with Nasopharyngeal Washings. P. K. Olitsky and F. L. Gates, New York.—p. 125.
*Chilomastix Mesnili and Method for Its Culture. W. C. Boeck, Baltimore.—p. 147.
*Mechanism of Urea Excretion. J. Oliver, San Francisco.—p. 177.
*Immunologic Distinctions of Encephalitis and Poliomyelitis. H. L. Amoss, New York.—p. 187.
*Therapeutic Action of *N*-Phenylglycineamid-*p*-Arsonic Acid (Tryparsamid) on Experimental Infections of Trypanosoma Rhodesiense. L. Pearce and W. H. Brown, New York.—p. 193.
*Acid-Base Equilibrium in Disease from Point of View of Blood Gases. J. H. Means, A. V. Bock and M. N. Woodwell, Boston.—p. 201.
Relation Between Virulence of Streptococci and Hemolysin. F. A. Stevens, J. W. S. Brady and R. West, New York.—p. 223.
Quantitative Distribution of Particulate Material (Manganese Dioxid) Administered Intravenously to Dog, Rabbit, Guinea-Pig, Rat, Chicken and Turtle. C. C. Lund, L. A. Shaw and C. K. Drinker, Boston.—p. 231.
*Experimental Studies on Yellow Fever in Northern Peru. H. Noguchi and I. J. Kligler, New York.—p. 239.
Immunology of Peruvian Strains of Leptospira Icteroides. H. Noguchi and I. J. Kligler, New York.—p. 253.
Migration of Lymphocytes in Plasma Cultures of Human Lymph Nodes. W. H. Lewis and L. T. Webster, Baltimore.—p. 261.

Studies on Endothelial Reactions. IV. Endothelium in Experimental General Miliary Tuberculosis in Rabbits. N. C. Foot, Boston.—p. 271.
Condition of Capillaries in Histamin Shock. A. R. Rich, Baltimore.—p. 287.

Study of Nasopharyngeal Secretions in Influenza.—The object of the investigation made by Olitsky and Gates was to determine, if possible, whether the secretions of the nasopharynx of individuals suffering from epidemic influenza exhibited on inoculation into animals any peculiarities of action or properties which would serve to distinguish them from the secretions of individuals not so affected. An active substance has been detected in five patients in early stages of epidemic influenza during 1918-1919, and two patients in early stages of epidemic influenza during 1920. It was not detected in twelve cases of the same disease in which the onset of obvious symptoms occurred more than thirty-six hours before washing of the nasopharynx was carried out, nor was it found in the secretions of fourteen individuals free from the syndrome of influenza either during the epidemics or the interval between them. With this substance a clinical and pathological condition has been induced in rabbits, affecting the blood and pulmonary structures mainly, which could be maintained and carried through at least fifteen successive animals. For this reason, and also because of the dilution between passages, the authors believe they were dealing with the actual transmission of a multiplying agent rather than with a passive transference of an original active substance.

Diarrhea Due to Flagellate.—A chronic case of diarrhea due to a flagellate infestation was brought to Boeck's notice and on examination the flagellate was identified as *Chilomastix mesnili.* It was cultured continuously from Jan. 27 to June 15, 1920, in an artificial medium composed of one part of human serum and four parts of Locke's solution with the addition of a small amount of dextrose. Boeck claims that cases of flagellate infection of man by *Chilomastix mesnili* have been reported from nearly every locality in the world. They are often confused with cases of infestation by *Trichomonas intestinalis.*

Mechanism of Urea Excretion.—The mechanism of urea excretion is summarized by Oliver as follows: Urea passes through the glomerular capsule in the same concentration as that found in the plasma. A certain amount is added to this filtrate by excretion through the cells of the proximal convoluted tubule, and the ultimate concentration is reached by an absorption of water in the remainder of the tubule. Urea is present in the cells of the proximal convoluted tubule in a concentration higher than that of the blood or than that of the cells of any of the other kidney tubules. Such a condition can only be reconciled to an assumption of an active secretion (excretion) on the part of these cells. Urea also passes through the glomerular filter with the other crystalloids of the blood plasma. The final concentration of urea is due to the above mentioned secretion by the proximal convoluted tubule, and to the absorption of water in other parts of the tubule.

Immunologic Distinction of Encephalitis and Poliomyelitis.—Experiments made by Amoss show that the two diseases can be distinguished through the power of blood serum under certain circumstances to neutralize the virus of poliomyelitis. The blood serum of convalescent cases of poliomyelitis whether in man or monkey possesses this neutralizing power, while the blood serum of recently convalescent cases of epidemic encephalitis is devoid of it. On the basis of the distinguishing characters described, it is regarded as desirable at the present time to hold epidemic poliomyelitis and epidemic encephalitis as integrally distinct affections. The latter also may be infectious, yet the main lesions of poliomyelitis are present in the spinal cord, and of epidemic encephalitis in the midbrain.

Value of Tryparsamid in Sleeping Sickness.—The facts presented indicate that the outlook for the value of tryparsamid in the therapy of rhodesian sleeping sickness is much less hopeful than in gambiense infections, though it is felt that some benefits may be derived from its use.

Acid-Base Equilibrium in Disease.—Carbon dioxiddiagrams have been constructed by the authors for the blood of a series of hospital patients as a method of studying disturbances in their acid-base equilibrium. A diabetic with a low level of blood alkali, but with a normal blood reaction, a compensated acidosis in other words, showed a rapid return toward normal with no treatment but fasting and increased water and salt intake. A nephritic with a decompensated acidosis and a very low blood alkali was rapidly brought to a condition of decompensated alkalosis with a high blood alkali by the therapeutic administration of sodium bicarbonate. It is suggested that the therapeutic use of alkali in acidosis is probably only indicated in the decompensated variety, and that there it should be controlled carefully and the production of alkalosis avoided. The diagram obtained in three pneumonia patients suggested that they were suffering from a condition of carbonic acidosis, due perhaps to insufficient pulmonary ventilation. In two out of three cases of anemia the dissociation curve was found to lie at a higher level than normal.

Yellow Fever in Peru.—This report deals with the results of bacteriologic studies at Payta, Piura, and Morropon extending over a period of three months, March, April and May, 1920. A few points of practical significance appeared in the course of the investigation. One is the importance of using fresh rabbit serum for a culture medium. Old rabbit serum, whether in pure form or incorporated with agar, etc., which had been kept for several months in a tropical climate, proved to be unsatisfactory for obtaining a growth of *Leptospira icteroides.* A second point of interest is the variation in susceptibility of guinea-pigs to infection with *Leptospira icteroides.* In two of four series of positive animal inoculations, only one half of the guinea-pigs inoculated with given materials developed typical symptoms.

Journal of Orthopaedic Surgery, Lincoln, Neb.

February, 1921, **3**, No. 2

Joint Range. W. H. Robinson, Pittsburg.—p. 41.
Stoffel's Operation for Spastic Paralysis, Report of Thirty-Two Cases A. B. Gill, Philadelphia.—p. 52.

Medical Record, New York

March 5, 1921, **99**, No. 10

Typhus Fever and Quarantine. A. H. Doty, New York.—p. 379.
Determinants of Morbid Emotionalism. T. Williams, Washington, D. C.—p. 382.
Acute Purulent Otitis Media in Children. J. G. Callison, New York.—p. 386.
Concept of Roentgen-Ray Pathology. VIII. Odontopathies. A. J. Pacini, Washington, D. C.—p. 390.
Some Fallacies of Christian Science. G. F. Boehme, Jr., Los Angeles.—p. 395.
Hydrocele in Children. M. Quackenbos, New York.—p. 398.

So. Carolina Medical Association Journal, Greenville

January, 1921, **16**, No. 1

Cervical Disease as a Cause of Leukorrhea. J. R. Sparkman, Spartanburg.—p. 5.
Suggestions for Postgraduate Course in Medicine for County Societies. B. B. Steedley, Spartanburg.—p. 8.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, Bristol

January, 1921, **8**, No. 31

Education of Surgeon Under Thomas Vicary. D. Power.—p. 240.
Clinical Types of Baghdad Boil (Cutaneous Leishmaniasis). Z. Cope.—p. 259.
*Experimental Investigation of Results of Linear Division of Pyloric Sphincter. C. A. Pannett.—p. 262.
Operative Procedure for Repair of Collateral Ligaments of Knee-Joint. A. H. Edwards.—p. 266.
*Treatment of Stiff Metacarpophalangeal Joints Where There is no Gross Bony Alteration. J. A. Dickson, Birmingham.—p. 272.
*Regional Anesthesia, with Special Reference to Splanchnic Analgesia: New Method Applicable to Abdominal Surgery. G. Labat.—p. 278.
*Benign and Malignant Changes in Duct Epithelium of Breast. G. L. Cheatle.—p. 285.
Surgery of Spleen. B. Moynihan.—p. 307.
Case of Ascites Due to Chronic Intussusception of Several Month's Duration. F. M. Spencer.—p. 366.
Case of Gastrojejunocolic Fistula with Stercoraceous Vomiting, Following Gastro-Enterostomy. J. Marnoch.—p. 368.
Perforation of Ureter Calculus: Extravasation of Urine: Death from Uremia and Sepsis. J. Berry.—p. 372.

Papilloma of Bladder of Unusual Size. J. Berry.—p. 374.
Case of Tonsillar Calculus of Unusual Size. G. S. Woodman.—p. 375.
Congenital Abnormality of Female Genito-Urinary Organs. H. Burrows.—p. 377.
Two Cases of Intestinal Obstruction Due to an Enterolith; with Reports of Chemical Analysis. J. Phillips.—p. 378.

Linear Division of Pyloric Sphincter.—Pannett reports on the results of a study made to determine the immediate and remote affects on the normal stomach of a division of the pyloric sphincter without injury to the mucosa. The operation leads to a certain initial increase in the rate of passage of food through the stomach, and a probable earlier complete evacuation of this viscus. These effects may be temporary or permanent according to the method of healing of the wound.

Treatment of Stiff Metacarpophalangeal Joints.—The principle of the treatment discussed by Dickson is that the metacarpophalangeal joints are gradually flexed with plaster; then, by means of the "retaining splint," this flexion is maintained between the massage treatments until there is full voluntary flexion and no tendency to relapse. The ability to flex the joints voluntarily and retain the flexion is the indication for the removal of the splint. If, with freedom, there is any tendency towards limitation of the flexion obtained, the splint must be reapplied for further period.

New Method of Splanchnic Analgesia.—Adopting the site of injection advised by Naegeli, Labat has devised a technic by means of which a complete local anesthesia is obtained, and thus all operations on the upper part of the abdominal cavity can be performed painlessly. A full description of this method is given. Procain is used, a 1 per cent. solution to which is added epinephrin, 25 drops per hundred c.c. For splanchnic analgesia, the site of injection is just underneath the lower border of four fingerbreadths, or 7 cm. from the middle line of the back. The needle is introduced obliquely forward, so that it makes an angle of about 45 degrees with the median plane. Its point then strikes the body of the vertebra near its anterior convexity, behind the splanchnic nerves, just where these join the semilunar ganglion. When the needle, introduced for about 9 cm., had struck the bone, it should be drawn back until its point lies in the subcutaneous tissue (so as to be able to change its direction), and reintroduced at a smaller angle. If its direction is good, the needle passes tangentially to the body of the vertebra. As soon as the point of the needle is felt to glide along the surface of the vertebra, it should be pushed in 1 cm. further; and, after making sure that no blood comes out of the needle, the solution is injected from 25 to 33 c.c.

Diagnosis of Breast Tumor.—For the purpose of diagnosis Cheatle calls attention to the following points. A patient's idea of the time passed since she first noticed the lump in her breast is often inaccurate. Her statement of a discharge of blood or clear fluid from the nipple is trustworthy. A large or a small solitary solid tumor not puckering the skin may be a duct adenoma, a sarcoma, or duct cancer; enlarged glands in the axilla would justify a diagnosis of the last, and were it coupled with a discharge of blood or serum from the nipple this would more definitely confirm the diagnosis. The malignancy of this type varies enormously. It is always important, but in some cases it may be intensely malignant. Cancer in two breasts of the same patient, although not a common occurrence, is very well known to exist. In those patients where it has existed, and whose breasts Cheatle has been able to examine, the cancer has been of the duct-cystic type in both breasts.

British Medical Journal, London

Jan. 29, 1921, **1**, No. 3135

*Theory of Disturbed Reflexes in Production of Symptoms of Disease. J. Mackenzie.—p. 147.
*Histopathology of Epidemic (Lethargic) Encephalitis. C. Da Fano.—p. 153.
"Harlequin Fetus" (Hyperkeratosis Congenitalis). J. T. McAuslin.—p. 155.
Rotation-Dislocation of Astragalus. R. Ollerenshaw.—p. 155.
Probable Identity of Rickettsia Pediculi with Rickettsia Quintana. A. Bacot.—p. 156.
Dextrose in Cardiac Failure. G. S. MacGregor.—p. 158.
Tuberculous Hemarthrosis of Knee. J. A. C. Macewen.—p. 158.
Abdominal Tumor Following Injury to Thorax. F. J. Strachan.—p. 158.
Glandular and Pulmonary Tuberculosis. W. Williams.—p. 158.

Disturbed Reflex in Production of Symptoms.—In many diseases, Mackenzie says, all the symptoms on which a diagnosis is based are reflex in origin—in some the reflexes are disturbed by the entrance of the stimulus through the nervous system, and in others the disturbance is through the circulation. To the former belong the symptoms of such diseases as gastric ulcer, renal calculus and gallstone disease. The symptoms in infections are due to the disturbance of the reflexes through the circulation, as influenza, malaria, typhoid and typhus fevers, measles and abscess formation, apart from the swelling. In some diseases there is a mixture of both kinds of reflexes, as in appendicitis, where there is not only the local pain and tenderness of the tissues of the external body wall, with contraction of the muscles of the abdomen, but the feeling of exhaustion, rapid pulse, tendency to vomit. In cholecystitis a similar complex is present. The need for the more accurate recognition of symptoms is seen when it is considered how difficult it is to diagnose even such seemingly simple affections as gastric ulcer and appendicitis. Though surgeons have been operating for these complaints for many years, the most experienced recognize that in many cases they find they have been mistaken in their diagnosis. This is due in a great measure to the fact that the nature and mechanism of the symptoms of these diseases have never been understood, and the symptoms were never clearly differentiated from those of other diseases which they resemble.

Histopathology of Epidemic Encephalitis.—In the nervous tissue from cases of epidemic (lethargic) encephalitis within and without the nerve cells minute forms have been observed by Da Fano to all appearance consisting of a central, generally basophil, particle and of a delicate little stainable body, irregularly round or oval in shape. For these forms the term "minute bodies" is pro tempore proposed. The bodies are generally discrete, and provided with one granule, but dumbbell-shaped forms occur as well as others with two central particles arranged in pairs. And as yet not quite definable relation seems to exist between these form and a granular, pigment-like material occurring within the nerve cells in places where brown or black pigment is not generally found. Minute forms, similar in shape, structure, and staining properties to those observed in the nervous tissue, have been traced within and without the cells infiltrating a salivary gland from an acute case of the disease. After discussing the supposition that such findings might be the product of an optical illusion, associated perhaps with degenerative changes caused by the malady, the suggestion is tentatively put forward that they may be due to the presence in the tissues of a living agent, cause of the disease.

Feb. 12, 1921, **1**, No. 3137

Muscle Tonus, Tonic Rigidity, and Tonic Fits. J. P. Stewart.—p. 217.
Diathermy in Diseases of Throat and Nose. W. J. Harrison.—p. 220.
*Maternity Hospital; Its Antenatal and Neonatal Departments. J. W. Ballantyne.—p. 221.
Treatment of Uterine Hemorrhage Not Associated with Pregnancy. J. Phillips.—p. 224.
*Prevention of Pulmonary Tuberculosis. H. C. Given.—p. 225.
Relation of Temperature to Onset of Cardiac Irregularity. R. M. Wilson.—p. 226.
*Herpes-Varicella Infection. A. E. Carver.—p. 227.
Association of Herpes Zoster and Varicella. W. M. Robson.—p. 228.
Case of Tetanus. L. T. Challenor.—p. 228.
Massage of Heart and Resuscitation. C. L. Hewer.—p. 228.

Maternity Hospital.—A neonatal ward and clinic, an antenatal clinic, and a prematernity ward, Ballantyne says, are all needed in order to complete a modern maternity hospital in its rounded fullness. Gynecologic and pathologic departments may be added to the building or may be provided elsewhere, according to the requirements or the institutional resources of the city or town in which the maternity hospital is situated. These features will increase the responsibilities of the hospital as a teaching center. The teaching of theoretical obstetrics will in turn be similarly affected. The lecturer will be led to give and pay more time and attention to antenatal diagnosis and pathology and to neonatal hygiene and disease than he commonly does now. The gynecologic department of a maternity hospital would serve the same purpose for the wounded puerperal woman which the neonatal department discharges for the delicate infant.

Prevention of Pulmonary Tuberculosis.—Given emphasizes that the campaign against consumption must be directed against the air-borne diseases as a whole, and against the common cold in particular. The effects of other respiratory infections, including the common cold and zymotic diseases, in early life is to prepare the soil for the later invasions of the tubercle bacillus when otherwise resistance should be high. The remedy for all these diseases is a matter of improved housing and education in ventilation and general hygiene, yet at the same time much could be done meanwhile by the more thorough recognition and treatment of the common cold and its sequels.

Herpes-Varicella Infection.—Carver cites three cases of varicella in which the only source of infection was the children's grandmother who had a very severe attack of supra-orbital herpes. Contact with any case of varicella can be excluded. The suspicion is very strong that the herpes was the source of their infection. In these cases the herpes-varicella interval was respectively, seventeen, nineteen and twenty days from the first appearance of the herpetic eruption. It appars therefore that sometimes at all events, herpes zoster is an infectious disease, contact with which is not rarely followed by varicella.

Feb. 19, 1921, **1**, No. 3138

Vaccine Therapy in Regard to General Practice. A. Fleming.—p. 255.
*Serologic Characters of Disease Producing Pneumococci. R. R. Armstrong.—p. 259.
*Exomphalos, or Hernia into Umbilical Cord. R. Tennent.—p. 263.
*Cure of Hemorrhoids without Operation. J. C. Lyth.—p. 265.
Resection of Intestine for Acute Intussusception: Two Cases of Recovery. A. H. Southam and C. H. Crawshaw.—p. 266.
*Complete Heart Block in a Case of Diphtheria. R. C. Allen.—p. 267.
Torsion of Testis in an Infant. W. G. Nash.—p. 267.
Treatment of Local Leishmaniasis. E. J. E. Risk.—p. 267.

Serology of Pneumococci.—The relative prevalence in Great Britain of the three recognized American types of pneumococcus was investigated by Armstrong. He found that the American type pneumococci are responsible for disease in this country and have a similar distribution. Seeing that the Type I coccus is responsible for many typical cases of lobar pneumonia in adults, and that this infection must be widely distributed, it is remarkable that this type does not appear to cause disease in childhood. The pneumococci responsible for disease in young children have been found to belong almost uniformly to Type II. In only one case has a Type I coccus been isolated from a child. Type III has a limited distribution in the upper respiratory tract in disease; the only specimen was derived from a mastoid abscess with pneumococcal meningitis. Certain pneumococci did not agglutinate with the three type serums. These may possibily be referable to the heterogeneous Group IV. The principle adopted in the preparation of agglutinating serums has been the intravenous injection of standard phenolated suspensions of the selected coccus in increasing doses at intervals of forty-eight hours, and throughout only a single strain has been employed for each rabbit. Satisfactory serums possessed of the property of completely agglutinating their homologous coccus, and subsequently other cocci belonging to the same group in dilutions of 1 in 80 in twenty-four hours at 55 C., were obtained in the case of a Type I strain derived from a case of typical lobar pneumonia referred to as Type I "A" and in that of the American Type III coccus from the Lister Institute. The American Type II coccus proved a failure for agglutinogenic purposes, and recourse was had to a series of Type II cocci from definite tissue sources in cases of pneumococcal infection.

Hernia Into Umbilical Cord.—Tennent records five cases. One case, occurring in a baby, aged 4 months, illustrates an almost spontaneous cure of a small exomphalos. The contents of the hernial sac in these cases were cecum, appendix and Meckel's diverticulum. The cause of exomphalos is held to be most likely a defect in the development or function of the mesoblastic layer of the abdominal wall. Treatment, to be successful, must be immediate and consists of open operation.

Cure of Hemorrhoids Without Operation.—Lyth claims that the usual palliatives to some extent relieve pain, but do little to stop the bleeding and nasty mucus discharge. Lyth says there is a means of curing piles, in the sense that they can be made entirely innocuous. He uses calamine powder. After the motion, and after gentle sponging with tepid water, calamine powder is freely and thickly placed (not merely sprinkled) on a sanitary wool and gauze pad which is put in contact with the piles. After a time, probably not more than a fortnight or three weeks even in the bad cases the piles will be sufficiently shrunken and dried and painless by the morning for the daily pad to be dispensed with. Meanwhile, those of the piles normally inside, but which prolapse on defecation, are coming into contact with the calamine before their gradual return during the night, and, subjected to its astringent action, are becoming smaller and less sensitive. After a further lapse of two or three weeks the patient can begin to leave off the pad at night, unless he has been either too constipated or too relaxed. He is then in a fair way to being cured. He must always have his bowels moved at night, and he is wise to have calamine and a pad available.

Heart Block in Diphtheria.—Allen's patient was apparently doing quite well, until the seventh day of disease, when heart block suddenly developed. The case presented unusual difficulties both in treatment and prognosis. The patient died.

Glasgow Medical Journal

February, 1921, **13**, No. 2

Enteric Fevers in British Expeditionary Force, 1914-1918. W. B. Leishman.—p. 81.
Medical Education, Legislation and Practice in United States. N. Walker.—p. 110.
*Case of Acute Myoclonic Encephalitis Presenting Some Unusual Features. W. Scott.—p. 126.

Acute Myoclonic Encephalitis.—The outstanding features of the case cited by Scott were: The temperature remained normal throughout the illness, with the exception of a rise to 102.2 F. following lumbar puncture. The pulse averaged 120, the respirations 22 per minute. There were continuous clonic movements of the abdominal muscles on both sides, and early loss of abdominal reflexes. The spasmodic contractions were most marked on the right side of the body, and the main lesion was localized in the lower portion of the left precentral gyrus. There was continuous bleeding from the nasal and buccal mucous membranes; marked constipation and retention of urine. The patient died. At the postmortem examination, a band of meningo-encephalitis was noted, extending over the left Rolandic area, and a similar condition was present in the corresponding area on the right side of the brain. The inflammation was especially marked over the lower portion of the precentral gyrus on both sides, that on the left being more intense.

Journal of Laryngology and Otology, Edinburgh

February, 1921, **36**, No. 2

Angeioma of Larynx. I. Moore.—p. 49.
Head Nystagmus in Human Beings. S. H. Mygind.—p. 72.

Lancet London

Feb. 19, 1921, **1**, No. 5086

Astley Cooper and Hunterian Principles. C. J. Symonds.—p. 359.
Skin Disease in Relation to Internal Disorder. J. Galloway.—p. 364.
Lethargic Encephalitis. W. St. C. McClure.—p. 369.
Case of Osteitis Deformans. D. C. Hare and C. C. Bernard.—p. 371.
*Auricular Fibrillation: Observation of Four Hundred Cases. D. S. Brachman.—p. 374.
Percentage of Fractional Dilutions. B. Blacklock.—p. 377.
Noninfective Thrombosis of Pelvic and Abdominal Veins. R. J. Morris.—p. 377.
Second Attack of Chickenpox. F. H. Thomson.—p. 378.
"Sternohyoid" Artery. L. Rogers.—p. 378.
Case of Chronic Hydrocephalus Simulating Hysteria. M. S. Monier-Williams and H. Ingleby.—p. 378.

Auricular Fibrillation.—Of the 400 cases analyzed by Brachman, 66 per cent., occurred after 40 years, the largest number, 28 per cent., occurring between 41 and 50 years. Rheumatic fever is by far the commonest antecedent disease in auricular fibrillation, being found in 35 per cent. There was a history of no previous illness in 19 per cent. Forty-six cases gave a history of influenza. The commonest symptom was dyspnea. The next two symptoms commonly met with were pain (under or across the heart and palpitation. Among the less usual symptoms, cough is twice as common, and insomnia four times as common in fibrillation as in non-fibrillation cases. While nervousness is objectively common, it is but seldom complained of as a symptom. Subjective feeling of irregular beating of the heart has been mentioned as a common symptom, but in this series it was comparatively rare. Associated valvular lesions and myocardial disease occurred frequently. The most common was mitral stenosis, which was present in 37 per cent. The sign most commonly found in auricular fibrillation, next to irregular irregularity of rhythm, is enlarged heart, particularly the auricles being so. The three signs of auricular fibrillation emphasized are: (1) complete irregularity of the heart; (2) increase of the cardiac diameter, and (3) a difference in apex and pulse rate. The main object to be achieved when treating auricular fibrillation is to adjust the rate of the ventricles so as to produce an adequate circulation without undue ventricular work. The great therapeutic agent is rest—physical, mental and cardiac.

Bulletin Médical, Paris

Jan. 15, 1921, **35**, No. 3

*Typhoid Fever. C. Flandin and J. Lempérière.—p. **37.**
*Femoral Hernia. T. Asteriadès.—p. 38.
Preparatory Iridectomy. A. Cantonnet.—p. 40.

Typhoid.—Flandin and Lempérière apply ice to the whole abdomen and sometimes to the precordial region and give a cold drip enema, morning and evening, of 1 or 2 liters of artificial serum with glucose and a trace of epinephrin. They supplement this with an iodized vaccine (Ranque and Senez). They state that the course of the disease has been materially shortened by this treatment which does not interfere with the patient's repose.

Femoral Hernia.—The obliteration of the femoral canal is realized by passing a needle through Poupart's ligament and deep through the pectineus muscle and back again. The loop of the thread is then tied, and above this a flap of fascia and another of muscle are held in place with catgut.

Jan. 19-22, 1921, **35**, No. 4

*Pressure of the Cerebrospinal Fluid. J. A. Barré and R. Schrapf.—p. 63.
Massage of the Prostate. R. Le Fur.—p. 65.

Pressure in the Cerebrospinal Fluid.—From study of the pressure at lumbar puncture in 310 cases, Barré and Schrapf estimate that the normal pressure, measured with the Claude manometer, is 20 cm. when the subject is reclining, and 40 cm. seated, with the head drooping. Raising the head in the second position sends up the pressure from 5 to 10 cm. They consider every pressure pathologic which is over 25 cm. reclining, and over 45 cm. seated. In order to estimate the pressure in a given case, the position of the patient during the puncture must be specified; also whether he is tranquil or agitated, and whether the pulse varies in frequency or force during the puncture. Their observation suggests further that the difference between the initial and the terminal pressure and the absence of synchronous beats in the arterial pulse might aid in the diagnosis of hypertension in the cerebrospinal fluid. Subarachnoid injection of even relatively large amounts of certain drugs modified very little and only transiently the pressure at lumbar puncture, whether any of the fluid had been withdrawn beforehand or not.

Jan. 26-29, 1921, **35**, No. 5

*Gastric Ulcer. P. Le Noir and E. Agasse-Lafont.—p. 77.
*Results of Operative Treatment of Gastric Ulcer. E. Denéchau.—p. 83.
*Early Diagnosis of Gastric Ulcer. H. Durand and Lutier.—p. 87.

Gastric Ulcer.—Simple ulcer without complications is discussed here, and the frequency of latent insufficiency of kidneys and liver with ulcer in the digestive tract.

Remote Results of Operative Treatment of Gastric Ulcer.—Denéchau reviews 28 operative cases of gastric ulcer with an interval since up to fourteen years. This supplements his previous series of 95 cases published in 1907. In the gastro-enterostomy cases the outcome was bad in 11 of 100 patients reexamined, but only 1 died eight years later from cancer, and indurated ulcer did not develop in any case. In 51 cases with interval of from four to twelve years, the outcome has been most excellent in 10. He draws the conclusion from this long study that the future is for excision; this alone wards off cancer, but the many successful cases of gastro-enterostomy alone, especially for stenosis, show that much can be anticipated with this, especially with continued surveillance and careful diet.

Early Diagnosis of Gastric Ulcer.—The main thing, Durand and Lutier remark, is to think of the possibility of gastric ulcer; it is much more frequent than generally supposed. The long array of means at our disposal show that it is possible to detect ulceration in the digestive tract.

Bulletins de la Société Médicale des Hôpitaux, Paris

Jan. 14, 1921, **45**, No. 1

*Tuberculosis in Region of Endemic Goiter. Coulaud.—p. 5.
Epidemic Hiccup Followed by Encephalitis. L. Rivet and M. Lipschitz.—p. 8.
*Prevention of By-Effects of Neo-Arsphenamin. Sicard and Paraf.—p. 11.
*Vaccine Treatment of Purulent Pleurisy. H. Dufour and Debray.—p. 16.
Experimental Vaccine Therapy. H. Dufour.—p. 19.

Tuberculosis in Region of Endemic Goiter.—Coulaud found 100 families with goiter, representing 1,000 persons examined. There were 220 cases of goiter and 230 of known tuberculosis. The families seemed to be inclined to pathologic thyroids. In some it was too active and in others not active enough. None in this latter group had developed tuberculosis; it seemed to attack those with exaggerated thyroid functioning.

To Ward Off By-Effects of Neo-Arsphenamin.—Sicard and Paraf theorize to explain the efficacy of intravenous injection of an alkali in treatment of the serious symptoms encountered with injection of neo-arsphenamin. They explain it by the recent research of Lumière and Kopaczewski which seems to demonstrate that antiflaking substances introduced into the blood will protect it against the shock sometimes observed with neo-arsphenamin. The substance they have selected for the purpose is sodium carbonate, injecting into the vein 30 c.c. of physiologic saline containing 0.60 or 0.75 gm. of sodium carbonate, following through the same needle with the solution of neo-arsphenamin. This protects against the shock as effectually as Besredka's method of preliminary injection of a small amount of the antigen. Skeptophylaxis is realized. In the discussion that followed, Milian stated that he had been using for the same purpose sodium hydroxid but he explains the action in another way. He thinks the alkali prevents the splitting up of the arsenical, which is responsible for the *crises nitritoïdes* in connection with suprarenal insufficiency. He has been advising this alkalinization since 1912, and has been able to ward off these nitritoid symptoms by adding a sodium salt to the solution of the arsenical.

Vaccination Treatment of Purulent Pleurisy.—The recovery from streptococcus purulent pleurisy under the influence of vaccine therapy alone is reported by Dufor and Debray. The patient was a girl of 15, and the disease had developed slowly and the general health kept good. They have been equally successful in some cases of typhoid spondylitis several months after typhoid fever. There is little hope of benefit, they say, from vaccine therapy in acute cases.

Jan. 21, 1921, **45**, No. 2

Painful Multiple Exostoses in Inherited Syphilis. M. Pinard.—p. 21.
*Epidemic Encephalitis. R. A. Gutmann and Kudelski.—p. 24.
*Tuberculous Stenosis of Small Intestine. C. Oddo and C. de Luna.—p. 27.
*Velocity of Pulse Wave. C. Laubry, A. Mougeot and R. Giroux.—p. 30.
*Instrumental Orthopedics. G. Bidou.—p. 35.
*Epidemic Encephalitis in Hospital. H. Claude and J. de Laulerie.—p. 36.
*Epidemic Encephalitis in Roommates. H. Roger and A. Blanchard.—p. 40.
*Common Origin of Epidemic Hiccup and Encephalitis. A. Netter.—p. 46.

Epidemic Encephalitis.—A man of 36 developed in 1916 a disease which has been retrospectively diagnosed as epidemic encephalitis. At the time it was assumed to be typhoid or malaria at first, and finally the man was sent from one service to another as amyotrophy developed. This seems to be one of the oldest cases yet known of the present epidemic of encephalitis. The acute febrile phase five years ago was followed by extreme muscular atrophy but the condition passed into a stationary phase in two years, and this stationary phase persists to date. It is said to be the first case on record of myopathy of this type after encephalitis.

Tuberculous Stenosis of the Intestine.—The multiple stenosis of the small intestine in the girl of 16 caused periodical violent pains in the region around the umbilicus, with vomiting. After four years of this, the girl died during resection of the tuberculous intestine. The strictures were of fibrous nature.

Velocity of Pulse Wave.—Laubry and his co-workers discuss the velocity in connection with the arterial tension, weakness of the heart, elasticity of the arteries, sudden changes in the caliber of the arteries, and the tonus of the vascular system in general as affecting the velocity of the pulse wave. They show that the velocity varies proportionately to the arterial blood pressure, and discuss the symptomatic importance of variations from the normal.

Instrumental Orthopedics.—Bidou has continued his experiments to utilize in prostheses the forces left in the mutilated body. Each case has to be studied by itself, but the prospects of this method are most encouraging, he says.

Epidemic Encephalitis.—Claude and Laulerie report the case of a man in the hospital since last August on account of paraplegia, who recently developed epidemic encephalitis, unmistakably a case of hospital infection. There had been five cases of epidemic encephalitis in the hospital but the last one had left in September, except that one man is still under treatment for postencephalitic shaking palsy. In the women's ward, a girl of 17 developed epidemic encephalitis a month after she had entered the hospital for treatment of epilepsy. There had been three other cases of epidemic encephalitis in the ward. These are the first cases of hospital contagion observed. Netter remarked that the cases of contagion are becoming more numerous, and the question of prophylaxis more perplexing; isolation cannot be kept up for years. Hallé reported the death of an infant with symptoms suggesting possible epidemic encephalitis ten days after its mother had presented the same, and the child died.

Contagion of Epidemic Encephalitis.—Roger and Blanchard cite a number of cases of contagion, and report the development of the disease in two recruits occupying the same dormitory with beds close together. The interval between the first symptoms in the two cases was fifteen days.

Epidemic Hiccup and Encephalitis.—Netter mentions that encephalitis has been more frequent in Paris this year, and he reports a case of encephalitis in a woman who had been having uncontrollable hiccup for four days followed by a week of malaise. In another case the encephalitis developed in a young man who had been visiting a brother with epidemic hiccup a week before. Netter has encountered a second case confirming this connection, the encephalitis developing two weeks after prolonged contact with a case of prolonged hiccup. Baur has also reported a case of a woman with lethargic encephalitis whose husband and brother-in-law had been having epidemic hiccup. Lemierre has also recently seen a case of typical epidemic encephalitis in a man of 62 after the servant of the family had been having hiccup for three days.

Encéphale, Paris

Jan. 20, 1921, **16**, No. 1

Pathologic Anatomy of Idiots. H. Hoven.—p. 1.
The Thyroid in Case of Melancholia. Parhon and Stocker.—p. 13.
Aphasia and Psychology of Thinking. R. Mourgue.—p. 26. Cont'n.
The Humoral Syndrome of General Paresis. J. Lhermitte.—p. 33.

Paris Médical

Feb. 5, 1921, **11**, No. 6

*Radiotherapy of the Ductless Glands. A. Béclère.—p. 97.
Radiodiagnosis of Adhesion of the Pleura. F. Barjon.—p. 104.
Pneumoperitoneum for Radiodiagnosis. H. Béclère.—p. 107.
Radiodiagnosis of Calculi of the Ureter. F. Arcelin.—p. 111.
Radiodiagnosis in Dentistry. J. Pierquin and L. Blanc.—p. 116.
*Radium Treatment of Rectal Cancer. M.-H. Cesbron.—p. 121.

Radiotherapy of the Ductless Glands.—Béclère reviews the present status of radiotherapy of the various endocrine glands, adding that only the thyroid, the thymus and the pituitary can be treated in this way at present. "Used in time, and for suitable morbid conditions in these three, it is a wonderful method of treatment, the benefits of which should be more and more appreciated." He regards it as the best of all treatment for exophthalmic goiter and in general for all forms of hyperthyroidism. It acts on the function more than on the lesion, and it should be guided by the circulatory disturbance, the frequence and the instability of the heart rate. The technic should avoid all reaction on the part of the skin, and there is danger of substituting hypothyroidism for the excessive functioning. Along these lines the treatment of exophthalmic goiter is one of the finest achievements of radiotherapy. It is also the best treatment for hypertrophy of the thymus. He has been successful with it also in treatment of tumor of the pituitary, and has witnessed the complete disappearance of headache, vertigo and vomiting from intracranial hypertension. In a recent case the ophthalmoplegia and ophthalmic neuralgia subsided under it. When menstruation has been arrested, roentgen-ray treatment of the pituitary may restore normal function. He regards radiotherapy of the pituitary as imperatively indicated as long as the symptoms are progressive. When they become stationary, he suspends the treatment, ready to resume it again. The pituitary is reached by the rays at a distance of 7 or 10 cm. from the skin in the forehead and temporal region, the gland being at about the same distance from every point of this quarter of a sphere. He does not know of any one having treated hypernephroma in this way, but knows no reason why this could not be done.

Radium Treatment of Rectal Cancer.—Cesbron reviews the different technics for acting on rectal cancer at different heights. Cancer in the sigmoid segment is hard to reach and there is danger of inadequate exposures.

Presse Médicale, Paris

Feb. 2, 1921, **29**, No. 10

*Manometer Mask. J. L. Pech.—p. 93; P. Desfosses.—p. 94.
*Wound of the Heart. P. Moure and R. Soupault.—p. 95.

Manometer Mask.—Pech gives tracings showing the maximal respiratory force as determined by this mask which fits air-tight to the face but does not impede respiration. The maximal *débit respiratoire* of a normal adult should be about 1.75 liters per second. In the tuberculous, this maximal effort may drop to 0.50 per second and in pneumonia to 0.20. This manometer mask has proved very useful to supplement the data from auscultation. The details of the mask are shown in the illustrations.

Desfosses calls attention to the importance of this manometer mask in medical control of physical education and in study of the respiration. He declares that estimation of the maximal respiratory effort is as important as study of the blood pressure. Every exercise of any violence should be forbidden to those whose respiratory effort is low, and this mask is a simple means by which we can actually determine this. He analyzes the findings in 100 healthy adults and in children. As it allows the subject to see for himself what he is able to accomplish in inspiration and expiration, it is an excellent means of training in effectual nasal respiration.

Wounds of the Heart.—The advantages are extolled of cutting a flap through the sternum on the median line with extension to the left at top and bottom. By turning back this bone flap we obtain access to the heart from the second to the fifth interspace as in a case described, with a diagram.

Feb. 5, 1921, **29**, No. 11

*Tuberculous Bone and Joint Disease. E. Sorrel.—p. 101.
*Carbon Dioxid Snow in Dermatology. Vignat.—p. 102.
*Capillaroscopy. M. Weiss.—p. 105.

Tuberculous Bone and Joint Disease.—Sorrel is chief surgeon of the seashore hospital at Berck, and his experience has confirmed that the combined heliotherapy and seashore environment form the most energetic treatment at our disposal for tuberculosis of bones and glands. He does not place much value on drugs, and relates that autoinoculation with fluid from the diseased joint has been abandoned for various reasons. Serotherapy has given inconstant results, and has to be kept up a long time to be effectual. These and tuberculin are still on trial, as also high frequency currents, but roentgen-ray treatment of tuberculous glands has already given fine success in certain cases. With bone disease, although general treatment is of primordial importance, local measures must not be forgotten. They vary, however, with the age; in children the minimum of intervention should be the rule; in adults, resection. After the age of 50, a cure cannot be counted on, and amputation is generally called for. We have quite an array of measures thus at our disposal but, he says, we cannot claim to shorten very much the duration of a tuberculous lesion. It runs an almost cyclic course. We cannot cure it in six months or a year, but at least we can guide it, reducing the destruction, and providing for healing with minimum of loss of function. In the differential diagnosis, the effusion may show the presence of lipolytic ferments and predominance of lymphocytes. Cultivation of the pus is generally regarded as giving unreliable findings.

Cryotherapy in Dermatology.—Vignat emphasizes that the carbon dioxid snow pencil is liable to be contaminated with molds and bacteria, especially streptococci. For this reason he prefers to use a refrigerating mixture in a carrier which can be sterilized. The mixture of a little acetone with the carbon dioxid snow causes a temperature of minus 80 C., and this has a very favorable action especially in erythematous lupus, seborrheic acne, nodular folliculitis, etc. He has thus obliterated large reddish nevi, leaving an almost invisible scar. This method surpasses roentgen and radium treatment. In the hospital in his charge he has the exposed area covered afterward with a salve, and this is dusted thick with a powder, both flesh colored. In one case of erythematous lupus of the nose, after the eschar had dropped off, the skin was like a new skin, without a trace of scarring. In his cases a cure was complete as a rule after three or four applications with ten or fifteen days' interval. Even when a complete cure was not possible, transient improvement was always realized, and particularly with nevi and erythematous lupus. For nevi he always prefers the cryotherapy, but with large angiomas, superheated air is more certain and prompter in the response induced. The illustrations of one child show the complete subsidence of a large angioma of the brow and orbit under treatment with a jet of superheated air, but cryotherapy has the advantage over this that it is painless.

Capillaroscopy.—M. Weiss analyzes recent works on the capillary circulation and its significance. As the respiratory movements, by the vacuum which they induce in the lungs, attract the capillary blood into the right auricle, they accelerate the circulation in the veins throughout. E. Weiss does not hesitate to say that nephritis from chill and scarlatinal nephritis seem to be manifestations of a general disease of the capillary apparatus. He even defines scarlet fever as a generalized capillaritis. It affects the skin and the kidneys. Heart disease modifies even the capillary circulation. With congenital cyanosis and complicating bone and joint disease, the venous portion of the capillary loops is engorged. This suggests that disturbance in the peripheral circulation may have something to do with the pathogenesis of joint disease.

Feb. 9, 1921, **29**, No. 12

*Injury of Semilunar Cartilage. J. Terracol and L.-J. Colanéri.—p. 113.
*Alimentary Disease of Bone. A. Chelmonski.—p. 115.
Injury of Lung from Local Serotherapy. H. Sloboziano.—p. 116.

Semilunar Cartilages After Trauma.—Terracol and Colanéri injected air directly into the knee joint on suspicion of injury of a semilunar cartilage, and give illustrations showing the characteristic radioscopic findings with separation of the internal or external meniscus. There is a white line that looks as if made with a finger nail, cutting the meniscus. The discovery of this verifies the clinical findings and establishes the diagnosis and treatment.

Alimentary Disease of the Bone.—Chelmonski writes from Warsaw to describe a number of cases of what he calls alimentary osteoporosis encountered during the German occupation, when famine reigned. There were two forms, one with pains and a flexible and fragile state of the bones; the other resembles more osteomalacia, although not connected with pregnancy, and the general health keeps good, and there is no deformity of the pelvis. Recovery is prompt when the patients can have repose and proper food.

Progrès Médical, Paris

Jan. 15, 1921, **36**, No. 3

Epidemic Hiccup. P. Blum.—p. 23.
*Diseases Causing Precipitation. M. Loeper.—p. 26.
*Marriage of Syphilitics. L. Bory.—p. 29.
Senile Psychosis of Recrimination. J. Mirc.—p. 31.
The Hospitals of the Middle Ages. Coudeyras.—p. 32.

Diseases Causing Precipitation.—Loeper refers to precipitation of uric and oxalic acid, of derivatives of calcium, and cholesterin, and emphasizes the necessity for differentiating between them.

Marriage of Syphilitics.—Bory discusses the conclusions of the report of the committee appointed by the Société française de dermatologie et de syphiligraphie, which was mentioned in The Journal on page 552. He declares that the committee put the cart before the horse, as they do not emphasize the necessity for a uniform standard of treatment and a uniform standard of technic for the serologic tests.

Revue de Chirurgie, Paris

1920, **39**, No. 9-10

*Traumatic Injury of Semilunar Cartilage of Knee. O. Jacobs and G. Worms.—p. 529.
*Ether Anesthesia by Way of Rectum. A. Chalier and C. Dunet.—p. 584.

Trauma of Semilunar Cartilage of the Knee.—Jacob and Worms declare that all that is needed for recent injury of a meniscus is reduction, immobilization and compression to promote consolidation of fracture, and then retraining the muscles and joint to proper functioning. Massage to prevent atrophy of muscles should be supplemented by the patient's contracting the muscles in his thigh and leg several times a day, keeping this up as long as possible; even after he is using his leg, if the tendency to atrophy persists. If the meniscus has been crushed, or otherwise reduction is impossible, conservative measures are futile, and the meniscus should be either excised or sutured in place. They give an illustrated description of the preferable technic, and the details of ten cases all cured by resection of the meniscus. The results of about 200 cases analyzed show that "meniscectomy" is an excellent operation, not interfering with walking or balance, and rendering recurrence practically impossible. In one of their own cases partial resection of the cartilage had to be followed by total resection before the cure was complete.

Ether by the Rectum.—Chalier and Dunet analyze a total of 2,855 cases in which general anesthesia was induced by injection of ether in oil by the rectum. These figures include 1,500 reported from Russia and 1,000 compiled from American literature, with 253 in France, in addition to 102 from their own practice. In this total there were six fatalities for which the method itself seemed to be responsible. Consequently, notwithstanding its undoubted advantages in many cases, they warn against it as too dangerous except for young persons, free from pathologic taint, with their emunctories functioning well. It should be preceded by loading the liver with glycogen to promote its various functions and resistance to toxic action. This can be accomplished, as Chevrier advises, by giving the patient the night before and the morning of the operation 150 gm. of sugar syrup, supplemented by ingestion of extract of liver and administration of glucose solution by rectal drip.

Revue Médicale de la Suisse Romande, Geneva

January, 1921, **41**, No. 1

*Acropathology. M. Roch.—p. 3.
*Vaccine Treatment of Deforming Rheumatism. De Senarclens.—p. 24.
*Phosgen Poisoning. B. Wiki.—p. 38.
*Typhoid in Infants. P. Bourdillon.—p. 49.

Acropathology.—Roch reviews the pathologic conditions connected with enlargement or disease of the hands or feet, but draws the conclusion that they are all merely a localization of a general derangement. The predominant manifestations settle in the extremities. Whether it is a question of bacterial intoxication, of spasm of the arteries, cyanosis, polyneuritis or uricacidemia, the acropathology should never be treated alone. General treatment, antitoxic, organotherapy or treatment for the nervous or circulatory system, is always indicated in addition.

Vaccine Treatment of Deforming Rheumatism.—Senarclens refers to polyarticular rheumatism of infectious origin, and expatiates on the advantages of vaccine treatment. This is effectual when the streptococcus is involved. Some writers assert that the bacteria involved in the suppuration can be found in the urine. In a case reported in a woman of 49 the vaccine therapy was successful beyond all anticipation. He cites in conclusion Crowe's recent report on 143 cases of rheumatoid arthritis; 70 per cent. can be considered cured, but 21 per cent. were not benefited by the treatment. He found the bacteria in the urine only in 31.59 per cent.

Phosgen Poisoning.—Wiki discusses phosgen poisoning in war and in certain industries, but adds that physicians must not forget that this gas may be generated during the administration of chloroform in a room lighted with gas. He describes an experience of the kind in Mayor's practice. Irritation in the larynx with a pricking in the throat, spasmodic cough and disagreeable odor in the room warned of danger.

Typhoid in Infants.—In Bourdillon's case three infants in three different families developed typhoid at an interval of three and four years. The only link between them was the nurse who had cared for them in turn, but she refused examination to ascertain whether the assumption that she was a typhoid carrier was correct.

Schweizerische medizinische Wochenschrift, Basel

Jan. 27, 1921, **51**, No. 4

The Mechanism of Respiration. F. Rohrer.—p. 73.
*Treatment of Fracture of the Tibia. P. F. Nigst.—p. 79.
*Diagnosis in Psychiatry. S. Galant.—p. 87.

Treatment of Fracture of the Tibia.—Nigst reports with illustrations the fine results obtained in sixteen cases of oblique fracture by driving in a long nail, slanting, to hold the fractured stumps together until healing was complete. All ages were included, from 10 to 67, and the nail was driven in two days after the accident or later, up to twenty-nine days, and in two cases after an interval of four months. The nail was removed in from five to twenty-three days, the fourteenth day on the average. In one case it slipped out spontaneously the third day, but the parts held their position. The results have been perfect in the eleven cases reexamined from three to six years afterward except in five cases in which the limb was shorter by from 1 to 3 cm. The shortening of 3 cm. was in a man of 61 with comminuted fracture of both bones in the leg. There was no muscular atrophy in any of the cases, and all had full earning capacity restored. He commends, therefore, this oblique nail treatment according to Arnd, as superior to all others for oblique and twisted fractures of the leg with lengthwise displacement of the fragments, impossible to reduce and retain otherwise without an operation.

Diagnosis in Psychiatry.—Galant adds "and Mistakes in Diagnosis" to his title, and reiterates that diagnosis is an art, almost *the* art in medicine and it cannot be learned out of a book. "The practice of medicine is a true art, rooted in insight, with diagnosis as its highest achievement." He says that psychiatrists are too often content with a partial diagnosis.

Policlinico, Rome

Jan. 31, 1921, **28**, No. **5**

*Arsenical Treatment of Organic Contracture. P. Magaudda.—p. 147.
*Complications of Vaccination Against Smallpox. A. Sala.—p. 151.
*Posterior Gastro-Enterostomy. A. Cernezzi.—p. 152.
*Treatment of Retrodeviation of the Uterus. M. Ciulla.—p. 154.
Wound of the Heart. G. Candido.—p. 155.

Arsenical Treatment of Organic Contracture.—Five cases are described which confirm the moderate benefit liable to be derived from arsenical treatment for irreducible contracture of long standing, but the results were transient, and proved disappointing.

Complications of Vaccination Against Smallpox.—Sala reports a streptococcus phlegmon in the vicinity of the kidney after vaccination of one woman, and a staphylococcus abscess in the kidney after vaccination of a boy of 15.

Posterior Gastro-Enterostomy.—Cernezzi regards Duval's method of access to the posterior wall of the stomach as a great improvement in the technic for posterior transmesocolic gastro-enterostomy. He opens into the cavity back of the omentum, along the upper margin of the transverse colon, making the anastomosis with the first loop of the small intestine drawn up through a slit in the transverse mesocolon. This gives ample oversight of the posterior wall without traction on it.

Treatment of Retrodeviation of the Uterus.—Ciulla has been impressed with the advantages of the Parlavecchio technic for correction of retrodeviation and prolapse of the uterus. He cuts a vertical flap of fascia, 2.5 cm. wide and 6 cm. long, formed of the linea alba and adjacent portions of the sheaths of the rectus muscles. This rectangular flap with base at the pubis is pushed down into the space between the bladder and the uterus, after the latter has been drawn high up. The flap is then sutured to the posterior wall of the bladder and to the anterior wall of the uterus, and thus obliterates completely the space between them. The lower two thirds of the uterus are thus solidly fastened while the rest is left free, and there is no interference with gestation later.

Riforma Medica, Naples

Jan. 15, 1921, **37**, No. 3

*Angle Between Heart and Liver. A. Cantani.—p. 50.
*Diagnosis of Scarlet Fever. G. Tron.—p. 55.
*Prolapse of Colon Through the Anus. R. Cassanello.—p. 57.
Differentiation of Hysteric Convulsions. A. Ferrannini.—p. 59.
Spirochetoses. I. Jacono.—p. 60.

The Angle Between the Heart and the Liver.—Cantani explains in detail the diagnostic import of the shape of the angle between the heart and the liver, especially with valvular disease.

Induced Local Blanching in Diagnosis of Scarlet Fever.—Tron has been examining fifty children at different stages of scarlet fever with ninety-nine control tests, applying the test described by Schulz and Charlton in 1917, and called the "extinction test." He found it occasionally positive but not often enough to confer diagnostic value on it. The technic was described in The Journal, Aug. 14, 1920, p. 512.

Prolapse of Colon Through the Anus.—In Cassanello's case the prolapse was caused by invagination owing to traction from a pedunculated lipoma.

Brazil-Medico, Rio de Janeiro

Jan. 8, 1921, **35**, No. 2

*Spheno-Orbital Meningocele in Child. F. Luz.—p. 17.

Spheno-Orbital Meningocele.—The small congenital tumor had developed by the age of 2 to be nearly as large as the child's head, dragging half of the mouth down with it, when fully distended. The child seemed otherwise normal, but did not survive the removal of the tumor by ligation of the pedicle at its emerging point from the sphenoidal fissure. The child died next day with symptoms of meningitis. Luz compares with this the cases of facial encephalocele or meningocele on record. The mortality ranged from 20 to 31 per cent. In Kondring's case the child survived the operation but died in convulsions three months later. This case resembled Luz' more than any others in the literature.

Gaceta Médica de Caracas, Venezuela

Dec. 31, 1920, **27**, No. 24

*Oriental Sore on the Hand. R. Pino Pou.—p. 303.
Parenteral Injections of Milk. Ochoa.—p. 303.

Oriental Sore on the Hand.—Pino Pou reports a case in which the nature of the lesion on the hand had not been suspected, and treatment had been applied for syphilis, with merely aggravation. The microscope revealed the leishman bodies, and tartrate of antimony and potassium by the vein cured it promptly.

Revista Médica de Chile, Santiago

November-December, 1920, **48**, No. 11-12

Present Status of Gynecology. G. Anwandter.—p. 671.
Silver Salvarsan. M. Brockmann.—p. 675.
*Serums and Vaccines in Specific Immunity. Mamerto Cádiz.—p. 682.
*Preparation for Operations on the Stomach. H. García Huidobro.—p. 709.
Epidemic Encephalitis. E. Prado Tagle.—p. 714.
*A Protozoon in Relation to Typhus. D. Montfallet.—p. 718.
The Internal Secretions. J. Rodriguez.—p. 732.

Serums and Vaccines in Specific Immunity.—This is a lecture in a graduate course on the biologic therapeutic preparations.

Preparation for Operations on the Stomach.—García Huidobro warns that only about one person in ten who applies for relief from stomach disturbances has an actual organic lesion. Tuberculous and syphilitic disease of the stomach is very rare. In about a third, the symptoms are due to hygienic errors and in another third the stomach symptoms are secondary to some abdominal disease. Intestinal kinks are frequent and cause dilatation of the duodenum and spasm of the pylorus, which simulate stomach disease. It must not be forgotten also that latent tuberculosis, tabes, and insufficiency of the liver, kidneys or heart may also give rise to dyspeptic disturbances. After the operation, the vomiting and intolerance can be combated with rinsing out the stomach with hot artificial serum, and the spasms with atropin.

Protozoon in Relation to Typhus.—Montfallet relates experiences which have convinced him that the virus of typhus is of the herpetomonas genus, without flagella, and intracellular. He regards the herpetomonas as piroplasmas in a farther advanced stage of evolution. It probably is akin to *Herpetomonas equinus*. These conclusions are the result of years of research and experiments.

Semana Médica, Buenos Aires

Sept. 2, 1920, **27**, No. 36

*Serodiagnosis of Hydatid Cyst. I. L. Imaz Apphatie and E. Lorentz. —p. 303.
*Protein Shock Treatment of Tuberculosis. J. Divito.—p. 315.
Gastrectomy for Cancer of Stomach. G. Palacios.—p. 317.
*True and Spurious Stomach Disease. S. M. Zayas.—p. 319.

The Fixation of Complement in Diagnosis of Hydatid Cyst.—Imaz Apphatie and Lorentz cite their publications to show that they were the first to apply the serodiagnosis of echinococcus disease, their publications dating from Oct. 10, 1908, and preceding those of Weinberg and his colleagues. Ghedini before them had found antibodies in the hydatid cyst, but always postoperative, and he had never applied the test in diagnosis.

Treatment of Hemoptysis.—Divito injected normal horse serum to arrest hemoptysis in a number of tuberculous patients, and found that marked improvement followed an anaphylactic shock. He has given this treatment to sixty patients during the last ten years, and regards the effect as very encouraging. He thinks that tuberculin treatment and also artificial pneumothorax owe their efficacy to the reactions which they induce in the blood serum. He asserts further that anaphylaxis is not so formidable in the tuberculous as under other conditions, perhaps.

True and False Stomach Disease.—Zayas classifies the various types of stomach disease, and sets in a group apart the cases in which there are symptoms from the stomach owing to loss of balance in the abdomen, or to disease of the nervous system or liver, or to syphilis or anemia.

Archiv für Kinderheilkunde, Stuttgart

Feb. 1, 1921, **68**, No. 6

*Infantile Pseudobulbar Paralysis. M. Fiebig.—p. 425.
*Ossification of the Bones in the Hand. E. Stettner.—p. 439.

Infantile Pseudobulbar Paralysis. — Fiebig encountered infantile pseudobulbar paralysis in 2.83 per cent. of 600 applicants for treatment at the dyspensary for voice and speech disturbances at the Berlin Charité during the last two years. Three of the seventeen cases were adults between 24 and 26. One of these young men found it so difficult to speak that he wrote what he had to say. He could pronounce the letter "p" only by pressing the lips together with his hands. The difficulty in speaking had been ascribed to deformity of the lower jaw, and an operation had been done on this assumption. Several typical cases are described in detail, and Fiebig warns that in all such cases of which he knows the mind was not affected, although the patients produced the impression of imbecility on account of the open mouth and the dribbling of saliva. The nasal tone is due to paralysis of the soft palate, and this has to be stimulated by exercises in speech. The prognosis is generally good, as children usually learn to overcome the effects. As the focus is in the cortex, not the oblongata, there is no atrophy or degeneration of muscles. The dysarthria is the main symptom. The affection occurs probably oftener than supposed, but escapes detection as the child is classed with the feebleminded. An aviator was left with injury of the meninges, after a fall, and disturbances in speech resembling those with infantile pseudobulbar paralysis, which throws light on the nature of infantile pseudobulbar paralysis. Fiebig reiterates in conclusion the importance of testing the child's mentality. Other things being equal, the child will progress better in studies and speech with children of his own mental grade than if classed with backward children. The physician should watch over his school life to prevent his being teased and ridiculed by the healthy children.

Ossification of the Bones in the Hand.—Stettner discusses the relations between the ossification of the hand and the age and height of healthy and sick children, from birth to puberty.

Archiv für klinische Chirurgie, Berlin

Aug. 3, 1920, **114**, No. 1

Origin of Loose Bodies in Joints. G. Axhausen.—p. 1.
*Foreign Bodies in Esophagus. F. Schlemmer.—p. 37. Conc'n in No. 2, p. 269.
Zigzag Incision with Suppurative Appendicitis. S. Jatrou.—p. 84.
Supravesical Transrectal External Hernia. V. Hantsch.—p. 91.
*Periproctitis and Fistula Ani. L. Moszkowicz.—p. 107.
Advantages of Billroth I Resection of Stomach. Haberer.—p. 127.
*Chronic Duodenal Ulcer. T. Rovsing.—p. 172.
*Resection of Thymus in Exophthalmic Goiter. B. O. Pribram.—p. 202.
Reconstruction of Lower Part of Face. A. W. Meyer.—p. 215.
Myomas of Intestines. H. Linsmayer.—p. 235.
Tumor of Omentum. J. Richter.—p. 248.
*Mechanism of Regeneration of Tendons. E. Rehn.—p. 253.

Foreign Bodies in the Esophagus.—Schlemmer succeeded in extracting the foreign body with the aid of esophagoscopy in 96.03 per cent. of his 529 cases. He found roentgenoscopy of great assistance in some cases, but negative findings proved unreliable. If no blind attempts to mobilize the foreign body have been made, a delay of two or three days after the swallowing of the foreign body does no harm as a rule, he says, and this gives time for the patient to go to some center fully equipped for extraction of foreign bodies. If urgent intervention is required, he advises esophagotomy without preliminary catheterization. Only exceptionally is general anesthesia required for adults, but always for children. Under bed rest, ice bag to the neck, ice pills, and a tablet of some disinfectant in the mouth, healing is prompt and complete in the majority, even in the elderly. In one of his cases a needle was impacted just below the vocal cords, piercing both esophagus and larynx walls, and there was fever. For fear of further injury, the needle was removed by esophagotomy although it was plainly visible. His whole series is analyzed.

Periproctitis and Fistula Ani.—Moszkowicz emphasizes the deplorable conditions frequently entailed by operations in this region. The principle he advocates is to clear out and open up the focus, transforming it into an open shallow cavity, and line it with skin. The sphincter must be left absolutely unmolested so far as possible. In ninety-five cases recently reexamined in which the sphincter had been severed before the year 1909, persisting incontinence was found in seventeen. He found that when the external sphincter is functioning normally, the internal seems to function by reflex action. But when the external has been severed, the normal internal sphincter seems to lose with it the power of proper functioning.

Chronic Duodenal Ulcer.—Rovsing's experience with 164 operative cases has confirmed, he remarks, the superior advantages of excision of the ulcer with a plastic operation on the pylorus by Mikulicz' method. He describes this procedure as applied in ten cases of perforated ulcer.

Resection of the Thymus in Exophthalmic Goiter.—Pribram reports a case in which the thyroid was not much enlarged although the other symptoms of exophthalmic goiter were pronounced in the woman of 26. Part of the persisting thymus was resected along with part of the right and left lobe of the thyroid. Striking improvement followed, the heart action becoming regular. Others have reported similar benefit from thymectomy in arrhythmia. It actually seems, Pribram remarks, that thymectomy is liable to modify certain properties which we are accustomed to regard as constitutional. This assumption is confirmed by the favorable result of thymectomy in a youth of 17 of eunuchoid type with pronounced status thymicus. The blood showed the lymphatic reaction and a brother had died from acute leukemia. Three months after the thymectomy, the epiphyseal cartilages had nearly completely consolidated, while the relative lymphocytosis had dropped to normal. The hyperplastic thymus has evidently an influence in determining what we call the constitution, and experience is proving that the "constitution" is by no means a preordained, immutable condition. It depends on the functioning of the ductless glands, and this may vary spontaneously or be induced to vary. Steinach's experiments with implanted gonads confirm this.

Gaps in Tendons.—Rehn discusses the mechanism of regeneration of a tendon and means to promote it.

Archiv für Verdauungs-Krankheiten, Berlin

1921, **27**, No. 2

*Opium and Secretion in the Stomach. L. Jarno.—p. 91.
X-Ray Visualization of Cardiospasm by Means of Delineator. M. Einhorn and T. Scholz (New York).—p. 97.
Retrograde Stretching in Treatment of Impermeable Cardiospasm. M. Einhorn (New York).—p. 111.
*Occult Blood in Stools. J. Koopman.—p. 122.
*The Abdominal Triad. W. Zweig.—p. 128.

Opium Test of Secretion in the Stomach.—Jarno expatiates on the necessity for discriminating between partial and total loss of gastric secretion, as this is important for the prognosis. When there seems to be achlorhydria, he has found that opium given before the test meal promotes secretion of gastric juice, and thus distinguishes between the cases in which the secretion is entirely lost and those in which it still can be induced. He gives by the mouth 0.04 gm. extract of opium two or three hours before the test breakfast. By this means he found normal or almost normal acidity in previously severely hypo-acid stomachs. He found free hydrochloric acid even in one case of achlorhydria. The details of ten cases are given. This method reveals the maximal secreting power of the stomach.

Occult Blood in Stools.—Koopman has been experimenting with the various tests for occult blood in stools, and tabulates the findings with a given amount of normal stools to which a given amount of blood had been added, from 0.1 to 10 per cent. He found the Snapper method the most reliable of the spectroscopic tests, but it was far surpassed by Boas' chloral-alcohol modification of the Weber test. But even this was surpassed by the accuracy of the Schlesinger-Holst benzidin test. He does not give the technic for any of these tests.

The Abdominal Triad.—Zweig relates that increasing experience has confirmed his belief in the frequent coexistence of duodenal ulcer, cholecystitis and appendicitis. He shows this by thirteen typical examples, confirmed by operation, and mentions nine others in which one of the triad was overlooked at the operation and was finally cured by medical means alone. He assumes a common cause for all three, an infection spreading from the intestines, involving the appendix or the gallbladder, or both together. There is much to sustain the assumption that a duodenal ulcer is the result of retrograde embolus. He warns that in operating for either one of the triad, the others should be excluded before concluding the operation. The appendix should always be removed as a routine measure with any of the three.

Deutsches Archiv für klinische Medizin, Leipzig

Oct. 26, 1920, **134**, No. 1-2

Obliteration of the Pleura. H. Deist.—p. 1. Cont'd.
*Colloidal Reactions in the Cerebrospinal Fluid. M. R. Bonsmann.—p. 20.
*Palpation of Right Ventricle Through Epigastrium. F. A. Harzer.—p. 37.
*The Intermediate Carbohydrate Metabolism. W. Stepp and H. Lange.—p. 47.
*Alkaptone and Acetone. G. Katsch.—p. 59.
*Chlorids in the Urine in Influenza. H. Eisleb.—p. 69.
Physiology as Basis for Dietetics. F. Rabe.—p. 92. Cont'd.
*Intermediate Carbohydrate Metabolism. II. W. Stepp and H. Zumbusch.—p. 112.
*Elimination of Phosphoric Acid in Kidney Disease. A. Dorner.—p. 119.

Colloidal Reactions in the Cerebrospinal Fluid.—Bonsmann lists the findings in 230 cases with both the colloidal gold and the mastic tests applied repeatedly. Multiple sclerosis and brain tumors are liable to give misleading findings, but a negative colloidal gold reaction can be relied on as positively excluding syphilis, he declares.

Palpation of Right Ventricle Through the Epigastrium.—Harzer palpates the heart, during deep inspiration, in the left epigastric fossa between the xiphoid process and the left costal arch, the patient lying on his right side. When the right ventricle is dilated and hypertrophied, the palpation findings are much more distinct than by other methods. The systolic murmur of tricuspid insufficiency can be ausculted best in this way.

The Intermediate Carbohydrate Metabolism.—Stepp and Lange write from Voit's service to describe the finding of volatile substances in the urine of a number of diabetics, these substances reducing Fehling's solution. They seem to be of an aldehyd nature. The tests applied showed it to be acetaldehyd. It occurred always associated with acetone and acetic acid in the urine.

Alkaptone and Acetone.—Katsch tabulates the metabolic findings and those of various tests in a case of alkaptonuria in a boy who has been under observation and the subject of research for several years. The findings confirm that the alkaptonuria subsides during the acidosis induced by withdrawal of carbohydrates. It subsides as ketonuria appears. When the acidosis supplants the alkaptonuria, the amount of acetone bodies eliminated is larger than can be explained by the transformation of the aromatic albumin complexes.

Chlorids in the Urine in Influenza.—Eisleb reports that the elimination of sodium chlorid in the urine in influenza is like that in croupous pneumonia, which may aid in the differential diagnosis.

Intermediate Carbohydrate Metabolism.—Stepp and Zumbusch discuss here the quantitative behavior of formic acid in normal and pathologic blood.

Elimination of Phosphoric Acid in Kidney Disease.—Dorner was unable to find any connection between the elimination of P_2O_5 and the clinical condition, as he shows in ten cases of various diseases.

Münchener medizinische Wochenschrift, Munich

Nov. 19, 1920, **67**, No. 47

Daily Variation in Mortality. F. Oppenheim and L. Ritter.—p. 1339.
Daily Variations in Child Mortality. M. Cramer.—p. 1341.
Chronic Recurrent Stomach Ulcer. F. König.—p. 1341.
*Pepsin Fomentations for Cicatricial Keloids. W. Frieboes.—p. 1343.
Treatment of Hereditary Disease and Inferiority. Siemens.—p. 1344.
Nonspecific Immunization in Diseases with Unknown Causative Agent. E. F. Müller.—p. 1349.
*Hemorrhagic Abortion and Evacuation of Uterus. H. Neu.—p. 1350.
*Pertussis and Influenza. F. Reiche.—p. 1352.
Sachs-Georgi Test—Micromethod—in Syphilis. K. Scheer.—p. 1352.
Fluorescence in Ultramicroscope of Spirochetes with Vital Stain. F. W. Oelze.—p. 1354.
Trichlorethylene in Histologic Work. E. Bruch.—p. 1354.
Avoidance of Roentgen-Ray Injuries by Establishment of a Uniform Dosage. H. Dietlen.—p. 1355.
Hereditary Harelip. H. Tichy.—p. 1356.
Entoptic Phenomenon During Systole. B. Solger.—p. 1356.
Esophylaxis of the Skin and Infectious Diseases. B. Lipschütz.—p. 1356.
Injection of Sodium Chlorid Solution into Placenta. Frankl.—p. 1357.

Effect of Pepsin Fomentations on Cicatricial Keloids.—Frieboes reports from the Rostock dermatologic clinic his experiences with the pepsin method of treating keloids. He experimented with from 1 to 3 per cent. pepsin solutions, both hot and cold, and with and without hydrochloric acid. The results, after treatment extending over weeks and months, were excellent. He found there is no advantage in solutions stronger than 1 per cent.; also that it does not matter whether the solution is hot or cold, and that the addition of hydrochloric acid has no particular value. Frieboes recommends this prescription: pepsin, 1 gm.; boric acid, 3 gm.; water enough for 100 gm. Application was made usually only at night, but occasionally both day and night. Cicatricial keloids as thick as the little finger, resulting from severe burns, disappeared completely after three months' treatment, so that only a soft, scarcely noticeable atrophic scar remained. He has found the pepsin treatment valuable also in treating patients with keloid from lupus.

Hemorrhagic Abortion and Immediate Evacuation of the Uterus.—Neu states that at the Frankfort University Woman's Hospital, when a case of hemorrhagic abortion is admitted, the uterine secretion is examined at once, and if streptococci are found, the uterus is not evacuated but a conservative form of treatment is pursued. He does not think that the danger of a fatal hemorrhage at an abortion is sufficiently great to constitute a contraindication in the presence of a streptococcus infection.

Pertussis and Influenza.—Ruche found that influenza complicating pertussis in children gave a very serious prognosis. There were six deaths in nine cases of this double infection.

Wiener klinische Wochenschrift, Vienna

Oct. 28, 1920, **33**, No. 44

*Connection Between Fever and Dentition. H. Abels.—p. 959.
Multiple Sclerosis of Ductless Glands, Simulating Addison's Disease. J. Donath and H. Lampl.—p. 962.
Variants of Gärtner's B. Enteritidis. T. Gruschka.—p. 964.
*Defense of the Nem System. E. Nobel.—p. 965.
Meinicke and Sachs-Georgi Reactions in Internal Medicine. K. Hajós and B. Molnár.—p. 966.

Connection Between Pyretic Conditions and Dentition.—Abels reports the results of a series of observations undertaken to throw more light on the problem of so-called diseases of dentition. His observations were made on nineteen cases of measles in young children from 11 to 27 months of age. He found that during the presence of the fever and immediately afterward, many more teeth erupted than during later periods; for example, during the first four weeks there were twenty-one, in the next two weeks only five, and during the following four weeks only 4. While it has been known for years that fevers accelerate dentition, Abels thinks that this has not been sufficiently emphasized, and that physicians would do well to make it plain to mothers that teething does not cause fevers and digestive disturbance, but that, on the other hand, dentition may become more rapid after fevers.

The Nem System.—Pirquet's system of nutrition was described in The Journal, July 31, 1920, p. 332.

Zentralblatt für Gynäkologie, Leipzig

Nov. 6, 1920, **44**, No. 45

Pregnancy Kidney Disease. T. v. Jaschke.—p. 1274.
Pathogenesis of Tubal Pregnancy. F. Lehmann.—p. 1277.
Mechanical Obstruction as Cause of Tubal Pregnancy. W. Lahm.—p. 1280.
Congenital Gynatresia Hymenalis. O. Henrich.—p. 1283.
*Stimulative Roentgen-Ray Doses in Gynecology. M. Fraenkel.—p. 1285.

Stimulative Roentgen-Ray Doses in Gynecologic Practice.—Fraenkel takes the view that with the continual increase of the roentgen-ray dosage, which goes hand in hand with the continual increase of the hardness of the rays, whereby the harder the rays, the more direct the penetration of the tissues and therefore the less the effect, which fact necessitates an increase of the dosage in order to secure an increase of the effect, roentgen-ray application has entered a blind alley which makes it impossible to use roentgen rays other than for the destruction of tissues, whereas the ideal roentgenotherapy lies by no means in the destruction of the tissues but rather in their stimulation. Fraenkel endorses the opinion of Opitz (Freiburg) who recommends for carcinoma only moderate and slow irradiation, at longer intervals, in order to stimulate the adjacent healthy tissues and to avoid the cachexia which results from too rapid resorption of decomposition products. Fraenkel has found that not only in carcinoma but also in anemic myoma patients, cachexia is likely to occur, which fact he thinks has not been sufficiently emphasized. The principal stress has been placed on the application of the heaviest possible dosage, whereby stoppage of the hemorrhage was accomplished with one blow, as it were, and complete amenorrhea set in, which was looked upon with favor. Fraenkel thinks just the reverse of this is the right view to take. He says that a better effect can be secured by the application of moderate doses extending over a longer period of time, by which not only the sudden amenorrhea with all its bad effects on the mind is avoided but also the intestinal injuries, which, while not so apparent, constitute a great danger for the patient if other complications such as typhoid fever or dysentery should arise.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Jan. 1, 1921, **1**, No. 1

*Hard Gastric and Duodenal Ulcer. A. Schalij.—p. 10.
Metastasis of Gastric Cancer. S. A. van der Perk.—p. 21.
*Intravenous Injection of Tartar Emetic. C. E. Benjamins.—p. 25.
*Peristalsis of the Kidney Pelvis. W. F. Wassink.—p. 29.
Premature Separation of the Normal Placenta. H. van der Tak.—p. 32.
Relation Between Diet and Scurvy. B. Sjollema.—p. 34.
History of Medicine. G. van Rijnberk.—p. 51.
*Leprosariums. J. G. de Lint.—p. 53.
Folk-Lore of Pilgrimages for Persons with Eye Disease in Belgium. Van Schevensten.—p. 62.
*Poisonous Plants as Household Medicines and Charms. M. A. Van Andel.—p. 68.
*Medical Prints. G. van Rijnberk.—p. 82.

Hard Gastric and Duodenal Ulcer.—Schalij reports 47 cases, including 32 in men, nearly all of the working classes. The symptoms had been observed for from one to twenty years in 34 and from twenty to forty years in 13. In 13 cases the acidity was normal; in 3 cases there was superacidity and in 8 cases there was no free hydrochloric acid. There was vomiting of blood in about 40 per cent. and melena alone in 3 of the cases, and in 10 of those with hematemesis. He was impressed by the frequency of pain in the back in many of the cases, but in one case with gastric ulcer there was very little pain although the ulceration had caused adhesion to the pancreas. In another case hematemesis, anacidity, retention with normal pylorus, and coffee grounds vomit suggested cancer, but complete recovery followed resection of the small deep ulcer on the lesser curvature.

Intravenous Injection of Tartar Emetic. — Benjamins reviews the different infections in which tartrate of antimony and potassium by the vein has proved effectual. It has been used to advantage even in chronic malaria.

Peristalsis of the Kidney Pelvis.—Wassink illustrates a case in which peristalsis of the kidney pelvis was pronounced.

Leprosariums.—De Lint gives the history of measures for isolation of lepers from the earliest days in Europe. One leprosarium was founded by the bishop of Tours (538-593), and some in Italy date from the seventh century. Holland has several dating from an early day, and several pictures of them are reproduced. One portrays the application of a youth brought for admittance to the leper home; the picture shows that his disease was probably only favus. One print reproduced depicts with minute detail the annual procession of lepers throughout the city, Amsterdam.

Poisonous Plants as Household Medicines and Charms.—Van Andel refers in particular to hyoscyamus, datura and belladonna, solanum dulcamura, and the mandrake. His historical review shows that the solanaceae were probably responsible for the accusations of witchcraft. The hallucinations resembled those from poisoning with these drugs.

Medical Prints.—Fourteen prints dating from the fifteenth to the seventeenth century are reproduced, all portraying medical subjects, six of them operations on the foot, others on the arm.

Acta Medica Scandinavica, Stockholm

Jan. 14, 1921, **53**, No. 6

*Proceedings at the Ninth Northern Congress for Internal Medicine.

Proceedings at the Ninth Northern Congress on Internal Medicine.—This bulky number of 272 pages contains extensive summaries of forty-three articles presented at this congress held at Copenhagen in 1919. All but three of the long summaries are in English. We give abstracts of some of them.

Diet in Treatment of Chronic Heart Insufficiency (p. 606).—V. Rubow affirms the usefulness of the Karell treatment, with absolute rest. When this fails, good results may be obtained by a further reduction of the food calories and the water and salt content of the food. A reduction by dietetic means of the water content of the blood results in a corresponding fall of the dropsy. Hence, in an ordinary case, the use of digitalis, rest and Karell, or any other dry diet, for a few days each week or month, are indicated. This can be kept up for years.

Diet in Treatment of Renal Insufficiency.—K. Motzfeldt points out (p. 611) that a strict dry diet must not be used in the presence of symptoms of uremia. The reduction of salt in the food must depend on the tolerance for chlorids. The diet otherwise must depend on the tolerance for proteins, which is determined by blood analysis. If a reduction of protein is indicated, the intake must be at least 50 gm. per day. Everything considered, the diet in renal insufficiency should be individualized and made dependent on functional tests for chlorid and protein metabolism, and then be calculated as carefully as in diabetes.

Functional Kidney Tests in Prostatic Hypertrophy (p. 620).—J. Tillgren tabulates forty-two cases treated by operation, and advocates the use of the water test which often assists in the prognosis by proving cardiac failure with uremia and azotemia present. In some hospitals this test has been used as a prognosticum before operation.

The Accommodation Test for Renal Functions (p. 631).—V. Scheel applied to a number of cases the following test: 1 liter tea, fasting, then dry diet the rest of the day, during which the variability of the urine was measured, especially the diuresis and the specific gravity. This method will show the individual variations upon which treatment must be based.

The Parathyroid Bodies and Bright's Disease (p. 644).—H. Bergstrand calls attention to a possible connection between parathyroid hyperplasia and nephritis, evident in ten cases, but was unable to demonstrate it.

Capillary Blood Pressure (p. 651).—E. Kylin describes an apparatus for measuring capillary pressure in a finger. It is easily attached to a microscope and consists of a chamber connected with a water manometer and air pump. In benign nephrosclerosis the pressure was found normal (not over 190 mm. water). In glomerulonephritis (100 cases) in acute stage the pressure rose to 750 mm., corresponding to 55 mm. mercury. As recovery proceeds, this pressure subsides, following the arterial pressure.

Relations Between Creatinuria and Acidosis in Diabetes (p. 688).—M. Lauritzen determined the creatin content of urine in a number of cases and found the continued presence of this substance a prognostically bad sign.

Concentration of Acetone in Blood (p. 700).—E. M. P. Widmark introduced a known amount of acetone into the blood and afterwards determined the concentration at certain intervals through the day. A formula was constructed from these data. The average concentration in one healthy subject was 0.1 pro mille, corresponding to an absolute amount of 5.7 gm. To maintain the said concentration, a supply of 5.3 gm. per day was required. This may prove of value in the study of the acetone balance in diabetes.

Internal Treatment for Ulcer of the Stomach (p. 706).—Oehnell advocates invariably medical treatment unless the niche does not disappear, which it did in thirty-one of his thirty-four cases under medical measures.

Cause of Cyanosis (p. 712).—C. Lundsgaard found no relation between cyanosis and the absolute content of oxygen or carbon dioxid in the venous blood. The cyanosis occurs by a subnormal oxidation in the capillaries or in the lungs. The mean value of the nonoxidized hemoglobin at which cyanosis appears is 6 or 7 vol. per cent. Consequently persons with hemoglobin below 25 or 30 per cent. in the blood cannot become cyanotic. Hence a measurement of the amount of nonoxidized hemoglobin in the venous blood in cyanosis will offer data on the degree of oxidation in the lungs. The experiments were done on normal persons by having them breathe into a spirometer until cyanosis occurred.

Secondary Nature of Sciatica (p. 733).—F. Lindsteadt studied 100 cases of sciatica with ninety-one previous histories of localized lesions in the lower extremities or the back, including rheumatic arthritis, hip joint trouble, spinal trouble, flat foot and traumatic foot injuries, varicose veins, flail joints, fractures, static weakness, and gonorrhea. These disturbances, when one-sided, always were localized on the same side as the sciatica. The connection is unmistakable. The primary cause is the local affection which produces direct or indirect static insufficiency, resulting in muscular strain, fatigue and irritation. The strained muscular function is etiologically significant as a cause of neuritic symptoms. Lumbago in many cases could be traced to previous local neuritic symptoms.

Influence of Physical Effort on the Heart (p. 738).—L. Dedichen conducted examinations of the competitors in 50 km. foot-races before and after the races. Of a total of 226 competitors, eight showed an outward displacement of the apex-beat after the race; in thirty, an inward displacement was noted. No dilatation could be traced. Some showed cyanosis. The blood pressure almost always decreased after the race. The urine generally contained varying amounts of albumin immediately after a race. Cardiac hypertrophy was found in fifty of 361 cases, a percentage corresponding to that of men habitually doing hard work. Ski runners give the same general results.

Secretion of Ammonia and Amino-Acids in Tuberculosis (p. 743).—S. Zandren investigated the supposed connection between the function of the liver and the presence of amino-acids in the urine to decide whether the latter is due to an increased toxic decomposition of protein, or to injury of the liver cells. In advanced tuberculosis, we have a state of toxic decomposition of albumin and usually fatty or amyloid degeneration of the liver. In thirteen advanced cases the amino-acid nitrogen was 2.37 per cent. of the total nitrogen in the urine, and there was no visible disturbance of the liver. In thirty-six cases there was fatty or amyloid degeneration of the liver (proved postmortem); the amino-acid nitrogen averaged 4.36 per cent. The conclusion is that a value of amino-acid beyond 3 per cent. of the total nitrogen points to a serious diffuse lesion in the liver cells.

Neurosyphilis (p. 748).—O. Hanssen relates that on admittance to the hospital, 13.5 per cent. of 105 patients with neurosyphilis had a negative Wassermann reaction in the blood but positive in the cerebrospinal fluid. (This was exclusive of the cases with paralysis.) Of the nineteen cases of tabes, the reaction was negative in four in both blood and spinal fluid but in the others it was positive in the spinal fluid. Leaving general paralysis out of consideration, the effects of specific treatment on tabes, hemiplegia, spastic spinal paralysis and other syphilitic nerve and brain diseases, were satisfactory in that paralysis decreased, fits and bladder condition improved, etc. These results are better understood in the light of the parallel studies of the cellular and chemical composition of the spinal fluid. This is elucidated by a detailed account of seven cases.

Diagnosis of Cancer from Tumor Cells in Exudates of Serous Cavities (p. 765).—U. Quensel stains the sediment with his methylene blue and sudan preparation (also used for urine). It may then be possible to distinguish both endothelial and tumor cells. The latter are larger, with vacuoles, and a relatively large nucleus; the whole taking the stain deeper than the other cells. The carcinomatous process may thus be evident in the exudate even when the tumor is too small to be located definitely.

Diagnosis Through Small Particles (p. 770).—A. Josefson recommends puncture and examination of exudates and scraps of different structures, tumors and the organs of the abdominal and thoracic cavity. A puncture-syringe with a fine needle is used on liver, spleen and even kidneys; and the puncture-diagnoses have given valuable results.

Pathogenesis of Tuberculous Peritonitis (p. 779).—L. Melchior discredits the view that the tubes are infected from the peritoneal sac, and considers the infection of the serous cavities secondary.

Pneumothorax Treatment in Pulmonary Tuberculosis (p. 783).—C. Saugman reports 400 cases treated with artificial pneumothorax, with uniformly good results. The treatment is continued from two to four years. The results are tabulated.

Treatment of Tuberculosis of the Larynx with Universal Arc-Light Baths (p. 791).—The patient lies down, undressed, in front of three powerful arc-lights (20 amperes). The room has accommodations for four patients. They get a bath every day, beginning with ¼ hour, the second week ½ hour, the third week ¾ hour and after four weeks an hour's bath every day. N. R. Blegvad reports that a total of 74 patients were treated; in 17 of these the larynx symptoms disappeared, in 12 completely, without remaining signs of active tuberculosis. In 35 cases there was some improvement, in the remainder less. The effect is most prompt with ulcerations. All patients are ordered to remain silent except for whispering. Infiltrations when large are removed by deep galvanocaustic under local anesthesia. Epiglottis is removed when necessary.

Mechanism of Action of Universal Light Baths (p. 796).—C. Sonne experimented on a series of guinea-pigs, exposing them to light rays and dark rays. The curative effect of the light is attributed to the production of antibodies from the long continued elevation of the body temperature. The increased oxidation of the blood may also be considered.

Albumoses in the Blood Under Normal and Pathologic Conditions (p. 810).—E. Wolff developed a method for the quantitative determination of albumoses in blood, and has applied it in a variety of diseases. He found that 61 per cent. of forty-six febrile patients showed the presence in the blood, and that 69 per cent. of all diseases with fever symptoms gave evidence of albumosuria. At the same time, he does not believe that the presence of albumoses in the blood can be the cause of fever.

Anaphylactic Symptoms After Reinjection of Antiserums (p. 818).—Ustvedt studied the problems of serum sickness and anaphylactic shock on the basis of an investigation of 1669 patients treated with diphtheria antitoxin (horse serum), 1,589 having received no previous serum treatment. Of these 1,589, 35 per cent. developed serum sickness, most of them on the eighth or ninth day. Of 80 previously treated with serum, 77.5 per cent. developed serum sickness, usually between the sixth and eighth day. Of 560 persons not previously injected, 35 per cent. had the eruption after the tenth day. If in patients previously treated with the serum no rash occurs within ten days, no serum illness is likely to occur. A preliminary test subcutaneous infection of 0.5 c.c. has the advantage of showing whether the person in question is hypersensitive to horse-serum or not, so that precautions may be taken, but it does not ward off serum sickness. This developed in 75 per cent. of the 68 thus treated; but 91.7 per cent. of those not given the preliminary injection developed it. He never gives a new and unknown patient the first injection intravenously but intramuscularly. If the case is a serious one, he gives an intravenous dose some hours later.

The Clinical Importance of Examination for Bile Pigments in Serum (p. 827).—E. Meulengracht describes a simple colorimetric method for determining bilirubin in the citrated serum: 1 c.c. is placed in a test tube of the same diameter as that in which the standard color is kept, and is diluted with a solution of 0.9 per cent. sodium-chlorid solution until the dilution has the same tint as the standard color. This is a 1 : 10,000 solution of potassium bichromate. The dilution figure is the figure which shows how many times the icteric serum can be diluted, before it becomes like normal serum. Bilirubinuria appears only after some period of disease, while the blood examination allows a much finer analysis of the condition at an early stage. In many cases of icterus, urobilinuria is absent.

Number of Red Blood Corpuscles at Different Ages and Under Different Conditions (p. 833).—H. I. Bing fixes the averages at 5.5 millions in men and 5 millions in women. The upper limit is 6.1 millions in men below 30, slightly lower in women. Above 60 the numbers are nearly normal in both sexes, some cases showing figures even higher than normal. This may be due to deficient cardiac power, but alcoholism also accounts for it. Of greater importance is the fact that the number of erythrocytes varies in different parts of the blood vessels and can vary greatly in the different capillaries. The physiologic condition of the extremities thus must be taken into account in clinical counts.

Treatment of Putrid Bronchitis with Neo-Arsphenamin (p. 841).—K. Schroeder treated several cases of chronic bronchitis by the Karell method. In one of these, after five months' illness, intravenous injections of neo-arsphenamin were given in increasing doses (15, 30, 45 cg. at intervals of seven to sixteen days), marked improvement resulting: fever and expectoration ceased, and general health improved. There was no history of syphilis. Similar benefit was realized in a second case.

The Blood Platelets as Indicators of Hemorrhagic Diathesis (p. 845).* H. C. Gram determined the bleeding time in various diseases by incision in the ear and wiping off the blood with filter paper every half minute until bleeding stops. In sixty-one persons with normal platelet numbers the time was one and one-half to four minutes. With platelets below 200,000, the period of bleeding is slightly prolonged. Below 100,000 the period is prolonged more than ten minutes. Thus, the bleeding time indicates roughly the number of platelets, and also affords an indication for or against an operation.

Determination of Catalase in Intestinal Diseases (p. 857).—A. Norgaard found the amount of catalase in feces a measure for the admixture of cells in the intestine. A small amount of fecal matter was rubbed on a glass plate and allowed to dry for a couple of minutes, whereupon one or two drops of 3 per cent. hydrogen peroxid were added. Foaming indicates the presence of catalase. After this, a test for blood may be made at once by adding one or two drops of a newly made solution of benzidin. A weak reaction for catalase and blood may be found in normal feces. Pronounced reactions are noted in a great variety of intestinal diseases. The chief value in these combined tests lies in the easy opportunity for continuing them day by day for the same patient.

Intestinal Tuberculosis and Anemia in Consumptives (p. 860).—Krag-Möller, studying 130 cases, found a causal connection between tuberculosis of the small intestine and anemia, and concludes that this is due to a resorption of hemolytic toxins produced by the tuberculous process in the small intestine. The same affection in the large intestine does not result in anemia because of the diarrhea and consequent reduced resorption of the toxins.

Hospitalstidende, Copenhagen

Jan. 12, 1921, **64**, No. 2

*Meningococcus Infection Problems. O. Thomson and F. Wulff.—p. 17. Conc'n in No. 3.

Meningococcus Infection Problems.—Thomson and Wulff query why meningococcus infection is so prevalent among soldiers? Why it attacks the new recruits? Why some sicken and others are left carriers? Why the carriers so seldom develop the disease? Why the carriers are more dangerous than the most serious case of meningococcus infection? In a recent epidemic in barracks containing 275 recruits, with 4 frank cases and 31 carriers, the meningococci of the more virulent type were found exclusively in one of the barrack buildings, including the 4 meningitis cases. These more virulent carriers and meningitis cases seemed to be restricted to the east side of the buildings, from which the sunlight was kept off by other buildings. This confirms the experience of others that dark and damp quarters are more liable to develop meningococcus infections than the sunlit and airy, other conditions equal.

Ugeskrift for Læger, Copenhagen

Jan. 20, 1921, **83**, No. 3

*Radium Treatment of Uterine Cancer. S. Nordentoft.—p. 75.
Oil of Peppermint for Relief with Gallstones. A. Boggild.—p. 82.
Case of Fatal Hiccup without Fever. J. Kaas.—p. 83.

Recent Progress in Radium Treatment of Uterine Cancer.—Nordentoft quotes Heyman's report of sixty-six cases treated with radium at Stockholm over five years ago, with 28.8 per cent. permanent cures. There were no less than 94 per cent. inoperable cases among the sixty-six. Nordentoft says that roentgen-ray treatment has no such record to present yet, as the improved technic which promises so much has not been introduced for more than a year or two. Recent research of I. Amreich of Vienna seems to offer a means to overcome the danger from necrosis of the tissue next to the radium which is liable when the dose is large enough to modify the farthest ramifications of the cancer. He explains that the cancer spreads from the uterus, fan-shaped on each side, into the tissues of the pelvis so that the shape of the cancer is like that of a butterfly spreading its wings from wall to wall of the pelvis; the rectum and the bladder lying above and below the body of the butterfly. Instead of trusting to the radium in the cervix to reach to the farthest tip of the wings of the butterfly, he uses a smaller dose here, and introduces a second and a third radium tube through a tunnel into the obturator foramen, on both sides. The disadvantages of the small incision for this are counterbalanced, he thinks, by the even, effectual dissemination of the rays. Nordentoft gives illustrations showing waves of rays and their blending and superposed action by this triple technic. The radium is filtered through 7 mm. gold, front and back, while the sides have only 1 mm.; the oval shape of the capsule prevents its slipping out of place. The parametrium and the sacro-uterine ligaments are thus reached from the side, and this method seems particularly promising for unusually corpulent or large persons.

M Household Science

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THE JOURNAL
OF THE
American Medical Association

Annual Subscription, $6.00 PUBLISHED WEEKLY Single Copies, 20 Cents

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NEXT ANNUAL SESSION, BOSTON, MASS., JUNE 6-10, 1921

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Bulletin

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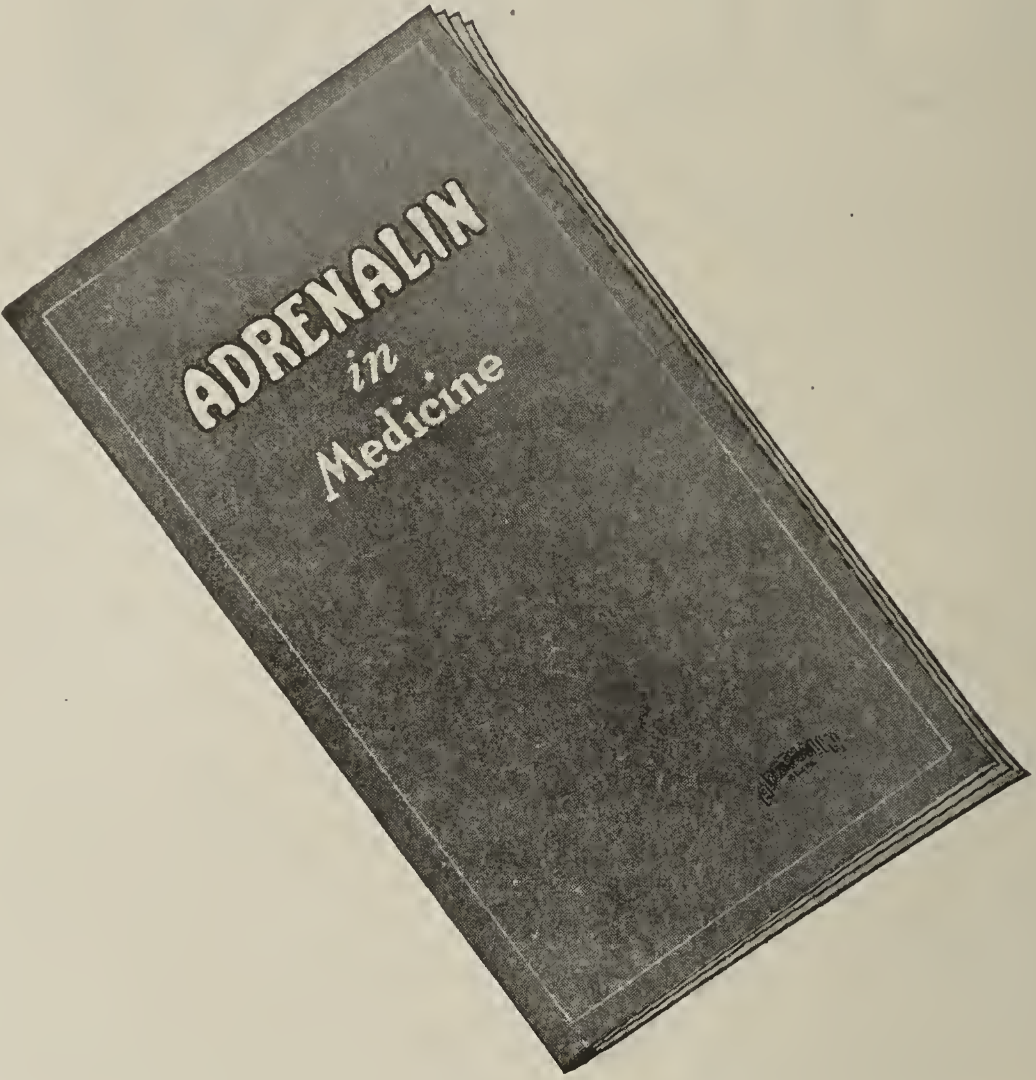

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WANTED—INDIANA — TWO ASSISTANT physicians in state hospital for insane; single men; one trained in psychiatry and the other in laboratory work. Add. 871 B, % AMA.

(*Continued on page 22*)

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(Arsphenamine-Metz)

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(Neoarsphenamine-Metz)

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Trade Mark
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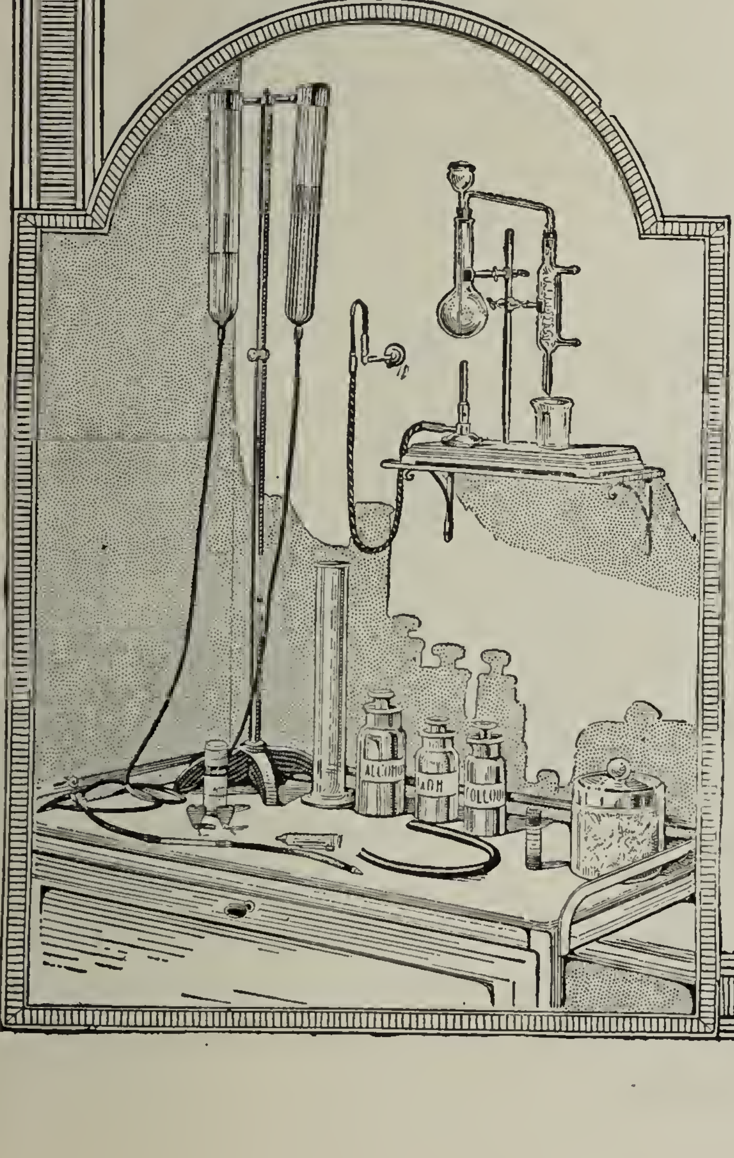

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Definitions

104. Aphonia.—*Loss of voice. A matter of adjusting the 2nd and 5th cervical vertebrae.*

105. Apomorphin.—*An irresistible desire to give something away.*

106. Aqua.—*A substance used under bridges.*

107. Asemia.—*Inability to understand—as "all of the audience were asemic to blank verse."*

108. Automobile.—*A running expense account.*

◆

THE OLD ONES ARE THE BEST

The story that made millions laugh—that one which includes "Thunder! Thar haint no sich animal!"—has, we think, a pretty good running mate in the following more recent one. A countryman was standing on a fish pier where the day's catch was being landed. Presently a sword fish of monstrous size was hoisted up and the old fellow stared at it in wonder and amazement. He positively could not believe his senses, and when at last he recovered himself sufficiently to speak it was only to exclaim: "The man that caught that fish is a darn liar!"—Boston *Transcript.*

◆

A Rational Combination

Ad in Wenona (Ill.) News

> —Mental Healing for High Blood Pressure.
>
> ICE HOUSE FOR SALE
>
> See Geo. S. Monser at coal office.

◆

Morphology

Boston Herald

"The numerous friends of Mrs. Barrymore Colt will be gratified to learn that she has practically recovered from the surgical operations upon her fingers and tonsils at Christ Hospital, Cincinnati, and Flower Hospital, New York, made necessary by the infection of the deadly germ streptoccus veridan, which was generated recently while on tour in 'Declasse'—a germ destructive to the bone or other substance surrounding its lodgment. Fortunately X-rays located its presence in only the two places mentioned."

◆

A REAL HELPMEET

Neighbor (bearer of message, breathlessly)—"You're wanted at 'ome, Charlie. Yer wife's just presented yer with another rebate off yer income tax."—London *Punch.*

◆

How It Happened

Salina (Kan.) Union

Seach died here last Thursday following an infraction of the brain.

Attending physicians asked and obtained permission to examine the brain and the operation was completed within four hours after death. It proved that the physicians' diagnosis was correct. That the infraction which started with an ulcerated tooth spread backward to the brain where its progress could not be checked.

◆

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From the Nurses' Examination Papers

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(Continued on page 24)

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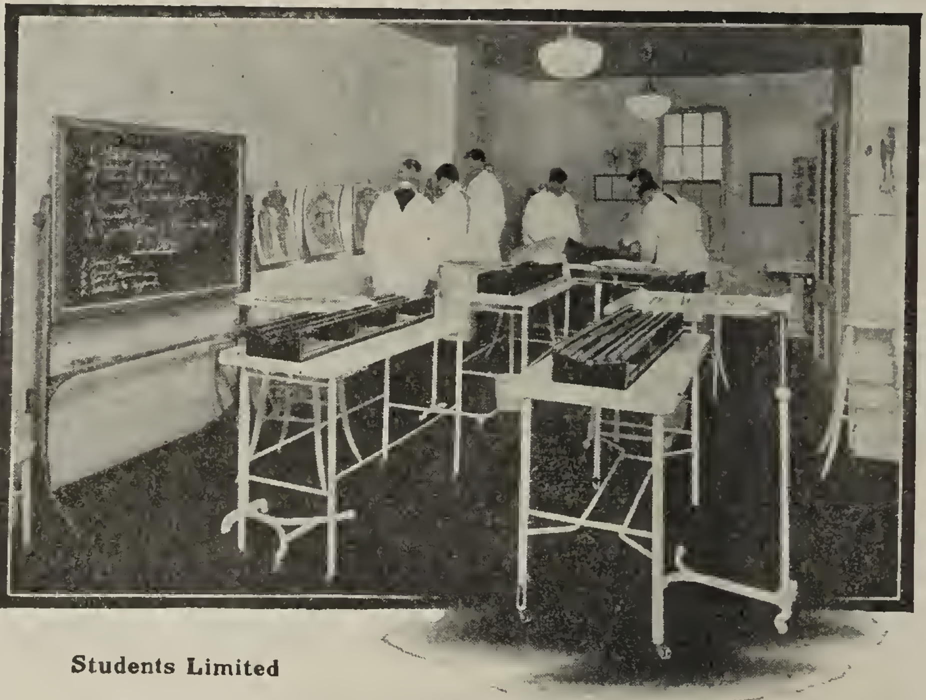
Operations by student include Thyroidectomy, blood transfusion, gastro enterostomy, end to end suture, lateral anastomosis, cholecystectomy, hernia, etc., etc.

Special courses in eye, ear, nose and throat.



Students Limited

Master Operative Surgery

In a centrally located institution, dedicated to physicians who wish to do their own surgery.
Where fundamental surgical principles are taught and mastered by the physician.
Individual instruction, intensified repetition.

A demonstration of the anatomy and the surgical anatomy on the cadaver is given of every operation in the course.
Over 35 operations on the head, neck, thorax, abdomen and extremities performed by the student himself.

For descriptive literature, etc., address

Dr. W. J. SULLIVAN, Secretary - - - - - - - 2550 PRAIRIE AVE.

A Private Post-Graduate Course
in Urology includes all modern methods of diagnosis and treatment Classes limited.
For particulars address the
BREMERMAN UROLOGICAL HOSPITAL
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2159 Madison St., CHICAGO
Alcoholic Luetic Liver Extract, Amboceptors, Laboratory Materials, Hypodermic Syringes, Gravity Outfits, Neo-Arsphenamines, Wassermann Tests Our Specialty.
GUINEA-PIGS FOR SALE

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M. B. B. Focal Infection Studies are unusually complete and accurate.
They often clear up the etiology of elusive and puzzling cases of systemic disease.
We furnish easily mailable duplitized films when requested.
Telephone
MEDICAL DEPT. Randolph 7688
DENTAL DEPT. Randolph 7689

NEED A CHANGE OF CLIMATE?
THERE is a classified ad. looking for you in this Journal.

(Continued from page 20)

WANTED — A WOMAN AS ASSISTANT physician at Innwood, a small private sanatorium for the treatment of nervous diseases; women only; and located just outside Philadelphia; desire a Protestant, not over 40 years of age, who has had an active experience with the insane; must be of a cheerful disposition, in good health, with pleasing personality and willing to work; advancement to satisfactory applicant; salary and maintenance of the best; applicants please give full information, salary expected, etc., in first letter; if possible send photo, which will be returned; also there are several desirable openings for nurses who have had training in nervous diseases, not necessarily graduate nurses, but to earnest and energetic women capable of taking responsibility we can give work in a most pleasant environment; companion nurses and attendants with experience in nervous diseases also wanted. Apply to Dr. S. Elizabeth Winter, Innwood Sanatorium, Conshohocken, Pa. B

WANTED — RECENT GRADUATE OF Class A school with special training in pathology and roentgenology, Wassermann, gold chloral, tissue, routine laboratory and x-ray technic; beginning salary from $1,500 to $2,000 yearly with full maintenance. Add. Dr. Carl J. Hedin, Supt., Bangor State Hospital, Bangor, Maine. B

WANTED — MALE ASSISTANT PHYSICIAN in eastern hospital for the insane; good opportunity for experience in modern clinical and laboratory methods; preference given to a single, recent graduate with hospital experience; salary $1,500, with maintenance and opportunity for advancement. Add. 936 B, % AMA.

WANTED—SINGLE MAN WHO CAN REGISTER in West Virginia as assistant, coal mine practice; salary $250 per month; no other fees; we furnish room with bath and also everything pertaining to the business; board and laundry your only expense; in answering, write legibly name, age, married or single, name of college, year graduated, religion, nationality, height, weight and how soon available; don't answer saying you will accept position; give details; this is a job. Add. Dr. W. E. Smith, Minden, W. Va. B

(Continued from page 24)

Case Features

- *Continental Red-Seal Motor;*
- *Borg & Beck Clutch;*
- *Grant-Lees Transmission;*
- *Columbia Axles;*
- *Delco Ignition Coil and Switch;*
- *Westinghouse Starting and Lighting;*
- *Goodyear $4\frac{1}{2} \times 34$ Cord Tires.*

CASE

Six Cylinder Coupe

BECAUSE of its quiet dignity, its easy, restful comfort and the dependable character of its performance, the Case Coupe is logically a physician's car.

Built with long, wide, semi-elliptic springs and deep, scientifically built cushions this fine coupe is the very epitome of comfort. The coach work is unexcelled—fourteen distinct treatments assure a body finish that is practically impervious to weather.

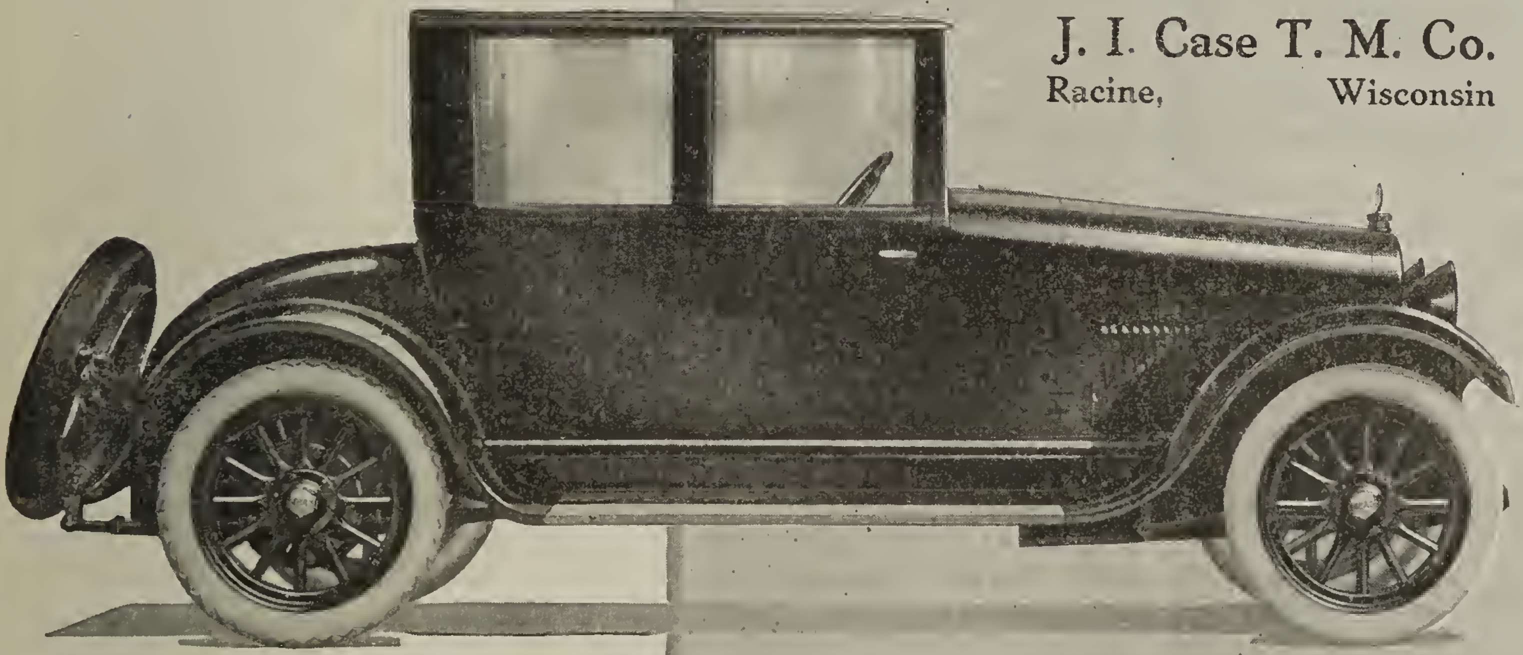
Mechanically, the Case is unsurpassed in its class. You can choose this full value, ***all-feature*** car with assurance that it will start readily in all weather and carry you wherever you want to go under practically all conditions of service. It always takes you ***there*** and ***back***.

The purchase of a Case will mean constantly increasing satisfaction with your investment. The favorable impression it first makes increases as time goes on, for the Case is truly a full-value car.

Call upon the Case dealer in your city. Ask him to let you drive a Case coupe—to really find out for yourself why the Case is logically a physician's car.

$3400 f. o. b. Racine

J. I. Case T. M. Co.
Racine, Wisconsin



(Tonics and Sedatives continued)

Took Her Bed With Her

Angola (Ind.) Herald

Mrs. Wes Mercer died early Tuesday morning. She had been ailing all winter and when Mr. Mercer died two weeks ago, she took her bed and followed him. These people have always lived in this community and will be sadly missed.

◆

A SCOOP

A Pittsburgh managing editor sent a cub reporter to cover a mine disaster near Cokeville, some distance from Pittsburgh.

The young man arrived at the scene, dallied around until late at night and started to wire his story in as follows:

"Cokeville, Pa., Nov. 10.—God sits tonight on the hills around Cokeville——"

"Stop him," said the night editor, hanging over the story. "Send him this message:

"Never mind mine disaster. Interview God. Get pictures."—*Pickup.*

◆

Appreciation

Letter received by a Canal Zone colleague

Dear Sir.—No doubt you will be at a loss to guess who the writer of this you will see the undersign. This is to let you know that your medicine has take very much effect on that fatal feeling in my head. I therefore congratulate you for your physical thinking.

◆

Science Is Science

Santa Fe New Mexican

Novocaine is a combination of adrenaline, the active principle of the adrenal glands. Adrenaline contracts the blood vessels, preventing rapid absorption of a local anaesthetic.

◆

Jazz as an Output Decreaser

Chicago Examiner

LONDON, March 6.—Some English firms are trying the effect of a gramophone or a piano player upon their employes. It is found that fingers soon seize the rhythm, figures sway and the output increases. Waltzes bring good results, and jazz music bad results.

◆

A Rare Old Gent

Little Rock (Ark.) Gazette

Memphis, Tenn., March 2.—Attending physicians for Miss Grace Thomas, aged 19, formerly of Little Rock and Hot Springs, who, it was believed, took poison by mistake Monday night, announced today her illness was caused by "angio neurotic oldeman," a nervous swelling of the blood vessels, instead of poison, as announced Tuesday at the Baptist hospital.

◆

NOT AS BAD AS REPORTED

The principal transmits to us the original copy of this excuse for absence, brought by a pupil:

> *"Miss G.—James dident have any doctor he only had measles in 2 days he was alright he made a mistake and said he had a doctor.*
> *"Mrs. H.————*
> *"yours forever."*
> —*Cleveland Plain Dealer.*

◆

Page Sherlock Holmes

Appalachian (Va.) Progressive

Mr. Carl Lane, who is a shofer, at Roda, stole a way to Church Hill and came back to take up board at Rev. McConnll, with his wife, whom he slipped from her home while they slept.

◆

A SIMPLE QUESTION

An Indianapolis lawyer, who handles many divorce cases in the county courts, was approached the other day by a man who contemplated bringing divorce proceedings against his wife.

"I want to find out if I have grounds for a divorce," he informed the attorney on entering his office.

"Are you married?" the lawyer asked.

"Why, yes, of course," responded the client.

"Then you have grounds," the attorney said. —Indianapolis *News.*

(Continued on page 26)

THE
GRADWOHL LABORATORIES

CHICAGO
7 W. Madison St.

ST. LOUIS
928 N. Grand Ave.

**SEROLOGICAL
BACTERIOLOGICAL
CHEMICAL
PATHOLOGICAL
ANALYSES**

Send for Containers, Price List and Literature. Use attached coupon.

Do not forget that when you send a blood specimen to us, we make TWO TESTS FOR FIVE DOLLARS, the WASSERMANN and the HECHT GRADWOHL. This **alone** is an inducement that you cannot afford to overlook. THIS DOUBLE TEST INSURES THE ACCURACY OF THE WORK AND SECONDLY GIVES POSITIVE SEROLOGICAL DIAGNOSES NOT OBTAINABLE IN ANY OTHER WAY. THIS STATEMENT IS BASED ON OUR EXPERIENCE AND MEDICAL LITERATURE.

Use our Pasteur Virus, Mail Order Course.

Laboratory Reagents of Highest Purity and Reliability for sale.

Gradwohl Laboratories

Gentlemen: Send Gratis Container for..........................
and Literature.

Dr..

....

(Continued from page 22)

WANTED—A YOUNG MAN, SINGLE, AS an assistant physician in a large hospital for the insane in Pennsylvania; must be a graduate of A1 medical school, have good appearance, refined, good health, of good habits and come well recommended. Add. 942 B, % AMA.

WANTED — YOUNG UNMARRIED MAN as assistant to eye, ear, nose, throat specialist in Rocky Mountains; one whose anatomy and pathology of specialty will permit training; state full details and salary. Add. 891 B, % AMA.

WANTED — NORTHERN MINNESOTA, laboratory technician and surgical assistant, preferably trained nurse; one competent in all routine work (blood, urine, stomach and stools); state age, experience, salary. Add. 753 B, % AMA.

WANTED — PHYSICIAN AS ASSISTANT to Chicago physician; young man of pleasing personality and appearance; good salary with bright future to one who qualifies; answer in detail. Add. 898 B, % AMA.

WANTED — ASSISTANT PHYSICIAN, preferably Spanish speaking, experienced in mining or industrial work, Peru, South America; altitude 14,000 feet; temperate climate; for general practice in mining camps and smelters and in our hospitals and laboratories; two-year contract; transportation and lodgings furnished; board charged $50 month; write fully; state age, salary desired. Room 4, Fifth Floor, 15 Broad St., New York City. B

WANTED — ASSISTANT PHYSICIANS, either experienced or inexperienced, in psychiatry; splendid opportunity for advancement. Add. Superintendent Central State Hospital, Lakeland, Ky. B

WANTED—AT ONCE—ASSISTANT PHYSICIAN in mining and country practice; registered in Pennsylvania; single man preferred, under 33 years; Gentile; willing worker; salary $150 per month, including board and room with all conveniences; will sell $6,000 practice at invoice price of drugs and few office essentials if suitable; no property to buy; easy terms; would take in as partner is preferred; splendid opportunity; if possible send photo and essentials in first letter. Add. 876 B, % AMA.

WANTED — ASSISTANT PHYSICIAN—Class A graduate, male, unmarried, in thoroughly equipped tuberculosis sanatorium; salary and maintenance; give reference and age. Medical Director, Mount St. Rose Sanatorium, 9101 South Broadway, St. Louis, Mo. B

WANTED—ASSISTANT FOR GENERAL practice, 17 miles from hospital; opportunity to assist at operations; salary, $250 per month; Washington license necessary; position open June 1; give full qualifications. Add. 806 B, % AMA.

WANTED—ASSISTANT PHYSICIAN FOR mining contract practice, Minnesota; must be graduate of Class A college, and have had hospital experience; salary, $225 to start; early increase to right man; give full information in first letter, with photo. Add. 814 B, % AMA.

PHYSICIANS WANTED

WANTED—MEDICAL MISSIONARY FOR Central Africa; to be a young, fully qualified doctor, Protestant in religion with definite Christian conviction and good character; married man preferred; small salary but big opportunities for study of tropical diseases and service to mankind; full details will be given on request. Canada Congregational Foreign Missionary Society, 359 Querbes Ave., Outremont, Montreal, Canada. C

WANTED — JUNIOR RESIDENT SURGEON for private patients' pavilion; $1,200 per annum and full maintenance; appointment April 1. Apply with full particulars and letters of recommendation to Geo. F. Sauer, Superintendent, Lenox Hill Hospital, 112 E. 77th St., New York City. C

WANTED — M.D., MALE OR FEMALE—Proficient in laboratory and x-ray work, for small hospital in Pennsylvania. Add. 941 C, % AMA.

WANTED — PATHOLOGIST, LOS ANGELES County Hospital; salary $2,400 to $3,000 and one meal daily; civil service examination to be held May 6, 1921, in various cities of U. S.; write immediately. County Civil Service Commission, Los Angeles, Calif. C

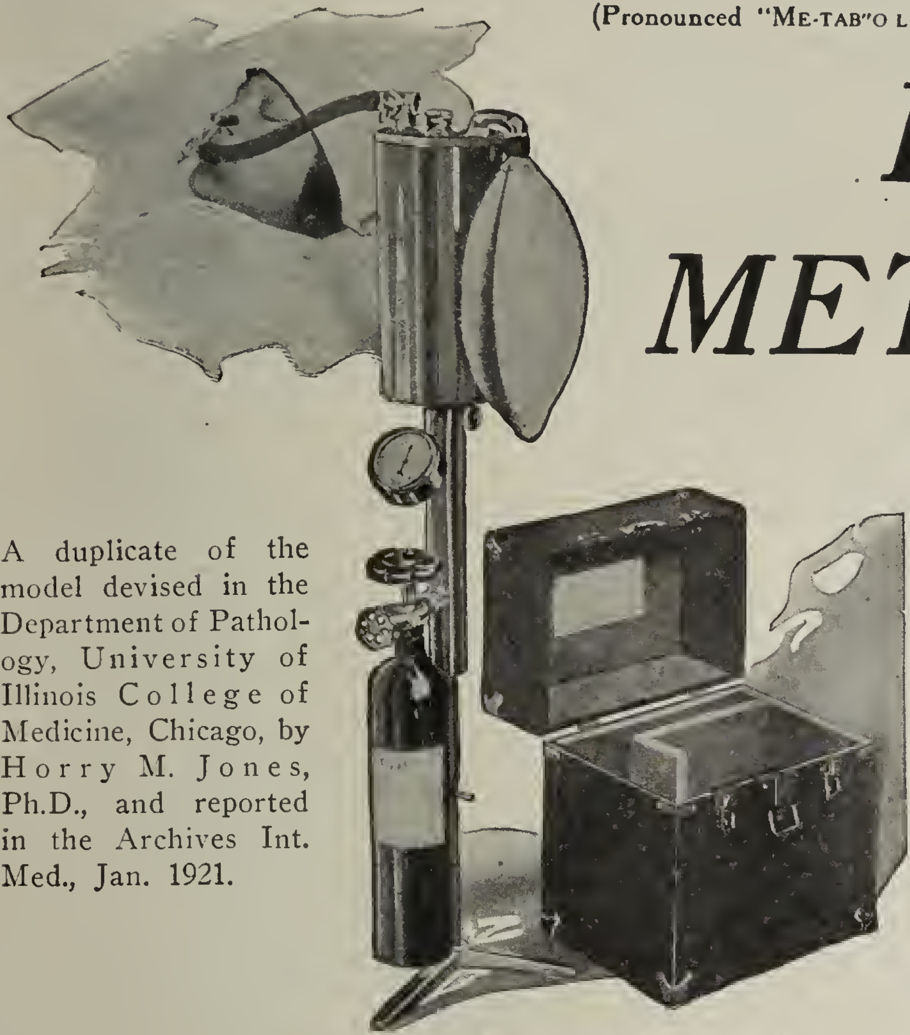
(Continued on page 26)

The New METABOLIMETER

Designed for bedside studies in

(Pronounced "ME-TAB"O LIM'E-TER")

BASAL METABOLISM



Easily portable—wt. 14 lbs.

A duplicate of the model devised in the Department of Pathology, University of Illinois College of Medicine, Chicago, by Horry M. Jones, Ph.D., and reported in the Archives Int. Med., Jan. 1921.

TESTING ITS ACCURACY

The following tests of accuracy require no special instruments of calibration, or apparatus for standard of comparison. They may be performed with the apparatus, itself, by one familiar with its operation.

1. **Make a series of readings on several persons** in normal health. These readings will be found to correspond accurately with those metabolic rates known to be correct for persons in health.

2. **Select and test known pathological cases.** The plus and minus readings on these cases will correspond to your clinical findings.

3. **Take a reading on a given subject.** After a few moments repeat the test on the same subject. The readings will "check" within an average of 2%.

These tests are logical, and their evidence is clearly convincing.

MECHANICAL PRINCIPLE OF THE APPARATUS

1. The flexible breathing bag is distended slightly with a small amount of oxygen.
2. The respiratory system of the patient is then connected up with the apparatus in such a way as to form with it a continuous air-tight breathing circuit.
3. With each successive expiration the size of the distended bag (sensitive to 3 c.c. change in volume) decreases and at a certain point in this gradual diminution of its size (called the beginning point) the stop watch is started.
4. Now one liter of gas is injected into this air-tight breathing circuit from the measuring cylinder below. (This measuring cylinder is guaranted to duplicate its measurement of this gas volume within 0.2% regardless of barometric pressure, aqueous tension and room temperature. That you do not comprehend the scientific basis of this feature does not invalidate our guarantee. This is an exclusive feature of the Metabolimeter.) The bag is seen to be distended again with this added quantity, but with each inspiration decreases in size as before.
5. When so diminished in size as to equal its volume seen at the beginning point (now called the end point) the watch is stopped. The time on the stop watch represents the time required by the patient to consume the liter of gas, and from this the patient's rate of metabolism is made known immediately and without calculation from a chart, facsimile of which will be sent upon request.

MANY PERSONS HAVE ENTIRELY MISUNDERSTOOD THE PURPOSE AND METHOD OF USING THE RUBBER BAG ATTACHED TO THE APPARATUS

Some imagine that it should be attached in some definite, fixed relation to the side of the alkali tower, that its texture would have to remain the same year in and year out, that its capacity must be known, that it must hang in an exactly horizontal position, and that all sorts of rigid conditions must be imposed upon it before one could get an accurate beginning- and end-point from such an indefinitely attached appliance.

Let us imagine the bag partially distended with some oxygen, say about 600 to 900 c.c. Now imagine the patient connected with the apparatus in such a way as to breathe this gas, gradually absorbing it, and therefore gradually reducing the size of the bag. Imagine this process (of gradually reducing the size of the bag) continuing until the contact button on the bag just fails to touch the alkali tower, at the end of normal expiration, i. e., with the bag in normal distension.

Is there anything about any of this procedure thus far which would be prevented by the position, or texture, or capacity of the bag? Now having accomplished this situation, suppose we discharge a measured litter of gas into the bag, which of course would distend again to accommodate this added volume. The patient by continuous rebreathing of this gas, will absorb the oxygen and thus again reduce the size of the bag until finally the contact button on the bag just fails to touch the alkali tower as before.

In other words, regardless of the position, or texture, or capacity of the bag, you establish a new position or beginning-point each time the test is performed. Then you make an addition of one liter of gas, and the patient makes a subtraction of an equivalent volume of oxygen, the bag remaining fixed in this newly established beginning-point position, until the end-point, which it resembles in all particulars.

Since the bag in this beginning-point position is sensitive to 3 c.c. reduction in the volume contents, and since a 15 to 20 c.c. reduction occurs with each successive respiration, it is evident how decisive the beginning- and end-points must be with normal respiratory rhythm.

Write for a list of leading institutions and internists who depend absolutely on its accuracy in the diagnosis of their borderline cases

MIDDLEWEST LABORATORIES CO.

1655 N. Sawyer Ave. *Makers of Scientific Apparatus* CHICAGO, ILL.

(Tonics and Sedatives continued)

Controlling Disease

Mt. Morris (Ill.) Enterprise

Last week Tuesday diphtheria broke out in the Normal School at Geneseo, and in four days there were two deaths and many exposures, at the present time, there are thirty-three cases. The school authorities were not alarmed at first, until it assumed an epidemic form, when seven hundred cultures were administered by two doctors and five nurses in two days, and now have it under control, and no doubt will soon stamp the disease out.

◆

A MATTER OF TIME

"Howdy, Doc!" saluted a resident of Rickadoo Ridge, upon encountering the physician emerging from the house of illness. "Figgered I'd sorter drop round and see if I couldn't do somethin' for Zeke. How is he comin' along?"

"He is convalescing satisfactorily now," replied the medicine man.

"That so? Well, I hain't in no special hurry, so I'll jest set out yur on the porch and wait till he gets through."—*Pickup.*

◆

IN THE LANGUAGE OF MEXICO

Agente.—Tiene usted las clinicas de Mayo.
Medico.—No solo tengo las de Mayo sino las de Junio.

◆

Our doctor is a touchy bird;
He will not let you doubt his word.
'Twere better far he should explain
The meaning of each ache and pain.
The patient, though exceeding dumb,
Thinks he should know how these things come,
Who tells him meaning, full of sense,
Will quickly gain his confidence.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

The Oxford Medicine. By Various Authors. Edited by Henry A. Christian, A.M., M.D., Hersey Professor of the Theory and Practice of Physic, Harvard University, and Sir James Mackenzie, M.D., F.R.C.P., LL.D., Consulting Physician to the London Hospital. In Six Volumes. Volume III. Diseases of the Digestive System, Kidneys, and Ductless Glands. Cloth. Price, $90 per set. Pp. 828, with illustrations. New York: Oxford University Press, 1921.

Lehrbuch und Atlas der Augenheilkunde. Bearbeitet von Prof. Th. Axenfeld, Prof. L. Bach, Prof. A. Bielschowsky, Prof. A. Elschnig, Prof. R. Greeff, Prof. L. Heine, Prof. E. Hertel, Prof. E. v. Hippel, Prof. E. Krückmann, Prof. J. Oeller, Prof. A. Peters and W. Stock. Herausgegeben von Dr. Theodor Axenfeld, Professor der Augenheilkunde in Freiberg. Sixth edition. Cloth. Price, 78 marks. Pp. 840, with 650 illustrations. Jena: Gustav Fischer, 1920.

Diagnostic and Therapeutic Technic. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, A.B., M.D., F.A.C.S., Consulting Surgeon to the Nassau Hospital, Mineola, L. I. Third edition. Cloth. Price, $8 net. Pp. 894, with 892 illustrations. Philadelphia: W. B. Saunders Company, 1921.

Prinzip Theorie und Praxis der Vakzintherapie. Drei Vorlesungen, gehalten für Aerzte und Studierende. Von Dr. Alexander Forbát, Vorstand des Zentral. ärztlich-bakteriol. Laboratoriums der rechtsufrigen Spitäler der Hauptstadt Budapest. Paper. Price, 9 marks. Pp. 52. Berlin: Urban & Schwarzenberg, 1921.

Transactions of the Twenty-Fifth Annual Meeting of the American Academy of Ophthalmology and Oto-Laryngology, 1920. Cloth.

(Continued on page 28)

FOR THE OPERATING ROOM

You appreciate the necessity for the care in the examining of patients before the administration of anesthesia. Why not protect them during and after the anesthesia by having a Lungmotor available should collapse occur?

FOR EMERGENCY CASES

You never know when a case of electric shock, apparent drowning, suffocation or gas poisoning will be brought to your institution. With a Lungmotor you insure resuscitation in cases that otherwise might be hopeless. The public expect the most modern equipment in every institution and look first to the hospital when a resuscitating device is needed.

FOR DELIVERY ROOM

Here the Lungmotor has rendered perhaps its greatest service. The occasion for its use no doubt comes more frequently and in practically every hospital where Lungmotors have been installed they report remarkable results in cases of asphyxia neonatorum.

THE LUNGMOTOR

is in use in over seven thousand hospitals, medical departments of cities and industries. It has been tried, tested and proved. Its design combines simplicity of operation and positive action. Mechanical and physiological conditions have been suited and met, and the result is a dependable resuscitating device with seven years of satisfactory service behind it.

Let us send you details on the Lungmotor so that you may recommend its installation in your hospital, your city, your industry.

LUNGMOTOR COMPANY
713 Boylston St. Boston, Mass.

(Continued from page 24)

WANTED — PATHOLOGIST FOR A 200-bed hospital; a pathologist M.D. preferred. Add. P. O. Box 1687, Paterson, N. J. C

WANTED—PHYSICIAN, GRADUATE OF first-class medical college, between age of 25 and 35 years, with a pleasing personality, who has had training in eye, ear, nose and throat practice, as assistant with the ultimate object of becoming an associate; splendid opportunity for right man. Add. 822 C, % AMA.

WANTED—DOCTOR TO TAKE CHARGE of x-ray and pathological laboratories and give anesthetics in modern 60-bed hospital; no tissue or Wassermann work; routine laboratory work only. Baptist Hospital, Alexandria, La. C

WANTED—THERE ARE FOUR VACANcies for resident physicians, one in tuberculosis, one in medicine, one in neurology and one in orthopedics and mechanotherapy, at the Montefiore Home and Hospital; appointments are for one year at a salary of $1,200 per annum and maintenance. Application should be made to the Medical Director, Gun Hill Road, New York. C

WANTED — PHYSICIAN TO TAKE A well-established practice in Spokane for six or eight months; liberal terms and brilliant future prospect. H. S. Martin, Empire State Building, Spokane, Wash. C

WANTED—PSYCHIATRIST AND PRACticing physician for joint use of offices and to make arrangement for consultation purposes; offices are large and bright consisting of entire parlor floor of modern private house; located in center for specialist's work; further information may be secured by communicating with undersigned. David Mitchell, 160 W. 85th St., New York City. C

WANTED — THE CITIZENSHIP OF thriving Oklahoma city wants high class and thoroughly competent eye, ear, nose and throat man; no failures or has beens need apply; excellent hospital facilities; give personal and professional qualifications first letter. Add. 858 C, % AMA.

WANTED—CATHOLIC PHYSICIAN AND surgeon examiner for Knights desires a change; reward any one locating him in large locality without a Catholic physician; Class A school; 4 years' hospital, ex-service; best references; answer quickly. Add. 860 C, % AMA.

WANTED — PHYSICIAN, UNMARRIED, for private hospital in west treating nervous and mental cases; also neurotic addictions; pleasing personality and general executive ability required; energetic and progressive in this specialty and graduate of Class A medical school; fair salary and opportunity to advance for competent man; give references, salary expected and all particulars in first letter. Add. 862 C, % AMA.

WANTED — RESIDENT PATHOLOGIST—A recent graduate from a Class A medical school who desires to specialize in pathology and laboratory work, either as a preparation for internal medicine, surgery or a laboratory career; instruction under competent pathologist; salary and full maintenance to right person; state age, education and submit reference with first letter: Add. 867 C, % AMA.

WANTED — ROENTGENOLOGIST M.D. for 75-bed hospital in middle west; must be able to take charge of small clinical laboratory also; salary about $3,500 a year and maintenance; when applying state age, experience, single or married, nationality and religion. Add. 878 C, % AMA.

WANTED—RESIDENT PHYSICIAN WITH hospital experience at the Stetson Hospital, Philadelphia, Pa.; term of service one year; $75 per month with maintenance. C

WANTED — EXPERIENCED AND WELL-educated eye, ear, nose and throat specialist; busy office; large middle west city; salary $150 a month and all office expenses paid; private consulting room; every opportunity to build up private practice; splendid opportunity for right man; send picture, experience, qualifications, age, etc. Add. 829 C, % AMA.

WANTED — BACTERIOLOGIST CAPABLE of managing clinical laboratory and interested in an opportunity; details cheerfully given; must be type who can work without directions or supervision; references necessary. Add. 789 C, % AMA.

(Continued on page 28)

OVALTINE

IN PHTHISIS

"Ovaltine" is a concentration of the nutritive principles of Winter Malted Barley, Milk and Eggs, and is, therefore, rich in easily digested and assimilated protein of great value in checking the morbid process and accelerating improvement of the general health.

Its protein sparers are adequate, in well adjusted ratio and in a form which taxes digestion to the minimum.

Its enzymes aid the digestion of other foods, its salts of iron, calcium and phosphorus promote normal mineral metabolism, and its accessory food factors favor full utilization of the nutritive principles by the tissues of the body.

"Ovaltine" permits of diet reinforcement without increase of bulk and enhances the digestibility of the food, valuable features where anorexia or dyspepsia are associated with the constitutional disturbance.

"Ovaltine" is obtainable in 8 oz., 17 oz., 5 lb. and 10 lb. tins from druggists

SAMPLES AND LITERATURE MAILED UPON SIGNED REQUEST

THE WANDER COMPANY
37 South Wabash Avenue, Chicago, Illinois

WORKS: VILLA PARK, ILLINOIS

M8

(Books Received—Continued)

The Croonian Lectures on the Psychology of the Special Senses and Their Functional Disorders Delivered Before the Royal College of Physicians in June, 1920. By Arthur F. Hurst, M.A., M.D., F.R.C.P., Physician and Neurologist to Guy's Hospital. Cloth. Price, $5. Pp. 123, with illustrations. London: Oxford University Press, 1920.

A Report on the Occurrence of Intestinal Protozoa in the Inhabitants of Britain With Special Reference to the Entamoeba Histolytica. Medical Research Council, Special Report Series, No. 59. Paper. Price, 2 shillings net. Pp. 71. London: His Majesty's Stationery Office, 1921.

Notes on the Medical Treatment of Disease. For Students and Young Practitioners of Medicine. By Robert Dawson Rudolf, C.B.E., M.D., F.R.C.P., Professor of Therapeutics in the University of Toronto. Cloth. Price, $4. Pp. 457. Toronto: University of Toronto Press, 1921.

Psychology and Psychotherapy. By William Brown, M.A., M.D., D.Sc., Reader in Psychology in the University of London (King's College). With a Foreword by William Aldren Turner, C.B., M.D. Cloth. Price, $3. Pp. 196. New York: Longmans, Green & Co., 1921.

G. de Ruyter und E. Kirchhoffs Kompendium der Speziellen Chirurgie. Für Studierende und Aerzte. Neu bearbeitet von Dr. F. Erkes und Dr. B. O. Pribram. Fourteenth edition. Boards. Price, 72 marks. Pp. 422, with 118 illustrations. Berlin: S. Karger, 1921.

The Chemistry of Enzyme Actions. By K. George Falk, Harriman Research Laboratory, The Roosevelt Hospital, New York. American Chemical Society Monograph Series. Cloth. Price, $2.50. Pp. 136. New York: The Chemical Catalog Company, Inc., 1921.

The Wassermann Test. By Charles F. Craig, M.D., M.A., F.A.C.S., Lieutenant Colonel, Medical Corps, United States Army. Second edition. Cloth. Price, $4.25. Pp. 279, with illustrations. St. Louis: C. V. Mosby Company, 1921.

Surgical Aspects of Dysentery Including Liver-Abscess. By Zachary Cope, B.A., M.D., M.S., Surgeon to Out-Patients, St. Mary's Hospital. Cloth. Price, $5. Pp. 157, with illustrations. New York: Oxford University Press, 1920.

Kurzes Lehrbuch der Chemischen Physiologie. Von Dr. Ernst Schmidt, A. O. Professor und Abteilungsvorsteher am Physiologischen Institut der Universität Breslau. Paper. Price, 104 marks. Pp. 334. Berlin: S. Karger, 1921.

Optimistic Medicine or the Early Treatment of Simple Problems Rather than the Late Treatment of Serious Problems. By a former Insurance Man. Cloth. Price, $3 net. Pp. 318. Philadelphia: F. A. Davis Company, 1921.

T. N. T. Poisoning and the Fate of T. N. T. in the Animal Body. Medical Research Council, Special Report Series, No. 58. Paper. Price, 3 shillings net. Pp. 88. London: His Majesty's Stationery Office, 1921.

The American Year-Book of Anesthesia & Analgesia. F. H. McMechan, A.M., M.D., Editor. 1917-1918. Cloth. Price, $10. Pp. 483, with illustrations. New York: Surgery Publishing Company, 1921.

Swiss Watering Places. Paper. Pp. 86, with illustrations. Published and Offered by the Different Swiss Watering Places. Official Information Bureau of Switzerland, 241 Fifth Ave., New York.

Nineteenth Annual Report of the New York State Hospital for the Care of Crippled and Deformed Children for the Year Ending June 30, 1919. Paper.

La Malaria Fiumicino e il Prof. Grassi. Por il Prof. Guido Cremonese. Paper. Pp. 47. Roma: Tipografia C. Lucci, 1921.

The 1920 Record

Amount collected from our members

$223,225.00

in 1920

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$145,038.00

in 1920

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in 1920

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$2.30

per member in 1920

This kind of real insurance cost our members $13.00 for an accident policy paying $25.00 weekly and $5,000.00 death benefit, or $26.00 for two such policies, while the health policy, covering any illness beginning thirty days after date of policy, except venereal, epilepsy or insanity, has never exceeded $17.00 per year.

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membership fee will now carry either policy until June 10th, 1921.

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(Continued from page 26)

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WANTED—AT ONCE — A LOCUM TENENS for about 4 months, to remain as partner and eventually succeed to my very fine unopposed general practice in fine town of N. W. Iowa; will furnish everything necessary; exceptional opportunity; exchange full particulars. Add. 931 F, % AMA.

INTERNS WANTED

WANTED—TWO INTERNS FOR GENERAL hospital, 250 beds; Class A; rotating service, including contagious diseases; vacancies now; letters of reference should accompany application. Add. Secretary, Garfield Memorial Hospital, Washington, D. C. D

WANTED—INTERNS AT JEWISH HOSPItal, Cincinnati, Ohio, July, 1921, to July, 1922; 140-bed hospital; large clinical service; $25 a month, room, board and laundry. Add. Superintendent. D

NURSES WANTED

WANTED — SUPERINTENDENT OF nurses; training school organized; hospital 125 beds; salary $125 and maintenance; send references in first letter. St. Elizabeth's Hospital, Danville, Ill. T

SUPERINTENDENTS (MALE AND FEmale), superintendents of nurses, asst. supt., surgical, floor supervisors, general duty nurses, dietitians, masseuses, physicians; excellent positions open. Write for booklet and application form. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago. T

WANTED—A NURSE FOR SUPERINTENdent of a small hospital in middle west; salary, maintenance and laundry. Add. Dr. B. S. Pennington, Hoisington, Kan. T

X-RAY TECHNICIAN WANTED

WANTED—X-RAY TECHNICIAN — MAN to assist with x-ray and radium work in middle western laboratory; must have good education, be thoroughly experienced and reliable; state experience, references and salary expected in first letter. Add. 917, % AMA.

WANTED—EXPERIENCED TECHNICIAN for x-ray department in Chicago institution on salary and percentage basis; furnish references as to experience, ability and character. Add. 919, % AMA.

WANTED — AN X-RAY AND LABORAtory technician, man or woman, in a hospital of 50 beds in northwestern Minnesota; must be able to do all x-ray work and routine laboratory work, including pathological tissues, and occasionally to aid in taking histories; give references and experience; state salary expected. Add. 925, % AMA.

WANTED — MALE TECHNICIAN IN group; state age, education, experience, references and salary in first letter. Add. 840 V, % AMA.

WANTED—DENTAL X-RAY TECHNICIAN —A growing exclusively dental x-ray laboratory in one of the larger central west cities offers an unusual opening for some one capable of taking entire charge and qualified to command a good salary; the opportunity is unusual; state references, experience, salary expected and full particulars in first letter. Add. 855, % AMA.

LAB. TECHNICIAN WANTED

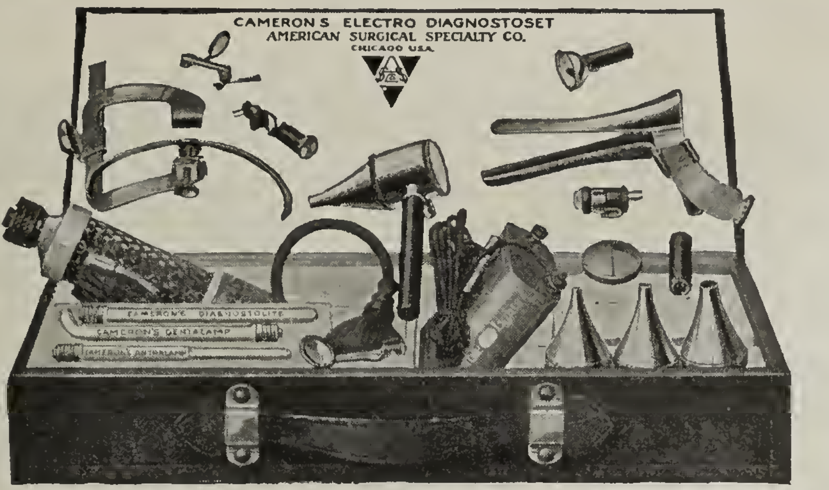
WANTED — YOUNG LADY TECHNICIAN for routine laboratory examinations, x-ray work and teach in training school; modern 50-bed hospital. Add. Kings Daughters Hospital, Ashland, Ky. V

WANTED—LABORATORY TECHNICIAN —Prefer one having x-ray experience or one who wishes to learn x-ray work; good pay and full maintenance; in 150-bed hospital in suburb of Chicago. Add. 904 V, % AMA.

WANTED — COMPETENT LABORATORY technician. Apply Franklin Square Hospital, Baltimore, Md. V

WANTED — A TECHNICIAN TO DO work in clinical pathology, preparation of tissues and blood and urine chemistry. Add. 866 V, % AMA.

(Continued on page 30)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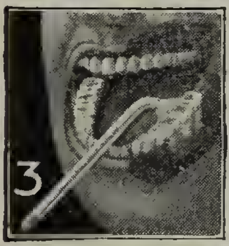
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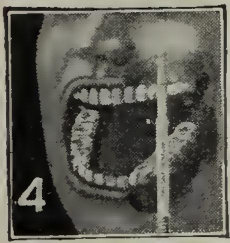
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AMA22621

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(*Continued from page 28*)

WANTED — BY MAY 1 EXPERIENCED laboratory technician for 100-bed California hospital; competent in all routine work, including serology, bacteriology and pathology; one willing to assist in x-ray preferred. Add. 857 V, % AMA.

WANTED—A LABORATORY AND X-RAY technician, man or woman; must have hospital experience, able to take histories and assist with similar details, in 40-bed hospital; give references and state lowest initial salary expected. Address The Kings Daughters' Hospital, Columbia, Tenn. V

PARTNERS WANTED

WANTED—COMPETENT UROLOGIST TO become member hospital staff; must have $5,000 for investment in 25-room addition to hospital; Ohio city of 250,000; only high class man need reply. Add. 902 G, % AMA.

WANTED — PARTNER — PHYSICIAN, Class A, 30-35 years age; Mason given preference; county seat 5,000; practice $15,000; can be increased by surgery; must be reliable, honest and one who wishes to do scientific general practice; desire one trained in obstetrics and who can do tonsil work; a good field; money maker; best equipment in county; no hospital; if fresh from college or you expect a soft snap, don't apply; price, one-half invoice, $5,000. Add. 863 G, % AMA.

PARTNERSHIP WANTED

WANTED — OCULIST AND AURIST wishes partnership or group practice in western city; best of special hospital training and base hospital experience; eight years successful private practice in specialty; aged 35. Add. 630 I, % AMA.

WANTED — OPHTHALMOLOGIST AND otolaryngologist; college education; graduate A plus school; 2 years' clinical experience; 1 year as assistant to noted specialist; desires association with busy specialist or clinical group. Add. 916 H, % AMA.

WANTED—ASSOCIATION WITH GROUP or busy practitioner to do obstetrics and assist in surgery by recent Rush graduate, A.M., M.D.; 12 months' rotation service in 400-bed city hospital; 3 months' ear, nose and throat and six months' resident service Chicago Lying-In Hospital. Add. 915 H, % AMA.

WANTED — WESTERN WASHINGTON—Contract practice or associateship; man 32 years, hospital training; 2 years' general practice; 2 years eye, ear, nose and throat; graduate A1 school; highest recommendations. Add. 943 H, % AMA.

WANTED — PARTNERSHIP OR FIRST-class contract or unopposed practice; am 40, married; long hospital experience; well equipped for general work and surgery; best references; only high class proposition considered; prefer Washington state or Colorado. Add. 951 H, % AMA.

WANTED — ASSOCIATION OR ASSISTANTSHIP to elderly surgeon in central or southern Michigan by young, successful, married general practitioner; graduate Class A school; expect living salary. Add. 956 H, % AMA.

WANTED—ASSOCIATION OR PARTNERSHIP with established M.D.; might serve as locum tenens; am physician, wide experience general practice; graduate Class A school; best references. Western state preferred. Add. 960 H, % AMA.

WANTED — ASSOCIATION WITH BUSY surgeon or group; aged 30, good health, personality; married; graduate Class A school; army two years; qualified in internal medicine and laboratory methods; prefer western state; correspondence desired. Add. 945 H, % AMA.

WANTED — BY EXPERIENCED UROLOGIST, formerly associated as resident urologist with one of the largest urological services in America, an opening in a western city; prefer association with general surgeons or internists as independent consultant; Colorado, Washington, Oregon, California or Idaho preferred; association with well-established urologist considered; can make investment if opening good. Add. 892 H, % AMA.

WANTED — ASSOCIATION, LOCATION or assistantship by woman physician experienced in eye, ear, nose and throat; Illinois or reciprocating states. Add. 698 H, % AMA.

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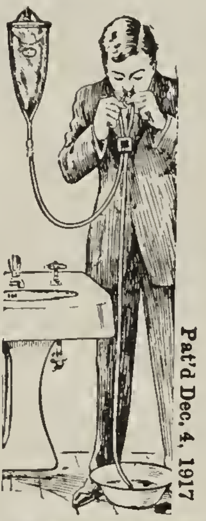

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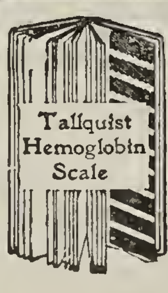

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WANTED—ASSOCIATION WITH BUSY physician and surgeon or industrial position preferably with hospital connection; graduate Chicago school, Cook County Hospital internship; experienced general medicine and surgery and industrial surgery; aged 28, married; best references. Add. 575 H, % AMA.

WANTED—ASSOCIATION WITH GROUP or surgeon in southern California by surgeon, aged 40; perfect health; 15 years' surgery and hospital work; can do general surgery or limit to special surgery; references exchanged. Add. 854 H, % AMA.

WANTED—ASSOCIATION WITH SPECIALIST in Pennsylvania with ultimate idea of taking over practice or forming partnership; married, Protestant, 35; now in general practice; can invest. Add. 799 H, % AMA.

WANTED—PARTNERSHIP OR ASSOCIATION with surgeon or group, by general surgeon; has had six years hospital training; best of references. Add. 802 H, % AMA.

WANTED—WELL-KNOWN OPTHALMOLOGIST and otolaryngologist wishes to associate himself with a well-established, high-class specialist, or group medicine, with good hospital connection; best eastern hospital training of thirty-six months; five years as oculist and aurist to one of the largest corporations in America; hard worker, good mixer, age 34, references exchanged; recently discharged from service. Add. 754 H, % AMA.

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WANTED—REGISTERED NURSE WISHES position with good future, as x-ray technician, with group, private, or hospital; available March 8. Address A. M., 524 West Eighth St., Oklahoma City, Okla. I

WANTED — POSITION OF ANY KIND calling for a man of broad professional and business experience; public health work preferred; six years in federal, state and municipal health work; public health degree. Add. 631 I, % AMA.

WANTED—POSITION AS LABORATORY technician by man experienced in all lines of laboratory work, including Wassermann and tissue work; can furnish good reference; south or southwest preferred. Add. 893 I, % AMA.

WANTED—SITUATION IN BACTERIOLOGY laboratory by girl, recent graduate of University of Chicago; prefer Chicago; would consider other locations; references. Add. 926 I, % AMA.

WANTED — POSITION WITH INDUSTRIAL corporation; graduate Class A school; 2 years' hospital work; 1 year postgraduate work; experienced in industrial and general practice; Chicago preferred; available immediately. Add. 964 I, % AMA.

WANTED — EXPERT SURGEON, TEN years' experience in largest German universities, aged 32, desires position as industrial surgeon or associate with group or busy surgeon; gynecologic experience; New York license; available at once; excellent references. Add. 957 I, % AMA.

WANTED—COMPETENT WOMAN PHYSICIAN desires industrial, medical or other salaried work; graduate Grade A school; best references. Add. 955 I, % AMA.

WANTED—POSITION WITH FUTURE BY young woman eager to learn, with man or institution devoted to science; speaks, reads, writes fluently English, French, Italian; reads German; experience as secretary, literary and medical translator; willing to travel. Add. 954 I, % AMA.

WANTED—POSITION OR PRACTICE IN Iowa or Kansas; married, 34 years old; highly referenced; hospital and general practice experience; 6 years in general practice. Add. 2715, % F. V. Kniest, Peters Trust Bldg., Omaha, Neb. I

WANTED — A COMPETENT EXPERIENCED physician, aged 34, graduate of A1 school, desires position, with chance to prove ability; experience includes both industrial and private practice. Add. 685 I, % AMA.

WANTED — ASSISTANTSHIP OR SALARIED position; graduate of Class A plus school; 3 years' hospital; 10 months' busy general practice; licensed Pennsylvania and New York. Add. 940 I, % AMA.

(*Continued on page 32*)

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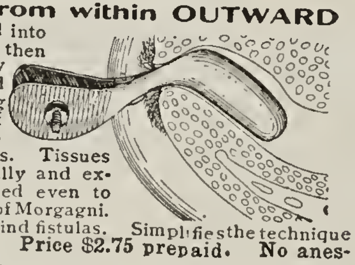

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(*Continued from page 30*)

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WANTED — POSITION AS SUPERINTENDENT of general or tuberculosis hospital; graduate A1 medical school; thoroughly experienced executive, builder and organizer; now open for engagement. Add. 800 I, % AMA.

WANTED — POSITION AS TECHNICIAN with group of doctors or in laboratory or office assistant and laboratory work by St. Luke's graduate and laboratory course Cook County Hospital; Chicago only; references. Add. Grace Garrabrant, 5514 Kenwood Ave.; phone Hyde Park 799. I

WANTED — A YOUNG LADY EXPERIENCED in laboratory routine, desires position as physician's general assistant; experienced graduate dietitian and home economics trained; reference. Add. 678 I, % AMA.

WANTED — WELL-TRAINED PSYCHIATRIST, single, with institutional and army experience, wishes to change position; offer must be excellent one; nothing third rate considered; interview preferred. Add. 912 I, % AMA.

WANTED — GRADUATE NURSE WOULD like position as x-ray technician in doctor's office or hospital; can assist with laboratory or surgical work. Add. 888 I, % AMA.

WANTED — POSITION AS SURGICAL assistant or good surgical internship; single, good habits, hard worker; 1 year hospital experience; graduate A plus school; good reference. Add. 870 I, % AMA.

WANTED—SITUATION—YOUNG PHYSICIAN desires assistantship, salaried position or contract practice; Class 1917; married; Protestant; internship; army service and general practice; Illinois and Michigan licenses. Add. 861 I, % AMA.

WANTED — POSITION AS HOUSE SURGEON or with group by postgraduate genito-urinary surgeon, cystoscopist, serologist; good laboratory equipment and ability; good executive; aged 41. Add. 692 I, % AMA.

WANTED — SITUATION — STENOGRAPHER and secretary to physician or medical superintendent of hospital; have had over 8 years' experience in institution of several hundred beds; can furnish reference. Add. 665 I, % AMA.

WANTED — PHYSICIAN, EXPERIENCED in institutional practice, both for epileptics and the insane, desires position in the near future; southwest preferred; health good; single; first-class references. Add. 850 I, % AMA.

WANTED — POSITION WITH INDUSTRIAL corporation; 12 years' experience in general and industrial practice; army and postgraduate courses; Class A school; highest references. Add. 839 I, % AMA.

WANTED—ASSISTANTSHIP — ROENTGENOLOGIST, reliable man of 26, with education, including one year in A1 medical school, desires connection with competent roentgenologist, which will give good opportunity to learn this work. Add. 826 I, % AMA.

WANTED—POSITION AS BACTERIOLOGIST and pathologist; have extensive experience in hospital and public health laboratory work; prefer connection with hospital or public health institution; state salary and particulars; will go anywhere. Add. 655 I, % AMA.

WANTED—ASSISTANTSHIP OR ASSOCIATION with busy practitioner who does or desires to do his own surgery, or with one who has a hospital; experienced in general and industrial hospitals, x-ray and general practice; can do ordinary surgery; at present doing postgraduate work; licensed in Illinois, Missouri, Nebraska; would also consider a good industrial or institutional position; aged 31 Add. 852 I, % AMA.

WANTED — PATHOLOGIST, WELL known for many years in research work and on teaching staff of European university with enormous autopsy material, desires research position; willing to supervise or do diagnostic work (histopathology, bacteriology, haematology, serology) part of time. Add. 755 I, % AMA.

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WANTED — LOCATION IN KANSAS OR southern Missouri; give full information regarding town, competition and distance to nearest eye, ear, nose, throat specialist, what you have for sale and price. Add. 932 E, % AMA.

WANTED — GENERAL OR CONTRACT practice in state reciprocating with California; must pay better than $400 per month; 16 years' experience; Class A school; married; state price first letter. Add. 920 E, % AMA.

WANTED — AN EXPERIENCED PHYSIcian desires an unopposed location; eastern Kansas only considered; give full details when answering. Add. 961 E, % AMA.

WANTED — A PRACTICE, EXECUTIVE appointment or association with other physician; experienced physician and surgeon; late major A. E. F. in France; 20 years' practice in Orient; graduate Class A plus medical school; for some years medical director of one of the big three life insurance companies, and have held other important appointments; excellent credentials; physically, mentally, socially and professionally fit; would give any reasonable proposition favorable consideration; correspondence invited. Add. 958 E, % AMA.

WANTED—LOCATION — WISH TO BUY practice, Kansas or Missouri, modern town; county seat preferred; state cash business; will consider partnership. Add. Box 252, Chanute, Kan. E

WANTED—DESIRE PRACTICE OR LOCAtion or consider position in Kansas or Iowa town; 34 years old, highly referenced, well experienced hospital and general practice work. Add. 2715, % F. V. Kniest, Peters Trust Bldg., Omaha, Neb. E

WANTED — LOCATION IN TUBERCUlosis sanatorium, surgical assistantship, or good general practice; graduate of A school; general internship; considerable experience in chest diagnosis. Add. 816 E, % AMA.

WANTED—LOCATION—TOWN OR COUNtry; married, aged 35; graduate Class A; 10 years general practice; licensed Virginia and West Virginia; go to any state; assistantship or contract work also considered. Add. 780 E, % AMA.

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WANTED—B. L. OR SPENCER MICROscope, late model; electric ophthalmoscope; Brown Buerger cystoscope; Dare hemoglobinometer; state manufacturer, date of purchase, condition and price. Add. 944, % AMA.

WANTED — CYSTOSCOPE, BRAUN-Berger, or other indirect vision; also cystoscopic examination table and microscope; give details as to condition, size and price. Add. 882 L, % AMA.

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(Continued on next page)

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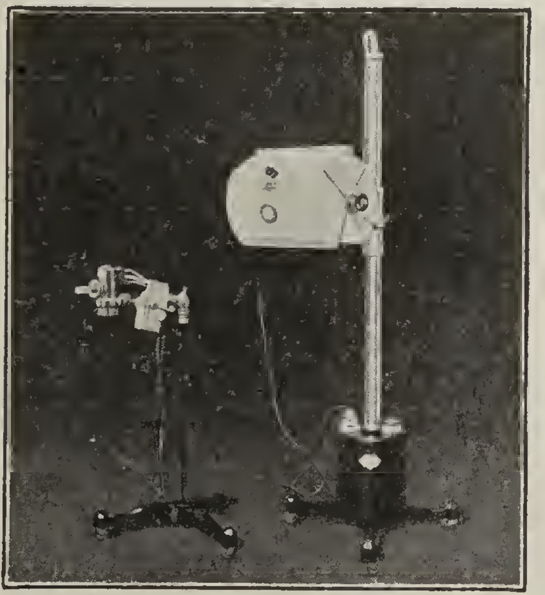

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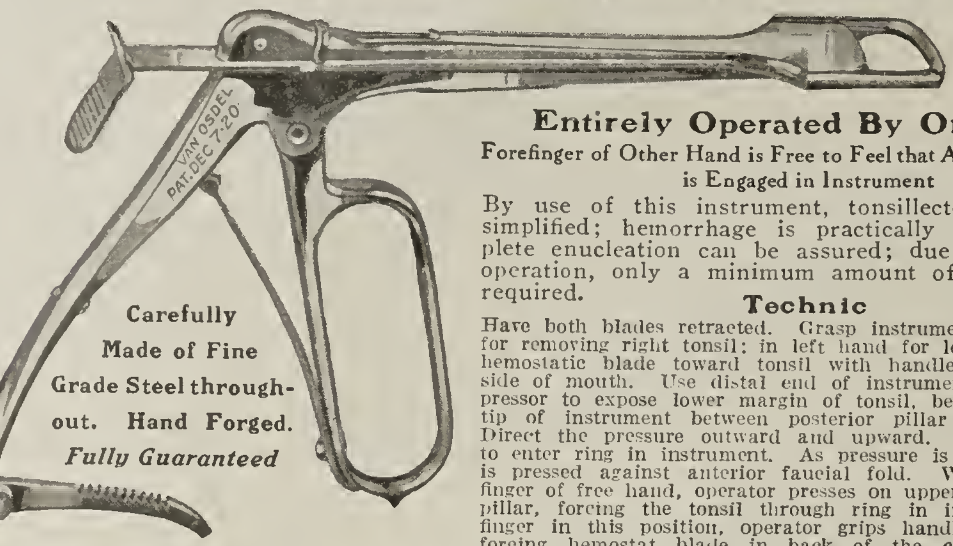

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Have both blades retracted. Grasp instrument in right hand for removing right tonsil: in left hand for left tonsil. Direct hemostatic blade toward tonsil with handle toward opposite side of mouth. Use distal end of instrument as tongue depressor to expose lower margin of tonsil, beneath which pass tip of instrument between posterior pillar and the tonsil. Direct the pressure outward and upward. Tonsil will start to enter ring in instrument. As pressure is continued, tonsil is pressed against anterior faucial fold. With tip of forefinger of free hand, operator presses on upper part of anterior pillar, forcing the tonsil through ring in instrument. With finger in this position, operator grips handle of instrument, forcing hemostat blade in back of the capsule of tonsil. Blood vessels are crushed and thoroughly clamped; instrument automatically locks itself. Tonsil is seized with forceps, the cutting blade is now pushed through by thumb, severing the remaining attachments.

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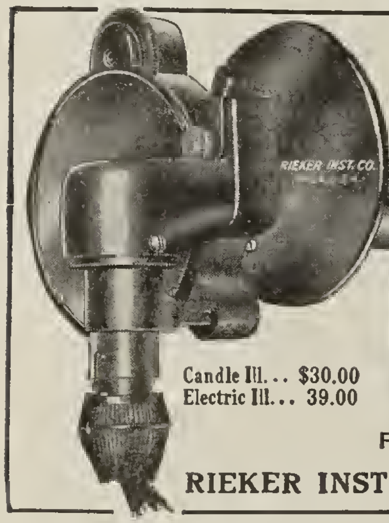

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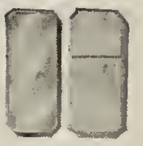

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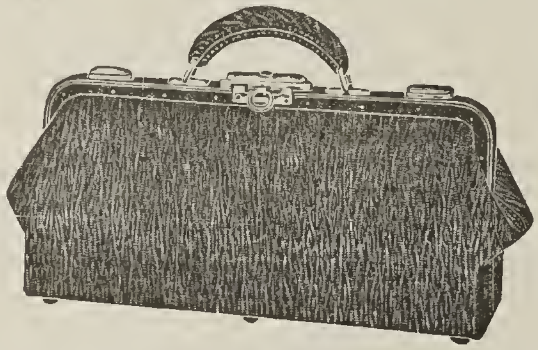

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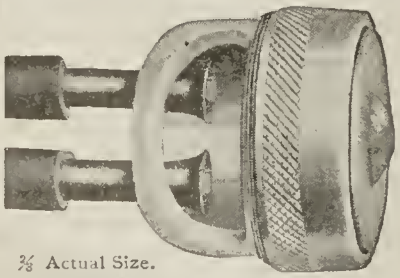

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(*Continued on next page*)

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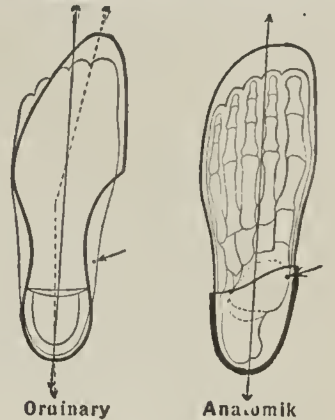

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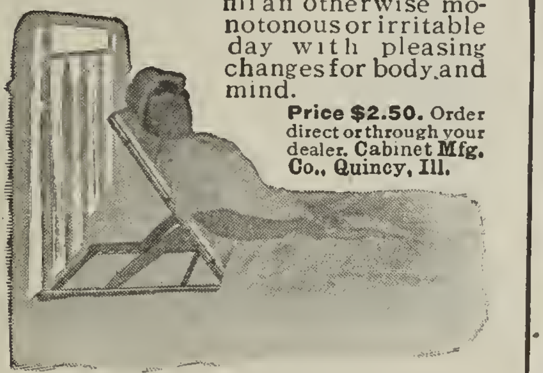

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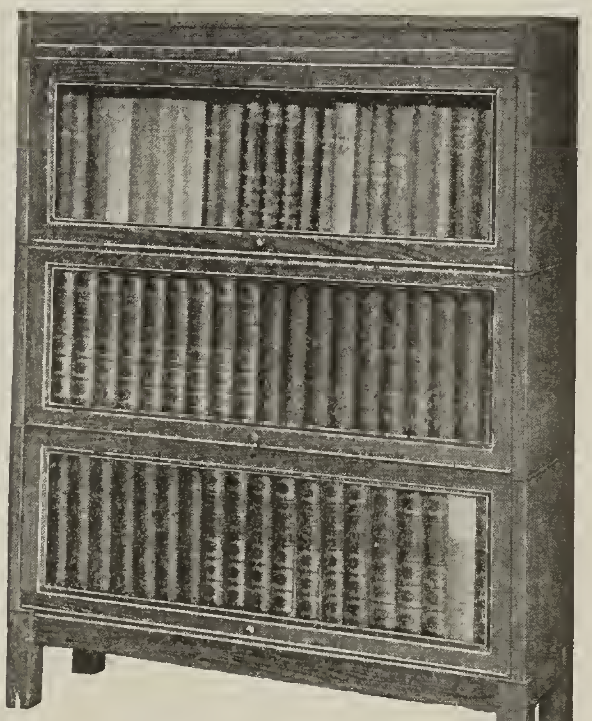

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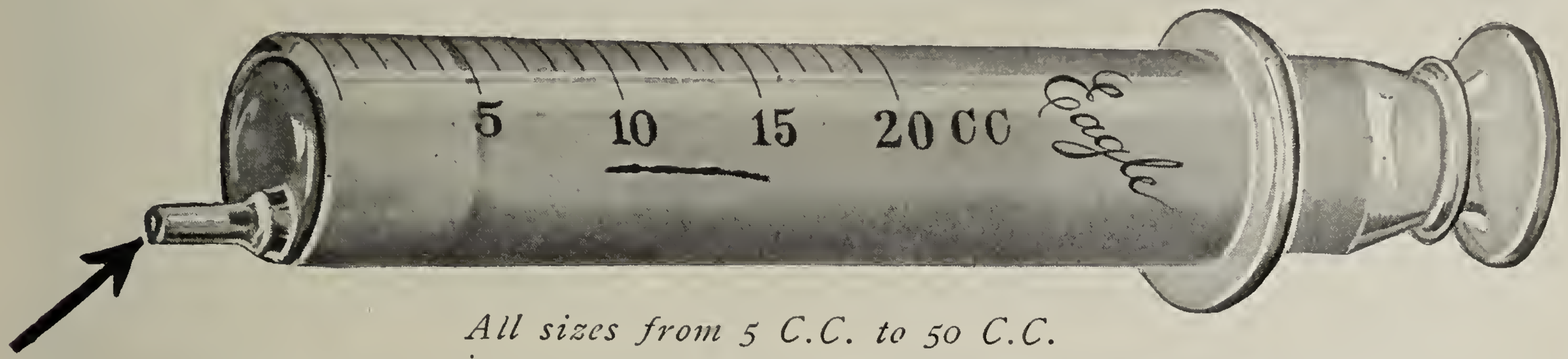

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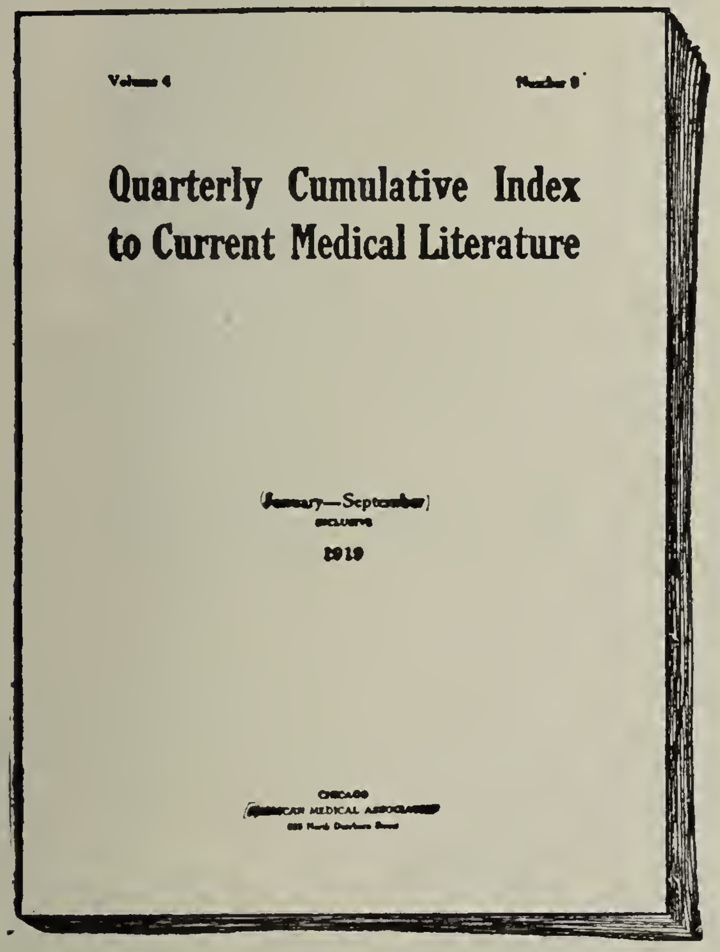

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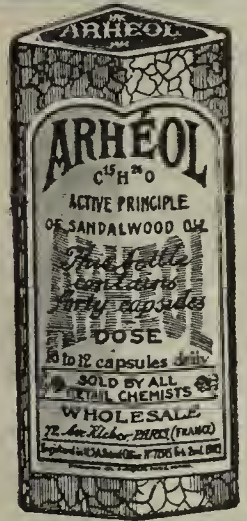
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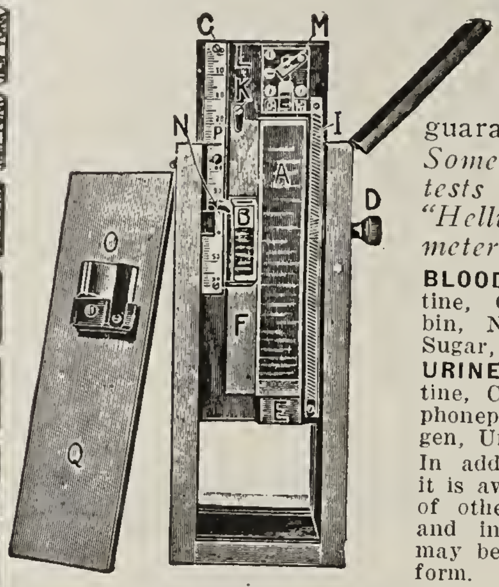

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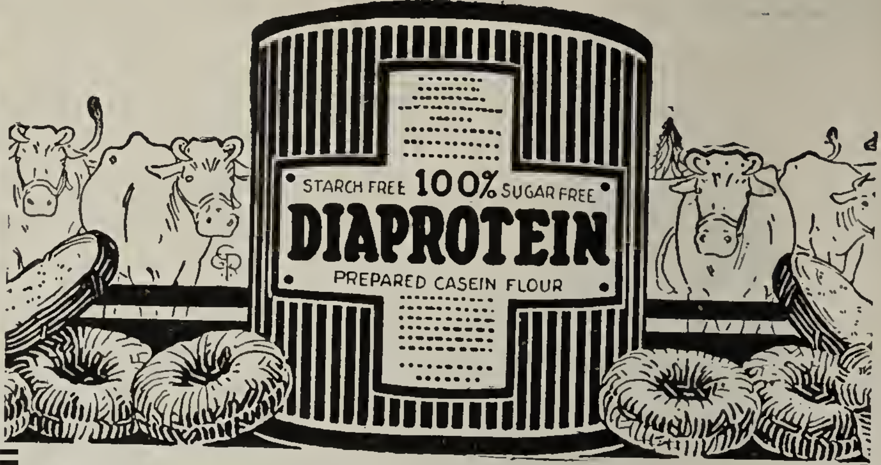

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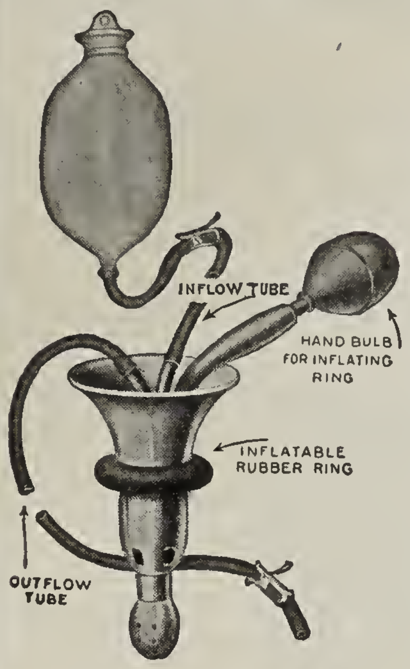

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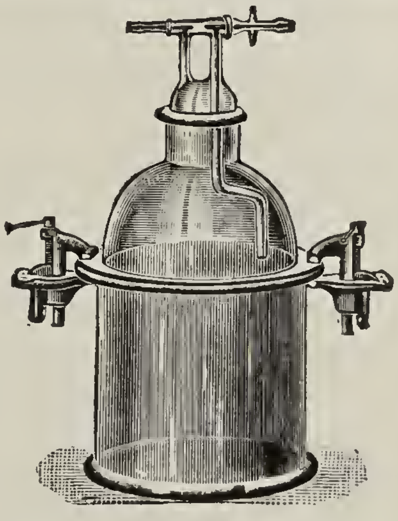

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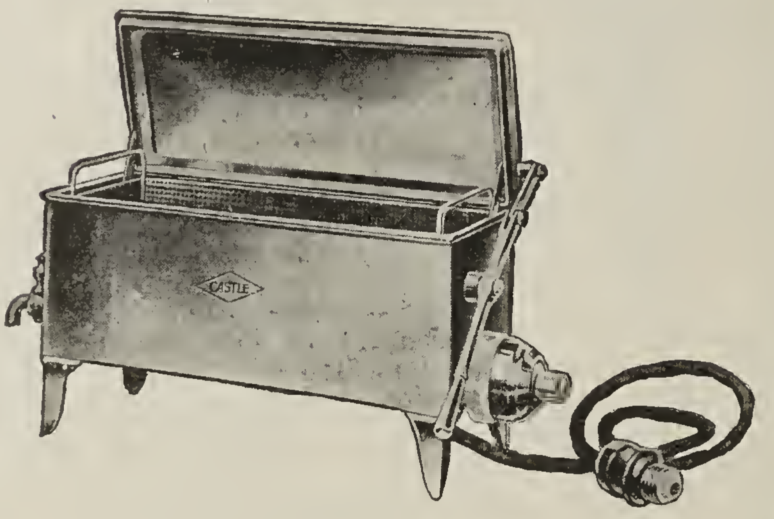

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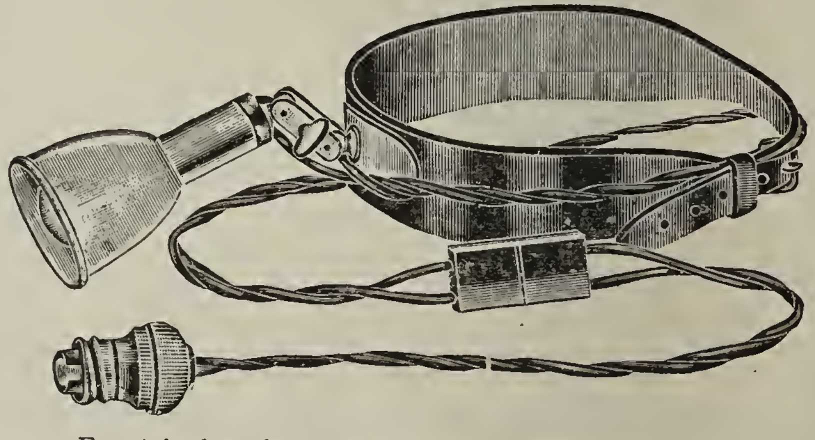

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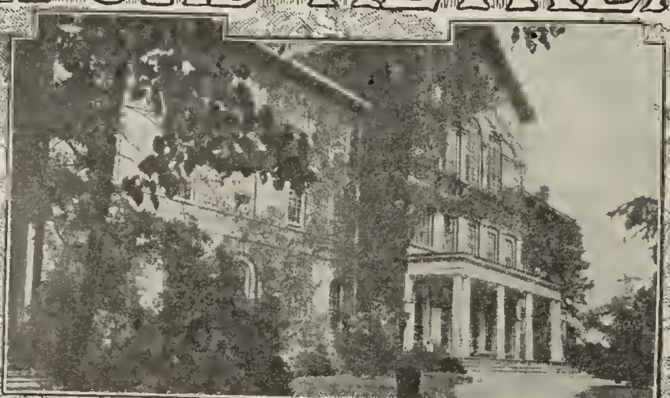

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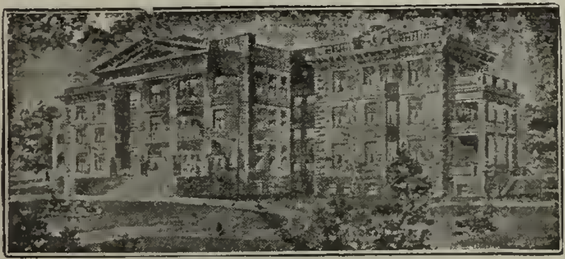

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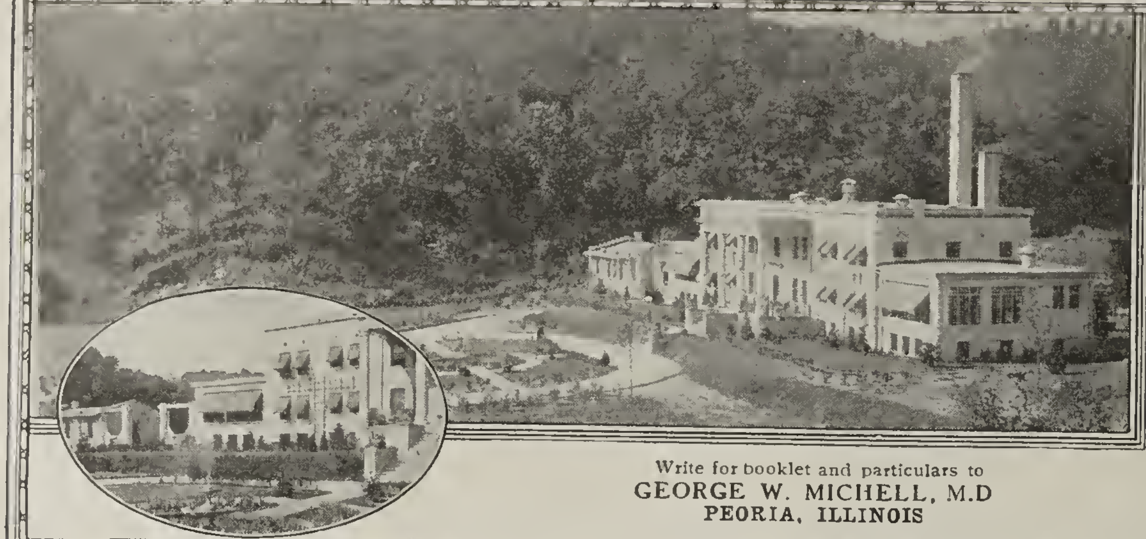

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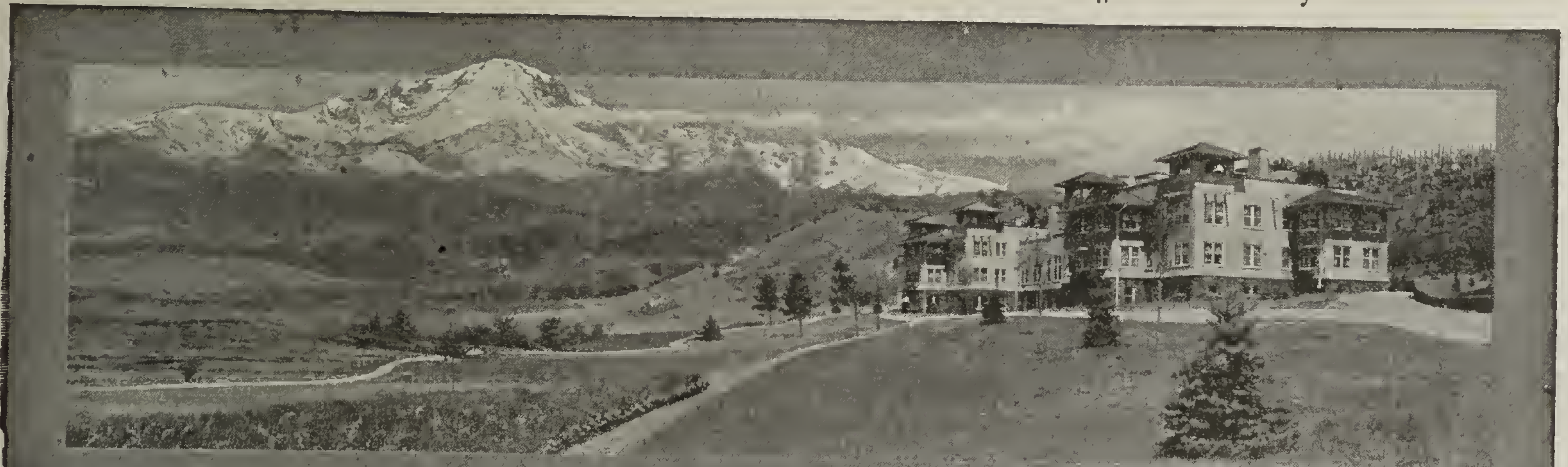

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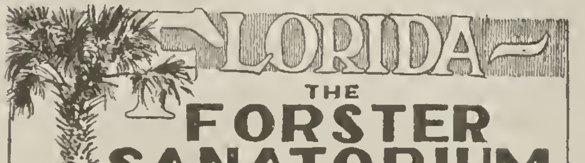

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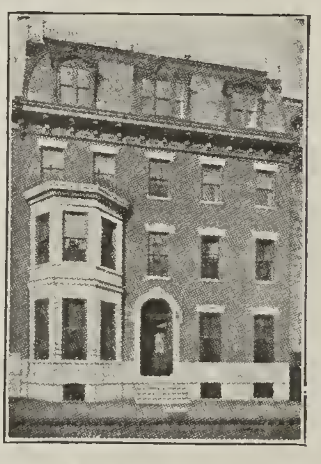

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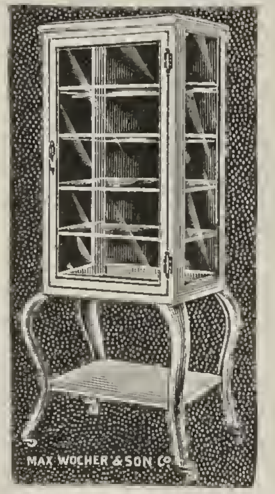

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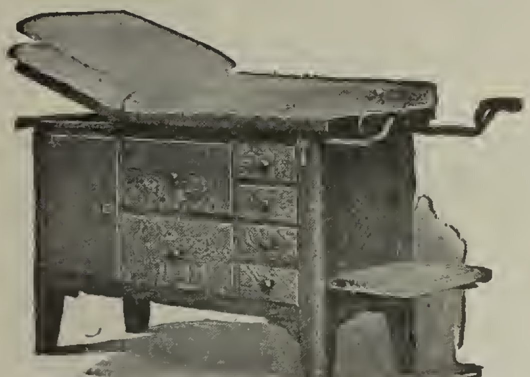

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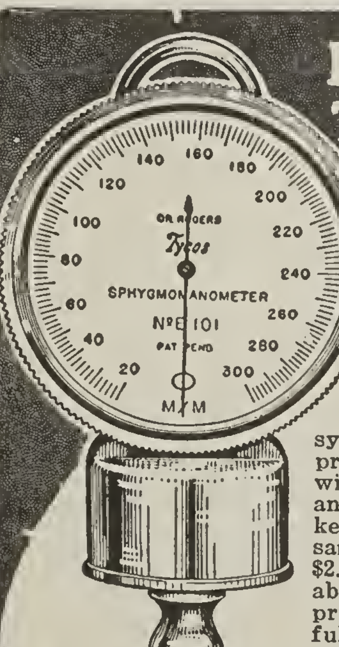

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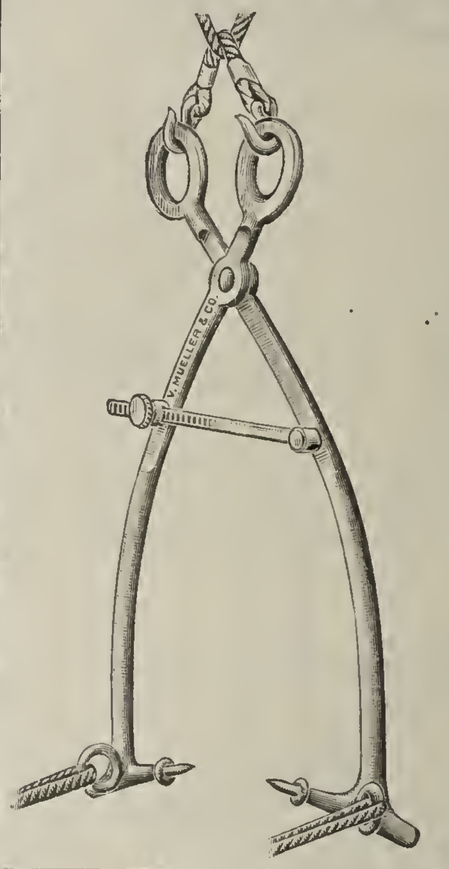

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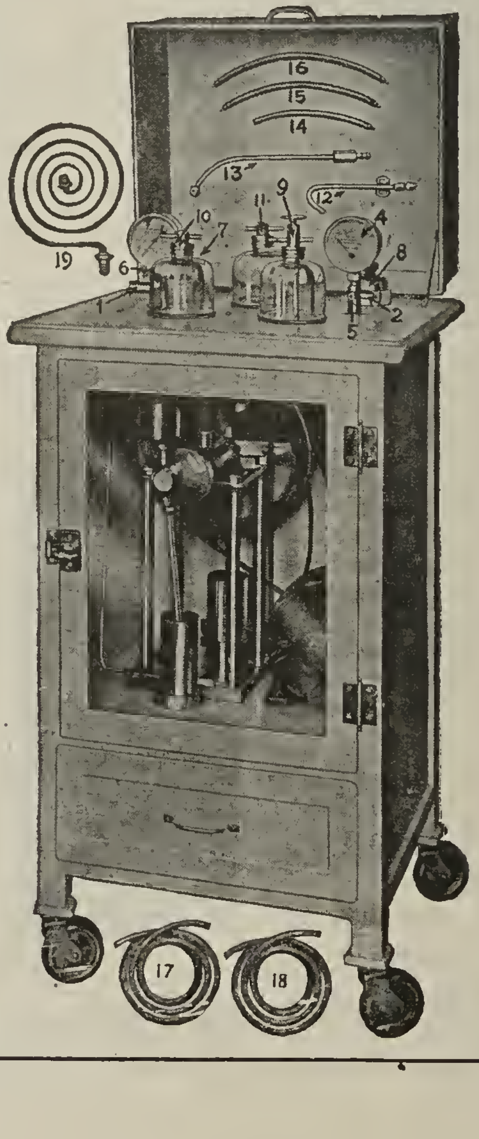

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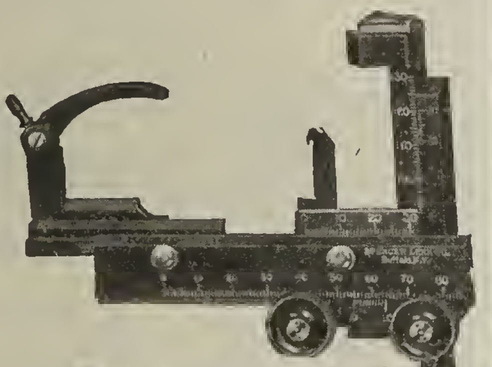

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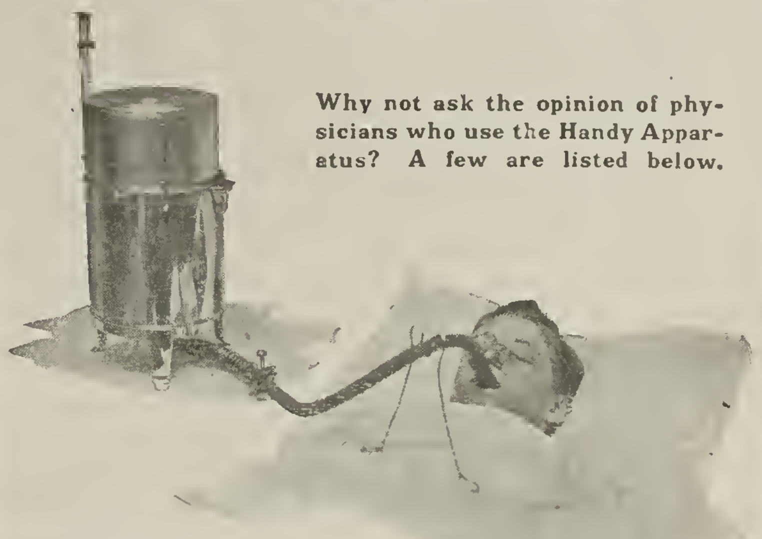

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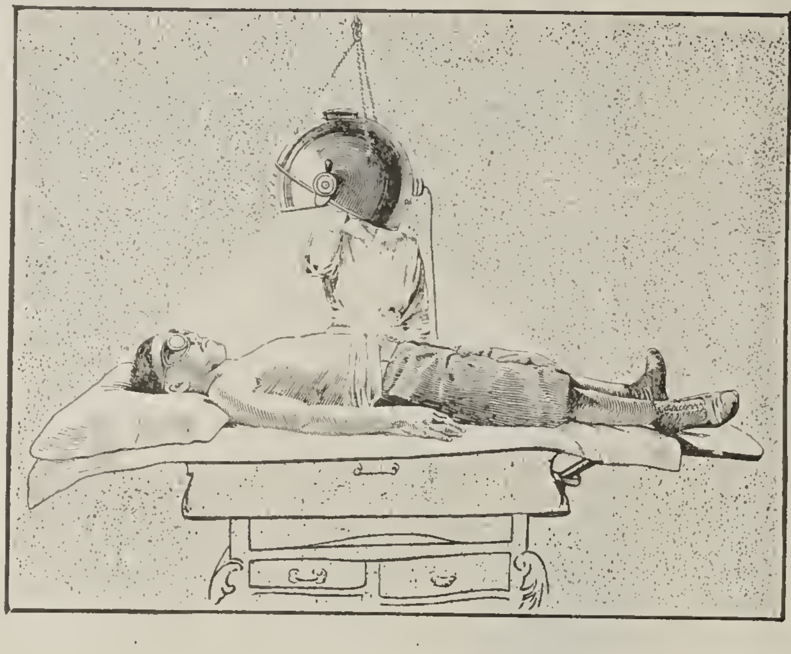

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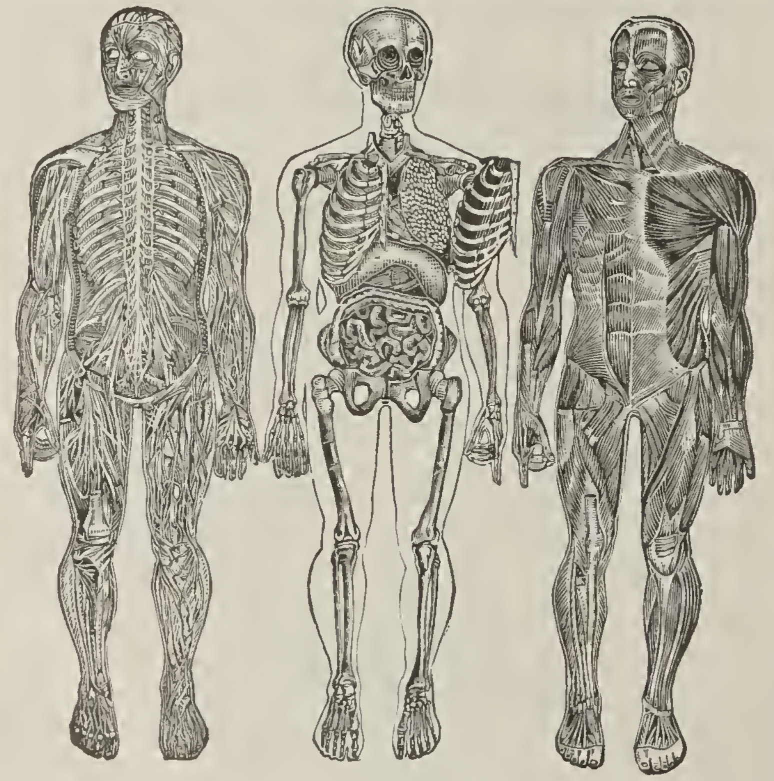

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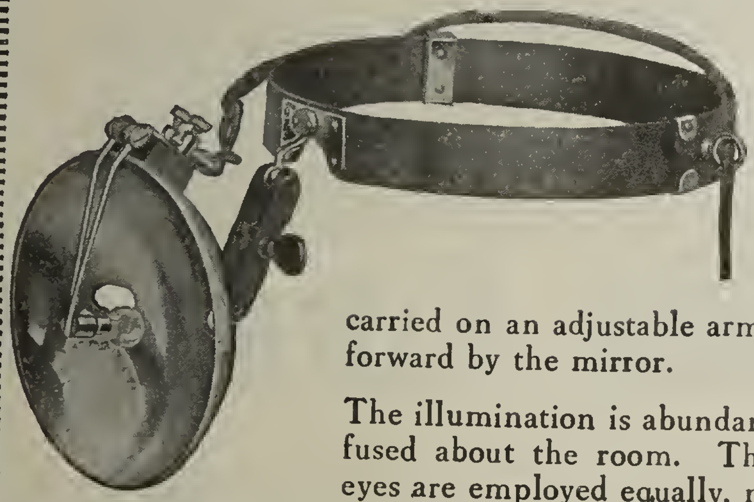

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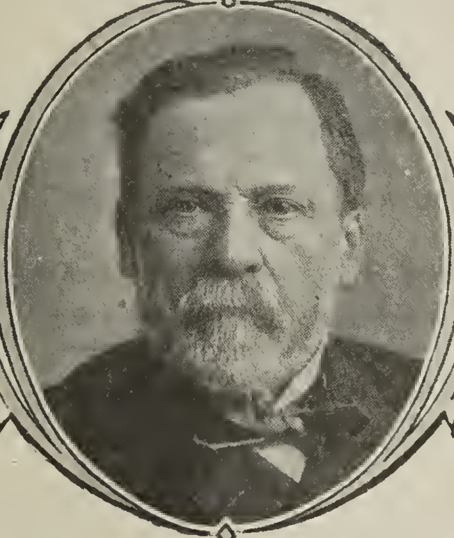

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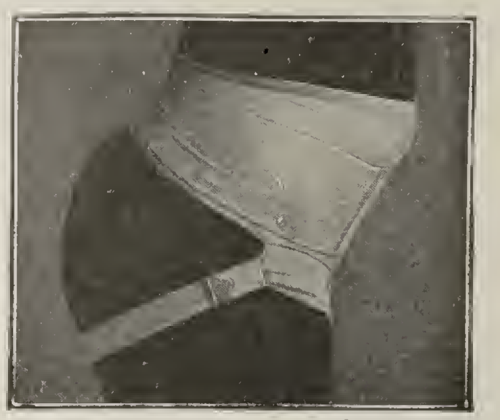

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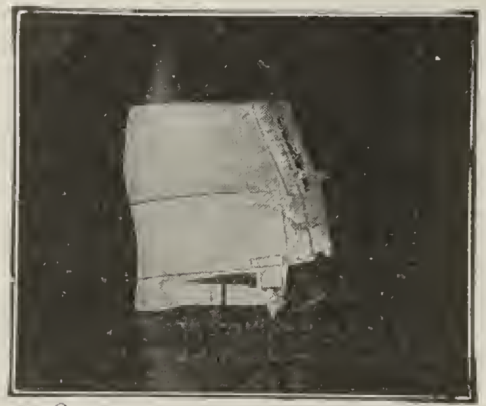

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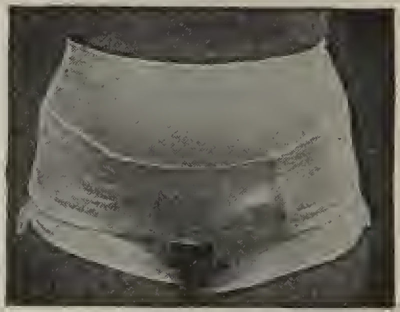

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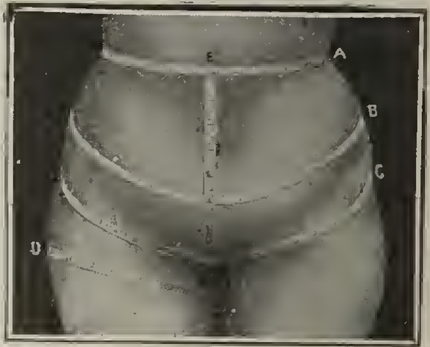

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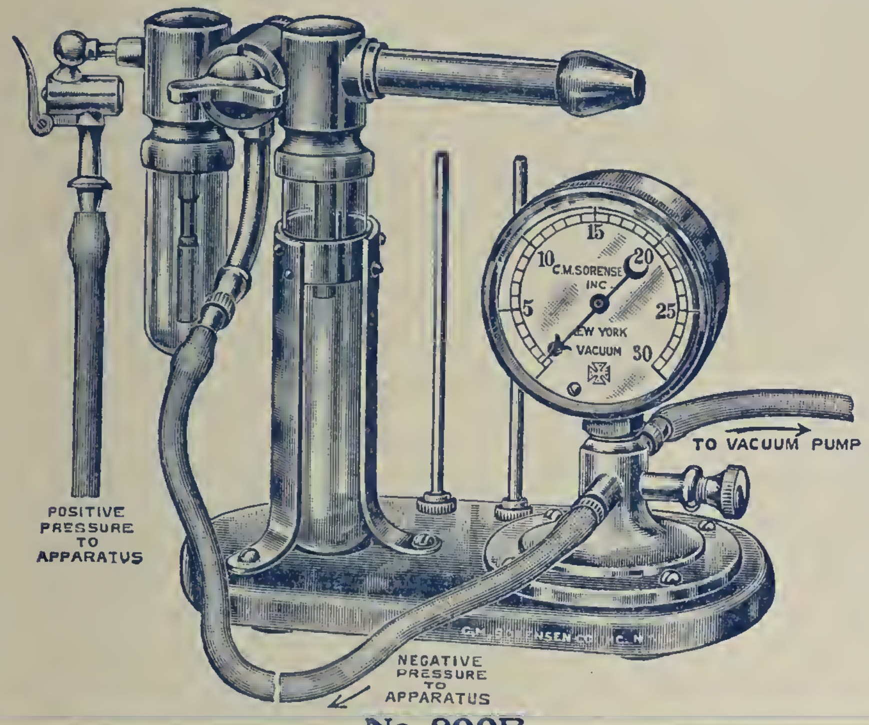
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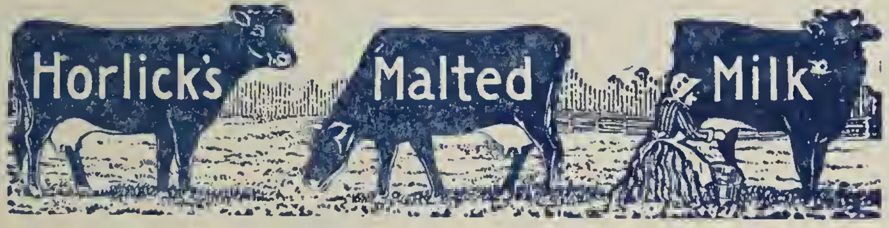

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